UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)
☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2021

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from_____to _____

Commission file number: 000-21467

ALTO INGREDIENTS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**41-2170618**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
1300 South Second Street, Pekin, Illinois	**61554**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (916) 403-2123

Securities registered pursuant to Section 12(b) of the Act:

Title of each Class	Trading Symbol	Name of Exchange on Which Registered
Common Stock, $0.001 par value	ALTO	The Nasdaq Stock Market LLC (Nasdaq Capital Market)

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐	Accelerated filer ☒
Non-accelerated filer ☐	Smaller reporting company ☐
	Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by nonaffiliates of the registrant computed by reference to the closing sale price of such stock, was approximately $431.1 million as of June 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter.

As of March 11, 2022, there were73,726,517 shares of the registrant's common stock, $0.001 par value per share, and 896 shares of the registrant's non-voting common stock, $0.001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE: Part III incorporates by reference certain information from the registrant's proxy statement (the "Proxy Statement") for the 2022 Annual Meeting of Stockholders to be filed on or before April 30, 2022.

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CAUTIONARY STATEMENT

All statements included or incorporated by reference in this Annual Report on Form 10-K, other than statements or characterizations of historical fact, are forward-looking statements. Examples of forward-looking statements include, but are not limited to, statements concerning projected net sales, costs and expenses and gross margins; our ability to timely and successfully implement our strategic initiatives; our ability to continue as a going concern; our accounting estimates, assumptions and judgments; the demand for specialty alcohols and essential ingredients; the competitive nature of and anticipated growth in our industry; production capacity and goals; our ability to consummate acquisitions, if any, and integrate their operations successfully; and our prospective needs for additional capital. These forward-looking statements are based on our current expectations, estimates, approximations and projections about our industry and business, management's beliefs, and certain assumptions made by us, all of which are subject to change. Forward-looking statements can often be identified by words such as "anticipates," "expects," "intends," "plans," "predicts," "believes," "seeks," "estimates," "may," "will," "should," "would," "could," "potential," "continue," "ongoing," similar expressions and variations or negatives of these words. These statements are not guarantees of future performance and are subject to risks, uncertainties and assumptions that are difficult to predict. Therefore, our actual results could differ materially and adversely from those expressed in any forward-looking statements as a result of various factors, some of which are listed under "Risk Factors" in Item 1A of this report. These forward-looking statements speak only as of the date of this report. We undertake no obligation to revise or update publicly any forward-looking statement for any reason, except as otherwise required by law.

PART I

Item 1. Business.

Business Overview

We are a leading producer and marketer of specialty alcohols and essential ingredients, and the largest producer of specialty alcohols in the United States.

We operate five alcohol production facilities. Three of our production facilities are located in the Midwestern state of Illinois and two of our facilities are located in the Western states of Oregon and Idaho. We have an annual alcohol production capacity of 350 million gallons. We market all of the alcohols produced at our facilities as well as fuel-grade ethanol produced by third parties. In 2021, we marketed approximately 480 million gallons combined of our own alcohols as well as fuel-grade ethanol produced by third parties, and over 1.2 million tons of essential ingredients on a dry matter basis. Through our recent acquisition of Eagle Alcohol Company LLC, or Eagle Alcohol, we now specialize in break bulk distribution of specialty alcohols.

We report our financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for company-produced alcohols and essential ingredients on an aggregated basis, and third party fuel-grade ethanol, (2) Pekin production, which includes the production and sale of alcohols and essential ingredients produced at our Pekin, Illinois campus, or Pekin Campus, and (3) Other production, which includes the production and sale of renewable fuel and essential ingredients produced at all of our other production facilities on an aggregated basis, none of which are individually so significant as to be considered a reportable segment.

Our mission is to expand our business as a leading producer and marketer of specialty alcohols and essential ingredients. We intend to accomplish this goal in part by investing in our specialized and higher value specialty alcohol production and distribution infrastructure, expanding production in high-demand essential ingredients, expanding and extending the sale of our products into new regional and international markets, building efficiencies and economies of scale and by capturing a greater portion of the value stream.

Production Segments

We produce specialty alcohols, renewable fuel and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the Health, Home & Beauty market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the Food & Beverage markets include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for Essential Ingredients markets include yeast, corn gluten and distillers grains used in commercial animal feed and pet foods. Our Renewable Fuels products include fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel fuel.

We produce our alcohols and essential ingredients at our production facilities described below. Our production facilities located in the Midwest are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock and enjoy logistical advantages that enable us to provide our products to both domestic and international markets via truck, rail or barge. Our production facilities located on the West Coast are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages.

We restarted our Magic Valley facility in November 2021 and we are now operating all of our production facilities. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

		Annual Production Capacity (estimated, in gallons)	
Production Facility	**Location**	**Fuel-Grade Ethanol**	**Specialty Alcohol**
Pekin Campus	Pekin, IL	110,000,000	140,000,000
Magic Valley	Burley, ID	60,000,000	—
Columbia	Boardman, OR	40,000,000	—

Marketing and Distribution Segment

We market all of the alcohols and essential ingredients we produce at our facilities. We also market fuel-grade ethanol produced by third parties. Beginning in January 2022, we now break bulk and distribute specialty alcohols from our own production as well as from third-party producers.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our renewable fuel customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery with very little effort on their part. Our customers collectively require fuel-grade ethanol volumes in excess of the supplies we produce at our facilities. We secure additional fuel-grade ethanol supplies from third-party fuel-grade ethanol producers. We arrange for transportation, storage and delivery of fuel-grade ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market essential ingredients from other producers.

See “Note 4 – Segments” to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Company History

We are a Delaware corporation formed in February 2005. Our common stock trades on The Nasdaq Capital Market under the symbol “ALTO”. Our Internet website address is http://www.altoingredients.com. Information contained on our website is not part of this Annual Report on Form 10-K. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports filed with or furnished to the Securities and Exchange Commission and other Securities and Exchange Commission filings are available free of charge through our website as soon as reasonably practicable after the reports are electronically filed with, or furnished to, the Securities and Exchange Commission.

Business Strategy

Our goal is to expand our business as a leading producer and marketer of specialty alcohols and essential ingredients. The key elements of our business and growth

strategy to achieve this objective include:

- *Focus on our customer relationships.* We have repositioned our business to focus on specialty alcohols and essential ingredients. As a result, our business is service-oriented and focused on specialty products compared to a price-oriented business focused on commodity products. We strive to make our business ever more customer-centric to enable our premium services to support premium prices and new differentiated and higher-margin products.

- *Increase our break bulk capabilities.* Through our acquisition of Eagle Alcohol, we plan to further diversify our business to focus on break bulk distribution of specialty alcohols. With the specialty alcohols we produce and purchase from other suppliers, we now can store, denature, package and resell alcohol in smaller sizes, including tank trucks, totes and drums, that garner a premium price to bulk specialty alcohols. We deliver to customers in the beverage, food, pharmaceutical and related-process industries using our own trucking fleet and common carriers.

- *Expand product offerings.* We are pursuing initiatives to broaden our product offerings to appeal to a wider range of customers and uses in our key markets. For example, we have secured ISO 9001, ICH Q7 and EXCiPACT certifications at all of our Pekin Campus production facilities. These certifications appeal to customers with stringent quality demands and enable us to offer alcohol certified for use as an active pharmaceutical ingredient, or API, and as an excipient—an inactive component of a drug or medication, such as solvents, carriers or tinctures—in the pharmaceutical industry. We are reviewing additional certifications and product positioning within our key markets to expand the range of customers we serve and the uses our products support.

- *Implement new equipment and technologies.* We are evaluating and plan to implement new equipment and technologies to increase our production yields, improve our operating efficiencies and reliability, reduce our overall carbon footprint, diversify our products and revenues, and increase our profitability as financial resources and market conditions justify these investments.

- *Evaluate and pursue strategic opportunities.* We are examining opportunities to expand our business such as joint ventures, strategic partnerships, synergistic acquisitions and other opportunities. We intend to pursue these opportunities as financial resources and business prospects make these opportunities desirable.

Competitive Strengths

We are the largest producer of specialty alcohols in the United States. We believe that our competitive strengths include:

- *Our customer and supplier relationships.* We have extensive and long-standing close customer and supplier relationships, both domestic and international, for our specialty alcohols and essential ingredients. We have an excellent reputation for developing specialty alcohols under stringent quality control standards, particularly at our Pekin Campus. Our quality management systems are supported by ISO 9001, ICH Q7 and EXCiPACT certifications which are viewed by our customers as important attestations of our quality control standards.

- *Barriers to entry.* Our production facilities use specialized equipment, technologies and processes to achieve stringent quality controls, higher yields and efficient production of alcohols and essential ingredients. Our specialized equipment, technologies and processes, together with our quality management certifications, strict regulatory requirements, and close customer and supplier relationships create significant barriers to entry to new market participants.

- *Our experienced management.* Our senior management team has a proven track record with significant operational and financial expertise and many years of experience in the alcohol production industry. Our senior executives have successfully navigated a wide variety of business and industry-specific challenges and deeply understand the business of successfully producing and marketing specialty alcohols and essential ingredients.

- *The strategic location of our Midwest production facilities.* We operate three distinct but integrated production facilities at our Pekin Campus in the Midwest. We are able to participate from that location in the largest regional specialty alcohol market in the United States as well as international markets. In addition:

  - Our Midwest location enhances our overall hedging opportunities with a greater correlation to the highly-liquid physical and paper markets in Chicago.

  - Our Midwest location provides excellent logistical access via rail, truck and barge. In particular, barge access via the Illinois River to the Mississippi River enables us to efficiently bring our products to international markets.

  - The relatively unique wet milling process at one of our production facilities at our Pekin Campus allows us to extract the highest use and value from each component of the corn kernel. As a result, the wet milling process generates a higher level of cost recovery from corn than that produced at a dry mill.

  - Our Midwest location allows us deep market insight and engagement in major fuel-grade ethanol and feed markets, thereby improving pricing opportunities.

We believe that these competitive strengths will help us attain our goal of expanding our business as a leading producer and marketer of specialty alcohols and essential ingredients.

Overview of Our Key Markets and Market Opportunity

We produce specialty alcohols, fuel-grade ethanol and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*.

Health, Home & Beauty

Our products for the health, home and beauty markets include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. We offer a variety of specialty alcohols for the health, home and beauty markets, depending on usage and regulatory requirements, including API-grade, United States Pharmacopeia, or USP, -grade ethyl alcohols, and industrial-grade ethyl alcohol.

In 2020, we expanded our range of available product offerings within the health, home and beauty markets through quality management systems certifications. We have ISO 9001, ICH Q7 and EXCiPACT certifications at each of our Pekin Campus production facilities, all of which are viewed as important attestations of quality control standards. In particular, our ICH Q7 certification qualifies our specialty alcohols for use as an API, and our EXCiPACT certification qualifies our specialty alcohols for use as an excipient in the pharmaceutical industry. These certifications enable us to offer products to a wider group of customers and generally at more profitable margins.

Food & Beverage

Our products for the food and beverage market include specialty alcohols used in alcoholic beverages, flavor extracts and vinegar as well as corn germ used for corn oils and carbon dioxide, or CO_2, used for beverage carbonation and dry ice. The principal specialty alcohol we offer for alcoholic beverages and vinegar is our grain neutral spirits, or GNS, alcohol.

We believe the key drivers in the food and beverage market include consumer preferences for the social currency of brand authenticity and heritage; consumers seeking unique and personalized experiences; younger adults drawn to the caché of luxury brands, including super-premium spirits; improved consumer access to spirits products; the growth of craft distillers; and the ability to meet wide-ranging consumer preferences through a broad diversity of spirits categories and cocktails.

Essential Ingredients

Our essential ingredients products include dried yeast, corn gluten meal, corn gluten feed, and distillers grains and liquid feed used in commercial animal feed and pet foods. The raw materials for our essential ingredients products are generated as co-products from our production of alcohols. These co-products are further manufactured, altered and refined into our essential ingredients products, including for special customer applications.

Many of our essential ingredients are used in a variety of food products to affect their nutrition, including protein and fat content, as well as other product attributes such as taste, texture, palatability and stability. Our high quality and high purity manufacturing enable our customers to use some of our essential ingredients in human foods while others are used in pet foods and animal feed. See "—Overview of Distillers Grains Market".

We expect the essential ingredients market to grow significantly due to global demand for higher-grade protein feed, such as feed used in fisheries and other applications.

Renewable Fuels

Our renewable fuels products include fuel-grade ethanol used as transportation fuel and distillers corn oil used as a biodiesel feedstock. Our renewable fuels business is supported by our own production of fuel-grade ethanol as well as fuel-grade ethanol produced by third parties.

Renewable fuels, primarily fuel-grade ethanol, are used for a variety of purposes, including as octane enhancers for premium gasoline and to enable refiners to produce greater quantities of lower octane blend stock; for fuel blending to extend fuel supplies and reduce reliance on crude oil and refined products; and to comply with a variety of governmental programs, in particular, the national Renewable Fuel Standard, or RFS, which was enacted to promote alternatives to fossil fuels. Under the RFS, the mandated use of all renewable fuels rises incrementally and peaks at 36.0 billion gallons by 2022, of which 15.0 billion gallons are required from conventional, or corn-based, ethanol. The RFS allows the Environmental Protection Agency, or EPA, to adjust the annual requirement based on certain facts and circumstances. See "—Governmental Regulation".

According to the Renewable Fuels Association, the domestic fuel-grade ethanol industry produced 15.0 billion gallons of ethanol in 2021, up from 13.8 billion gallons in 2020. According to the United States Department of Energy, total annual gasoline consumption in the United States is approximately 123.5 billion gallons and total annual fuel-grade ethanol consumption represented approximately 11% of this amount in 2020. We anticipate that increased transportation and economic activity as the coronavirus pandemic subsides together with continued limited opportunities for gasoline refinery expansions and the growing importance of reducing CO_2 emissions through the use of renewable fuels will generate additional growth in the demand for fuel-grade ethanol.

Overview of Alcohol Production Process

Alcohol production from starch- or sugar-based feedstock is a highly-efficient process. Modern alcohol production requires large amounts of corn, or other high-starch grains, and water as well as chemicals, enzymes and yeast, and denaturants including unleaded gasoline or liquid natural gas, in addition to natural gas and electricity.

Dry Milling Process

In the dry milling process, corn or other high-starch grain is first ground into meal, then slurried with water to form a mash. Enzymes are added to the mash to convert the starch into dextrose, a simple sugar. Ammonia is added for acidic (pH) control and as a nutrient for the yeast. The mash is processed through a high temperature cooking procedure, which reduces bacteria levels prior to fermentation. The mash is then cooled and transferred to fermenters, where yeast is added and the conversion of sugar to alcohol and CO_2 begins.

After fermentation, the resulting "beer" is transferred to distillation, where the alcohol is separated from the residual "stillage". The resulting alcohol is concentrated to 190 proof using conventional distillation methods and then is dehydrated to approximately 200 proof, representing 100% alcohol levels, in a molecular sieve system. For fuel-grade ethanol, the resulting anhydrous alcohol is then blended with approximately 2.5% denaturant, which is usually gasoline, and is then ready for shipment to renewable fuels markets.

The residual stillage is separated into a coarse grain portion and a liquid portion through a centrifugation process. The soluble liquid portion is concentrated to about 40% dissolved solids by an evaporation process. This intermediate state is called condensed distillers solubles, or syrup. The coarse grain and syrup portions are then mixed to produce wet distillers grains, or WDG, or can be mixed and dried to produce dried distillers grains with solubles, or DDGS. Both WDG and DDGS are high-protein animal feed products.

Wet Milling Process

In the wet milling process, corn or other high-starch grain is first soaked or "steeped" in water for 24 – 48 hours to separate the grain into its many components. After steeping, the grain slurry is processed first to separate the grain germ, from which the grain oil can be further separated. The remaining fiber, gluten and starch components are further separated and sold.

The steeping liquor is concentrated in an evaporator. The concentrated product, called heavy steep water, is co-dried with the fiber component and is then sold as gluten feed. The gluten component is filtered and dried to produce gluten meal.

The starch and any remaining water from the mash is then processed into alcohol or dried and processed into corn syrup. The fermentation process for alcohol at this stage is similar to the dry milling process.

Overview of Distillers Grains Market

Distillers grains are produced as a co-product of alcohol production and are valuable components of feed rations primarily to dairies and beef cattle markets, both nationally and internationally. Our plants produce both WDG and DDGS. WDG is sold to customers proximate to the plants and DDGS is delivered by truck, rail and barge to customers in domestic and international markets. Producing WDG also allows us to use up to one-third less process energy, thus reducing production costs and lowering the carbon footprint of our production facilities.

Historically, the market price for distillers grains has generally tracked the value of corn. We believe that the market price of WDG and DDGS is determined by a number of factors, including the market value of corn, soybean meal and other competitive ingredients, the performance or value of WDG and DDGS in a particular feed formulation and general market forces of supply and demand, including export markets for these co-products. The market price of distillers grains is also often influenced by nutritional models that calculate the feed value of distillers grains by nutritional content, as well as reliability of consistent supply.

Customers

We market and sell through our wholly-owned subsidiary, Kinergy Marketing LLC, or Kinergy, all of the alcohols we produce. Kinergy also markets fuel-grade ethanol produced by third parties. We market and sell through our wholly-owned subsidiary, Alto Nutrients, LLC, all of the essential ingredients we produce. We also now sell break bulk quantities through Eagle Alcohol to customers in the beverage, food, pharma and related-process industries.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our renewable fuel customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery with very little effort on their part. Our customers collectively require fuel-grade ethanol volumes in excess of the supplies we produce at our facilities. We secure additional fuel-grade ethanol supplies from third-party fuel-grade ethanol plants in California and other third-party suppliers in the Midwest where a majority of fuel-grade ethanol producers are located. We arrange for transportation, storage and delivery of fuel-grade ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market essential ingredients from other producers.

Our Pekin Campus production segment generated $498.2 million, $330.4 million and $343.6 million in net sales for the years ended December 31, 2021, 2020 and 2019, respectively, from the sale of alcohols. Our Pekin Campus production segment generated $189.5 million, $130.3 million and $139.0 million in net sales for the years ended December 31, 2021, 2020 and 2019, respectively, from the sale of essential ingredients.

During 2021, 2020 and 2019, our Pekin Campus production segment sold an aggregate of approximately 213.0 million, 193.9 million and 218.5 million gallons of alcohols and 875,000, 829,000 and 913,000 tons of essential ingredients, respectively, on a dry matter basis.

Our other production segment generated $107.9 million, $137.7 million and $455.3 million in net sales for the years ended December 31, 2021, 2020 and 2019, respectively, from the sale of alcohols. Our other production segment generated $31.1 million, $40.9 million and $130.0 million in net sales for the years ended December 31, 2021, 2020 and 2019, respectively, from the sale of essential ingredients.

During 2021, 2020 and 2019, our other production segment sold an aggregate of approximately 37.6 million, 78.0 million and 272.5 million gallons of alcohols and 361,000, 619,000 and 1,908,000 tons of essential ingredients, respectively, on a dry matter basis.

Our marketing segment generated $381.2 million, $257.7 million and $356.9 million in net sales for the years ended December 31, 2021, 2020 and 2019, respectively, from the sale of all alcohols.

During 2021, 2020 and 2019, we produced or purchased from third parties and resold an aggregate of 479.6 million, 536.3 million and 819.4 million gallons of alcohols to approximately 99, 65 and 109 customers, respectively. For 2021, 2020 and 2019, sales to our three largest customers, Shell Trading US Company, Chevron Products USA and Valero Energy Corporation represented an aggregate of approximately 23%, 17% and 33%, of our net sales, respectively. For 2021, 2020 and 2019, sales to each of our other customers represented less than 10% of our net sales.

Suppliers

Production Segments

Our production operations depend upon various raw materials suppliers, including suppliers of corn, natural gas, electricity and water. The cost of corn is the most important variable cost associated with our alcohol production. We source corn for our plants using standard contracts, including spot purchase, forward purchase and basis contracts. When resources are available, we seek to limit the exposure of our production operations to raw material price fluctuations by purchasing forward a portion of our corn requirements on a fixed price basis and by purchasing corn and other raw materials futures contracts and options.

During 2021, 2020 and 2019, purchases of corn from our two largest suppliers represented an aggregate of approximately 14%, 25% and 41% of our total corn purchases, respectively, for those periods. Purchases from each of our other corn suppliers represented less than 10% of total corn purchases in each of 2021, 2020 and 2019.

Marketing Segment

Our marketing operations cover alcohols and essential ingredients we produce but also depend upon various third-party producers of fuel-grade ethanol. In addition, we provide transportation, storage and delivery services through third-party service providers with whom we have contracted to receive fuel-grade ethanol at agreed upon locations from our third-party suppliers and to store and/or deliver the ethanol to agreed-upon locations on behalf of our customers. These contracts generally run from year-to-year, subject to termination by either party upon advance written notice before the end of the then-current annual term.

During 2021, 2020 and 2019, we purchased and resold from third parties an aggregate of approximately 204 million, 163 million and 213 million gallons, respectively, of fuel-grade ethanol.

During 2021, 2020 and 2019, purchases of fuel-grade ethanol from our three largest third-party suppliers represented 76%, 62% and 53%, respectively, of our total third-party ethanol purchases for each of those periods. Purchases from each of our other third-party ethanol suppliers represented less than 10% of total third-party ethanol purchases in each of 2021, 2020 and 2019.

Production Facilities

We operate five production facilities. Three of our production facilities are located in the Midwestern state of Illinois and two of our facilities are located in the Western states of Oregon and Idaho. We have a combined annual alcohol production capacity of 350 million gallons. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility. The tables below provide an overview of our five production facilities.

Pekin Campus Production Facilities

	Pekin Wet Facility	**Pekin Dry Facility**	**Pekin ICP Facility**
Location	Pekin, IL	Pekin, IL	Pekin, IL
Operating status	Operating	Operating	Operating
Approximate maximum annual alcohol production capacity (in millions of gallons)	100	60	90
Approximate maximum annual specialty alcohol production capacity (in millions of gallons)	74	—	66
Production milling process	Wet	Dry	Dry
Primary energy source	Natural Gas	Natural Gas	Natural Gas

Western Production Facilities

	Magic Valley Facility	**Columbia Facility**
Location	Burley, ID	Boardman, OR
Operating status	Operating*	Operating
Approximate maximum annual fuel-grade ethanol production capacity (in millions of gallons)	60	40
Production milling process	Dry	Dry
Primary energy source	Natural Gas	Natural Gas

** Restarted operations in November 2021.*

Commodity Risk Management

We employ various risk mitigation techniques. For example, we may seek to mitigate our exposure to commodity price fluctuations by purchasing forward a portion of our corn and natural gas requirements through fixed-price or variable-price contracts with our suppliers, as well as entering into derivative contracts for fuel-grade ethanol, corn and natural gas. To mitigate fuel-grade ethanol inventory price risks, we may sell a portion of our production forward under fixed- or index-price contracts, or both. We may hedge a portion of the price risks by entering into exchange-traded futures contracts and options. Proper execution of these risk mitigation strategies can reduce the volatility of our gross profit margins.

Specialty alcohols have relatively low price volatility and are usually priced at significant premiums to fuel-grade ethanol. The market price of fuel-grade ethanol is volatile, however, and subject to large fluctuations. Given the nature of our business, we cannot effectively hedge against extreme volatility or certain market conditions. For example, fuel-grade ethanol prices, as reported by the Chicago Board of Trade, or CBOT, ranged from $1.48 to $3.75 per gallon during 2021, from $0.81 to $1.62 per gallon during 2020 and from $1.25 to $1.70 per gallon during 2019; and corn prices, as reported by the CBOT, ranged from $4.84 to $7.73 per bushel during 2021, from $3.03 to $4.84 per bushel during 2020 and from $3.41 to $4.55 per bushel during 2019.

Marketing Arrangements

We market all the alcohols and essential ingredients produced at our facilities. In addition, we have exclusive fuel-grade ethanol marketing arrangements with two third-party ethanol producers, Calgren Renewable Fuels, LLC and Pelican Renewables, LLC, to market and sell their entire fuel-grade ethanol production volumes. Calgren Renewable Fuels, LLC owns and operates a fuel-grade ethanol production facility in Pixley, California with annual production capacity of 55 million gallons. Pelican Renewables, LLC, owns and operates a fuel-grade ethanol production facility in Stockton, California with annual production capacity of 60 million gallons.

Competition

We are the largest producer of specialty alcohols in the United States.

Other significant producers of specialty alcohols in the United States are Archer-Daniels-Midland Company, MGP Ingredients, Inc., Grain Processing Corporation, CIE and Greenfield Global Inc., which collectively make up a significant majority of the total installed specialty alcohol production capacity in the United States along with many smaller producers.

The largest producers of fuel-grade ethanol in the United States are POET, LLC, Valero Renewable Fuels Company, LLC, Archer-Daniels-Midland Company and Green Plains Inc., collectively with approximately 36% of the total installed fuel-grade ethanol production capacity in the United States. In addition, there are many mid-sized fuel-grade ethanol producers with several plants under ownership, smaller producers with one or two plants, and several fuel-grade ethanol marketers that create significant competition. Overall, we believe there are over 200 fuel-grade ethanol production facilities in the United States with a total installed production capacity of approximately 17.5 billion gallons and many brokers and marketers with whom we compete for sales of fuel-grade ethanol and its co-products.

Our fuel-grade ethanol also competes on a global market against production from other countries, such as Brazil, which may have lower production costs than United States producers. Lower feedstock input costs such as sugarcane used in Brazil as compared to corn used in the Unites States may give foreign producers a competitive advantage. In addition, fuel-grade ethanol from sugarcane feedstock qualifies as an advanced biofuel, unlike corn ethanol, allowing required parties to economically satisfy an advanced biofuel standard. Moreover, new products and production technologies are under continuous development, many of which, if adopted by competitors, could harm our ability to compete.

We believe that our competitive strengths include our customer and supplier relationships, the barriers to entry to our most profitable lines of business—including our modern technologies at our production facilities—our experienced management, and the strategic location of our Midwest production facilities. We believe that these advantages will help us to attain our goal to expand our business as a leading producer and marketer of specialty alcohols and essential ingredients. See "—Competitive Strengths".

Governmental Regulation

Our business is subject to a wide range of federal, state and local laws and regulations directed at protecting public health and the environment, including those promulgated by the Occupational Safety and Health Administration, or OSHA, the U.S. Food and Drug Administration, or FDA, the EPA, and numerous state and local authorities. These laws, their underlying regulatory requirements and their potential enforcement, some of which are described below, impact, or may impact, nearly every aspect of our operations, including our production of alcohols (including distillation), our production of essential ingredients, our storage facilities, and our water usage, wastewater discharge, disposal of hazardous wastes and emissions, and other matters pertaining to our existing and proposed business by imposing:

- restrictions on our existing and proposed operations and/or the need to install enhanced or additional controls;
- special requirements applicable to food and drug additives;
- the need to obtain and comply with permits and authorizations;
- liability for exceeding applicable permit limits or legal requirements, in some cases for the remediation of contaminated soil and groundwater at our production facilities, contiguous and adjacent properties and other properties owned and/or operated by third parties; and
- other specifications for the specialty alcohols and essential ingredients we produce and market.

In addition, some governmental regulations are helpful to our production and marketing business. The fuel-grade ethanol industry in particular is supported by federal and state mandates and environmental regulations that favor the use of fuel-grade ethanol in motor fuel blends in North America. Some of the governmental regulations applicable to our production and marketing business are briefly described below.

Food and Drug Regulation

Our products for the Health, Home & Beauty, Food & Beverage and some Essential Ingredients markets are subject to regulation by the FDA as well as similar state agencies. Under the Federal Food, Drug, and Cosmetic Act, or FDCA, the FDA regulates the processing, formulation, safety, manufacture, packaging, labeling and distribution of food ingredients, vitamins and cosmetics. Many of the FDA's and FDCA's rules and regulations apply directly to us as well as indirectly through their application in our customers' products. To be properly marketed and sold in the United States, a relevant product must be generally recognized as safe, approved and not adulterated or misbranded under the FDCA and relevant regulations issued under the FDCA. The FDA has broad authority to enforce the provisions of the FDCA. Failure to comply with the laws and regulations of the FDA or similar state agencies could prevent us from selling certain of our products or subject us to liability.

Renewable Fuels Energy Legislation

Under the RFS, the mandated use of all renewable fuels, including fuel-grade ethanol, rises incrementally and peaks at 36.0 billion gallons by 2022, of which 15.0 billion gallons are required from conventional, or corn-based, ethanol. Under the provisions of the Energy Independence and Security Act of 2007, the EPA has the authority to waive the mandated RFS requirements in whole or in part. To grant a waiver, the EPA administrator must determine, in consultation with the Secretaries of Agriculture and Energy, that there is inadequate domestic renewable fuel supply or implementation of the requirement would severely harm the economy or environment of a state, region or the United States as a whole.

Various bills in Congress introduced from time to time are also directed at altering existing renewable fuels energy legislation, but none has passed in recent years. Some legislative bills are directed at halting or reversing expansion of, or even eliminating, the renewable fuel program, while other bills are directed at bolstering the program or enacting further mandates or grants that would support the renewable fuels industry.

The EPA has allowed fuel and fuel-additive manufacturers to introduce into commercial gasoline that contains greater than 10% fuel-grade ethanol by volume, up to 15% fuel-grade ethanol by volume, or E15, for vehicles from model year 2001 and beyond. Commercial sale of E15 has begun in a majority of states, and the EPA has enacted a rule allowing for year-round use of E15.

Various states including California, Oregon and Washington, and other regions such as the Canadian province of British Columbia, have implemented low-carbon fuel standards focused on reducing the carbon intensity of transportation fuels. Blending fuel-grade ethanol into gasoline is one of the primary means of attaining these goals.

Additional Environmental Regulations

In addition to the governmental regulations applicable to the alcohol production and marketing industry described above, our business is subject to additional federal, state and local environmental regulations, including regulations established by the EPA and state regulatory agencies related to water quality and air pollution control. We cannot predict the manner by which, or extent to which, these regulations will harm or help our business or the alcohol production and marketing industry in general.

Human Capital Resources

As of March 11, 2022, we had approximately 417 employees, including 415 full-time employees. Our human capital resources objectives include attracting and retaining well-qualified and highly skilled and motivated employees and executives. Our compensation program is designed to attract, retain and motivate these personnel. We use a mix of competitive salaries and other benefits to attract and retain employees and executives. As of March 11, 2022, approximately 45% of our employees were represented by a labor union and covered by a collective bargaining agreement. We have never had a work stoppage or strike and we consider our relations with our employees to be good.

Item 1A. Risk Factors.

Before deciding to purchase, hold or sell our common stock, you should carefully consider the risks described below in addition to the other information contained in this Report and in our other filings with the Securities and Exchange Commission, including subsequent reports on Forms 10-Q and 8-K. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business. If any of these known or unknown risks or uncertainties actually occurs with material adverse effects on Alto Ingredients, our business, financial condition, results of operations and/or liquidity could be seriously harmed. In that event, the market price for our common stock will likely decline, and you may lose all or part of your investment.

Risks Related to our Business

Our results of operations and our ability to operate at a profit are largely dependent on our ability to manage the costs of corn, natural gas and other production inputs, with the prices of our alcohols and essential ingredients, all of which are subject to volatility and uncertainty.

Our results of operations are highly impacted by commodity prices, including the cost of corn, natural gas and other production inputs that we must purchase, and the prices of alcohols and essential ingredients that we sell. Prices and supplies are subject to and determined by market and other forces over which we have no control, such as weather, domestic and global demand, supply shortages, export prices and various governmental policies in the United States and throughout the world.

Price volatility of corn, natural gas and other production inputs, and alcohols and essential ingredients, may cause our results of operations to fluctuate substantially. We may fail to generate expected levels of net sales and profits even under fixed-price and other contracts for the sale of specialty alcohols used in consumer products. Our customers may not pay us timely or at all, even under longer-term, fixed-price contracts for our specialty alcohols, and may seek to renegotiate prices under those contracts during periods of falling prices or high price volatility.

Over the past several years, for example, the spread between corn and fuel-grade ethanol prices has fluctuated significantly. Fluctuations are likely to continue to occur. A sustained narrow spread, whether as a result of sustained high or increased corn prices or sustained low or decreased alcohol or essential ingredient prices, would adversely affect our results of operations and financial position. Revenues from sales of alcohols, particularly fuel-grade ethanol, and essential ingredients could decline below the marginal cost of production, which may force us to suspend production, particularly fuel-grade ethanol production, at some or all of our facilities.

In addition, some of our fuel-grade ethanol marketing activities will likely be unprofitable in a market of generally declining prices due to the nature of our business. For example, to satisfy customer demands, we maintain certain quantities of fuel-grade ethanol inventory for subsequent resale. Moreover, we procure much of our fuel-grade ethanol inventory outside of third-party marketing arrangements and therefore must buy fuel-grade ethanol at a price established at the time of purchase and sell fuel-grade ethanol at an index price established later at the time of sale that is generally reflective of movements in the market price of fuel-grade ethanol. As a result, our margins for fuel-grade ethanol sold in these transactions generally decline and may turn negative as the market price of fuel-grade ethanol declines.

We can provide no assurance that corn, natural gas or other production inputs can be purchased at or near current or any particular prices, or that our alcohols or essential ingredients will sell at or near current or any particular prices. Consequently, our results of operations and financial position may be adversely affected by increases in the prices of corn, natural gas and other production inputs or decreases in the prices of our alcohols and essential ingredients.

Inflation, including as a result of commodity price inflation or supply chain constraints due to the war in Ukraine, may adversely impact our results of operations.

We have experienced inflationary impacts on key production inputs, wages and other costs of labor, equipment, services, and other business expenses. Commodity prices in particular have risen significantly over the past year. Inflation and its negative impacts could escalate in future periods.

Ukraine is the third largest exporter of grain in the world. Russia is one of the largest producers of natural gas and oil. The commodity price impact of the war in Ukraine has been a sharp rise in grain and energy prices, including corn and natural gas, two of our primary production input commodities. In addition, the war in Ukraine has and may continue to adversely affect global supply chains resulting in further commodity price inflation for our production inputs. Also, given high global grain prices, U.S. farmers may prefer to lock in prices and export additional volumes, reducing domestic grain supplies and resulting in further inflationary pressures.

We may not be able to include these additional costs in the prices of the products we sell. As a result, inflation may have a material adverse effect on our results of operations and financial condition.

Increased alcohol or essential ingredient production or higher inventory levels may cause a decline in prices for those products, and may have other negative effects, adversely impacting our results of operations, cash flows and financial condition.

The prices of our alcohols and essential ingredients are impacted by competing third-party supplies of those products. For example, we believe that the most significant factor influencing the price of fuel-grade ethanol has been the substantial increase in production. According to the Renewable Fuels Association, domestic fuel-grade ethanol production capacity increased from an annualized rate of 1.5 billion gallons per year in January 1999 to a record 16.1 billion gallons in 2018. In addition, if fuel-grade ethanol production margins improve, we anticipate that owners of production facilities operating at below capacity, or owners of idled production facilities, will increase production levels, thereby resulting in more abundant fuel-grade ethanol supplies and inventories. Increases in the supply of alcohols and essential ingredients may not be commensurate with increases in demand for alcohols and essential ingredients, thus leading to lower prices. Moreover, higher industry production levels in response to the coronavirus pandemic and any resulting oversupply of alcohols for sanitizers and disinfectants, and corresponding oversupply of essential ingredient co-products, may also exert downward pressure on prices. Any of these outcomes could have a material adverse effect on our results of operations, cash flows and financial condition.

The prices of our products are volatile and subject to large fluctuations, which may cause our results of operations to fluctuate significantly.

The prices of our products are volatile and subject to large fluctuations. For example, the market price of fuel-grade ethanol is dependent upon many factors, including the supply of ethanol and the price of gasoline, which is in turn dependent upon the price of petroleum which itself is highly volatile and difficult to forecast. Our fuel-grade ethanol sales are tied to prevailing spot market prices rather than long-term, fixed-price contracts. Fuel-grade ethanol prices, as reported by the CBOT, ranged from $1.48 to $3.75 per gallon in 2021, from $0.81 to $1.62 per gallon in 2020 and from $1.25 to $1.70 per gallon in 2019. In addition, even under longer-term, fixed-price contracts for our specialty alcohols, our customers may seek to renegotiate prices under those contracts during periods of falling prices or high price volatility. Fluctuations in the prices of our products may cause our results of operations to fluctuate significantly.

Disruptions in our production or distribution may adversely affect our business, results of operations and financial condition.

Our business depends on the continuing availability of rail, road, port, storage and distribution infrastructure. In particular, due to limited storage capacity at our production facilities and other considerations related to production efficiencies, our facilities depend on just-in-time delivery of corn. The production of alcohols also requires

a significant and uninterrupted supply of other raw materials and energy, primarily water, electricity and natural gas. Local water, electricity and gas utilities may fail to reliably supply the water, electricity and natural gas that our production facilities need or may fail to supply those resources on acceptable terms. In the past, poor weather has caused disruptions in rail transportation, which slowed the delivery of fuel-grade ethanol by rail, the principal manner by which fuel-grade ethanol from our facilities located in the Midwest is transported to market. In addition, in 2020, we experienced closure of the Illinois River for lock repairs which required greater use of less cost-effective modes of product transport such as via rail and truck, which resulted in higher costs and negatively affected our results of operations.

Disruptions in production or distribution, whether caused by labor difficulties, unscheduled downtimes and other operational hazards inherent in the alcohol production industry, including equipment failures, fires, explosions, abnormal pressures, blowouts, pipeline ruptures, transportation accidents and natural disasters such as earthquakes, floods and storms, or human error or malfeasance or other reasons, could prevent timely deliveries of corn or other raw materials and energy, and could delay transport of our products to market, and may require us to halt production at one or more production facilities, any of which could have a material adverse effect on our business, results of operations and financial condition.

Some of these operational hazards may also cause personal injury or loss of life, severe damage to or destruction of property and equipment or environmental damage, and may result in suspension of operations and the imposition of civil or criminal penalties. Our insurance may not fully cover the potential hazards described above or we may be unable to renew our insurance on commercially reasonable terms or at all.

The effects of the coronavirus pandemic may materially and adversely affect our business, results of operations and liquidity.

The coronavirus pandemic has resulted in businesses suspending or substantially curtailing operations and travel, quarantines, and an overall substantial slowdown of economic activity. Federal, state and foreign governments have implemented measures to contain the virus, including social distancing requirements, travel restrictions, border closures, limitations on public gatherings, work-from-home orders, and closure of non-essential businesses. Many of these measures remain or have been curtailed only partially. Transportation fuels in particular, including fuel-grade ethanol, experienced significant price declines and reduced demand. A further or extended ongoing downturn in global economic activity, or recessionary conditions in general, would likely lead to poor demand for, and negatively affect the prices of, fuel-grade ethanol, materially and adversely affecting our business, results of operations and liquidity.

We may engage in hedging transactions and other risk mitigation strategies that could harm our results of operations and financial condition.

In an attempt to partially offset the effects of volatility of our product prices, in particular fuel-grade ethanol, corn and natural gas costs, we may enter into contracts to fix the price of a portion of our production or purchase a portion of our corn or natural gas requirements on a forward basis. In addition, we may engage in other hedging transactions involving exchange-traded futures contracts for corn, natural gas and unleaded gasoline from time to time. The financial statement impact of these activities is dependent upon, among other things, the prices involved and our ability to sell sufficient products to use all of the corn and natural gas for which forward commitments have been made. Hedging arrangements also expose us to the risk of financial loss in situations where the other party to the hedging contract defaults on its contract or, in the case of exchange-traded contracts, where there is a change in the expected differential between the underlying price in the hedging agreement and the actual prices paid or received by us. In addition, our open contract positions may require cash deposits to cover margin calls, negatively impacting our liquidity. As a result, our hedging activities and fluctuations in the price of corn, natural gas, fuel-grade ethanol and unleaded gasoline may adversely affect our results of operations, financial condition and liquidity.

Risks Related to our Finances

We have incurred significant losses and negative operating cash flow in the past and we may incur losses and negative operating cash flow in the future, which may hamper our operations and impede us from expanding our business.

We have incurred significant losses and negative operating cash flow in the past. For the years ended December 31, 2020 and 2019, we incurred consolidated net losses of approximately $17.3 million and $101.3 million, respectively. For the year ended December 31, 2019, we incurred negative operating cash flow of approximately $31.2 million. We may incur losses and negative operating cash flow in the future. We expect to rely on cash on hand, cash, if any, generated from our operations, borrowing availability under our lines of credit and proceeds from our future financing activities, if any, to fund all of the cash requirements of our business. Additional losses and negative operating cash flow may hamper our operations and impede us from expanding our business.

We incur significant expenses to maintain and upgrade our production facilities and operating equipment, and any interruption in our operations would harm our operating performance.

We regularly incur significant expenses to maintain and upgrade our production facilities and operating equipment. The machines and equipment we use to produce our alcohols and manufacture our essential ingredients are complex, have many parts, and some operate on a continuous basis. We must perform routine equipment maintenance and must periodically replace a variety of parts such as motors, pumps, pipes and electrical parts. In addition, our production facilities require periodic shutdowns to perform major maintenance and upgrades. These scheduled shutdowns result in lower sales and increased costs in the periods during which a shutdown occurs and could result in unexpected operational issues in future periods as a result of changes to equipment and operational and mechanical processes made during shutdown.

Our ability to utilize net operating loss carryforwards and certain other tax attributes may be limited.

Federal and state income tax laws impose restrictions on our use of net operating loss, or NOL, and tax credit carryforwards in the event that an “ownership change” occurs for tax purposes, as defined by Section 382 of the Internal Revenue Code, or Code. In general, an ownership change occurs when stockholders owning 5% or more of a corporation entitled to use NOL or other loss carryforwards have increased their ownership by more than 50 percentage points during any three-year period. The annual base limitation under Section 382 of the Code is calculated by multiplying the corporation’s value at the time of the ownership change by the greater of the long-term tax-exempt rate determined by the Internal Revenue Service in the month of the ownership change or the two preceding months. Our ability to utilize our NOL and other loss carryforwards may be substantially limited. These limitations could result in increased future tax obligations, which could have a material adverse effect on our financial condition and results of operations.

Risks Related to Legal and Regulatory Matters

We may be adversely affected by environmental, health and safety laws, regulations and liabilities

We are subject to various federal, state and local environmental laws and regulations, including those relating to the discharge of materials into the air, water and ground; the generation, storage, handling, use, transportation and disposal of hazardous materials and wastes; and the health and safety of our employees. In addition, some of these laws and regulations require us to operate under permits that are subject to renewal or modification. These laws, regulations and permits often require expensive

pollution control equipment or operational changes to limit actual or potential impacts to the environment. A violation of these laws and regulations or permit conditions can result in substantial fines, natural resource damages, criminal sanctions, permit revocations and/or production facility shutdowns. In addition, we have made, and expect to make, significant capital expenditures on an ongoing basis to comply with increasingly stringent environmental laws, regulations and permits.

We may be liable for the investigation and cleanup of environmental contamination at each of our production facilities and at off-site locations where we arrange for the disposal of hazardous substances or wastes. If these substances or wastes have been or are disposed of or released at sites that undergo investigation and/or remediation by regulatory agencies, we may be responsible under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or other environmental laws for all or part of the costs of investigation and/or remediation, and for damages to natural resources. We may also be subject to related claims by private parties alleging property damage and personal injury due to exposure to hazardous or other materials at or from those properties. Some of these matters may require us to expend significant amounts for investigation, cleanup or other costs.

In addition, new laws, new interpretations of existing laws, increased governmental enforcement of environmental laws or other developments could require us to make significant additional expenditures. Continued government and public emphasis on environmental issues will likely result in increased future investments for environmental controls at our production facilities. Present and future environmental laws and regulations, and interpretations of those laws and regulations, applicable to our operations, more vigorous enforcement policies and discovery of currently unknown conditions may require substantial expenditures that could have a material adverse effect on our results of operations and financial condition.

The hazards and risks associated with producing and transporting our products (including fires, natural disasters, explosions and abnormal pressures and blowouts) may also result in personal injury claims or damage to property and third parties. As protection against operating hazards, we maintain insurance coverage against some, but not all, potential losses. However, we could sustain losses for uninsurable or uninsured risks, or in amounts in excess of existing insurance coverages. Events that result in significant personal injury or damage to our property or third parties or other losses that are not fully covered by insurance could have a material adverse effect on our results of operations and financial condition.

Future demand for fuel-grade ethanol is uncertain and may be affected by changes to federal mandates, public perception, consumer acceptance and overall consumer demand for transportation fuel, any of which could negatively affect demand for fuel-grade ethanol and our results of operations.

Although many trade groups, academics and governmental agencies have supported fuel-grade ethanol as a fuel additive that promotes a cleaner environment, others have criticized fuel-grade ethanol production as consuming considerably more energy and emitting more greenhouse gases than other biofuels and potentially depleting water resources. Some studies have suggested that corn-based ethanol is less efficient than ethanol produced from other feedstock and that it negatively impacts consumers by causing increased prices for dairy, meat and other food generated from livestock that consume corn. Additionally, critics of fuel-grade ethanol contend that corn supplies are redirected from international food markets to domestic fuel markets. If negative views of corn-based ethanol production gain acceptance, support for existing measures promoting use and domestic production of corn-based ethanol as a fuel additive could decline, leading to a reduction or repeal of federal ethanol usage mandates, which would materially and adversely affect the demand for fuel-grade ethanol. These views could also negatively impact public perception of the fuel-grade ethanol industry and acceptance of ethanol as an alternative fuel.

There are limited markets for fuel-grade ethanol beyond those established by federal mandates. Discretionary blending and E85 blending (i.e., gasoline blended with up to 85% fuel-grade ethanol by volume) are important secondary markets. Discretionary blending is often determined by the price of fuel-grade ethanol versus the price of gasoline. In periods when discretionary blending is financially unattractive, the demand for fuel-grade ethanol may decline. Also, the demand for fuel-grade ethanol is affected by the overall demand for transportation fuel. Demand for transportation fuel is affected by the number of miles traveled by consumers and vehicle fuel economy. Lower demand for fuel-grade ethanol and co-products would reduce the value of our ethanol and related products, erode our overall margins and diminish our ability to generate revenue or to operate profitably. In addition, we believe that consumer acceptance of E15 and E85 fuels is necessary before fuel-grade ethanol can achieve any significant growth in market share relative to other transportation fuels.

The United States fuel-grade ethanol industry is highly dependent upon various federal and state laws and any changes in those laws could have a material adverse effect on our results of operations, cash flows and financial condition.

The Environmental Protection Agency, or EPA, has implemented the Renewable Fuel Standard, or RFS, under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. The RFS program sets annual quotas for the quantity of renewable fuels (such as fuel-grade ethanol) that must be blended into motor fuels consumed in the United States. The domestic market for fuel-grade ethanol is significantly impacted by federal mandates under the RFS program for volumes of renewable fuels (such as ethanol) required to be blended with gasoline. Future demand for fuel-grade ethanol will largely depend on incentives to blend ethanol into motor fuels, including the price of ethanol relative to the price of gasoline, the relative octane value of ethanol, constraints in the ability of vehicles to use higher ethanol blends, the RFS, and other applicable environmental requirements.

Under the provisions of the Clean Air Act, as amended by the Energy Independence and Security Act of 2007, the EPA has limited authority to waive or reduce the mandated RFS requirements, which authority is subject to consultation with the Secretaries of Agriculture and Energy, and based on a determination that there is inadequate domestic renewable fuel supply or implementation of the applicable requirements would severely harm the economy or environment of a state, region or the United States in general. Our results of operations, cash flows and financial condition could be adversely impacted if the EPA reduces the RFS requirements from the statutory levels specified in the RFS.

Various bills in Congress introduced from time to time are also directed at altering existing renewable fuels energy legislation, but none has passed in recent years. Some legislative bills are directed at halting or reversing expansion of, or even eliminating, the renewable fuel program, while other bills are directed at bolstering the program or enacting further mandates or grants that would support the renewable fuels industry. Our results of operations, cash flows and financial condition could be adversely impacted if any legislation is enacted that reduces the RFS volume requirements.

Risks Related to Ownership of our Common Stock

Future sales of substantial amounts of our common stock, or perceptions that those sales could occur, could adversely affect the market price of our common stock and our ability to raise capital.

Future sales of substantial amounts of our common stock into the public market, including up to 8.9 million shares of our common stock that may be issued upon the exercise of outstanding warrants, or perceptions that those sales could occur, could adversely affect the prevailing market price of our common stock and our ability to raise capital.

Our stock price is highly volatile, which could result in substantial losses for investors purchasing shares of our common stock and in litigation against us.

The market price of our common stock has fluctuated significantly in the past and may continue to fluctuate significantly in the future. The market price of our common stock may continue to fluctuate in response to one or more of the following factors, many of which are beyond our control:

- fluctuations in the market prices of our products;
- fluctuations in the costs of key production input commodities such as corn and natural gas;
- the volume and timing of the receipt of orders for our products from major customers;
- the coronavirus pandemic, including governmental and public responses to the pandemic;
- competitive pricing pressures;
- anticipated trends in our financial condition and results of operations;
- changes in market valuations of companies similar to us;
- stock market price and volume fluctuations generally;
- regulatory developments or increased enforcement;
- fluctuations in our quarterly or annual operating results;
- additions or departures of key personnel;
- our ability to obtain any necessary financing;
- our financing activities and future sales of our common stock or other securities; and
- our ability to maintain contracts that are critical to our operations.

The price at which you purchase shares of our common stock may not be indicative of the price that will prevail in the trading market. You may be unable to sell your shares of common stock at or above your purchase price, which may result in substantial losses to you and which may include the complete loss of your investment. In the past, securities class action litigation has often been brought against a company following periods of high stock price volatility. We may be the target of similar litigation in the future. Securities litigation could result in substantial costs and divert management's attention and our resources away from our business.

Any of the risks described above could have a material adverse effect on our results of operations, the price of our common stock, or both.

Because we do not intend to pay any cash dividends on our shares of common stock in the near future, our stockholders will not be able to receive a return on their shares unless and until they sell them.

We intend to retain a significant portion of any future earnings to finance the development, operation and expansion of our business. We do not anticipate paying any cash dividends on our common stock in the near future. The declaration, payment, and amount of any future dividends will be made at the discretion of our board of directors, and will depend upon, among other things, our results of operations, cash flows, and financial condition, operating and capital requirements, and other factors as our board of directors considers relevant. There is no assurance that future dividends will be paid, and, if dividends are paid, there is no assurance with respect to the amount of any such dividend. Unless our board of directors determines to pay dividends, our stockholders will be required to look to appreciation of our common stock to realize a gain on their investment. There can be no assurance that this appreciation will occur.

Our bylaws contain an exclusive forum provision, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Delaware Court of Chancery shall be the sole and exclusive forum for (a) any derivative action or proceeding brought on behalf of us, (b) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of us to us or our stockholders, (c) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, or (d) any action asserting a claim governed by the internal affairs doctrine.

For the avoidance of doubt, the exclusive forum provision described above does not apply to any claims arising under the Securities Act of 1933, as amended, or the Securities Act, or the Securities Exchange Act of 1934, as amended, or the Exchange Act. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder, and Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder.

The choice of forum provision in our bylaws may limit our stockholders' ability to bring a claim in a judicial forum that they find favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and our directors, officers, employees and agents even though an action, if successful, might benefit our stockholders. The applicable courts may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. With respect to the provision making the Delaware Court of Chancery the sole and exclusive forum for certain types of actions, stockholders who do bring a claim in the Delaware Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near Delaware. Finally, if a court were to find this provision of our bylaws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could have a material adverse effect on us.

General Risk Factors

Cyberattacks through security vulnerabilities could lead to disruption of business, reduced revenue, increased costs, liability claims, or harm to our reputation or competitive position.

Security vulnerabilities may arise from our hardware, software, employees, contractors or policies we have deployed, which may result in external parties gaining access to our networks, data centers, cloud data centers, corporate computers, manufacturing systems, and/or access to accounts we have at our suppliers, vendors, and customers. External parties may gain access to our data or our customers' data, or attack the networks causing denial of service or attempt to hold our data or systems in ransom. The vulnerability could be caused by inadequate account security practices such as failure to timely remove employee access when terminated. To mitigate these security issues, we have implemented measures throughout our organization, including firewalls, backups, encryption, employee information technology policies and user account policies. However, there can be no assurance these measures will be sufficient to avoid cyberattacks. If any of these types of security breaches were to occur and we were unable to protect sensitive data, our relationships with our business partners and customers could be materially damaged, our reputation could be materially harmed, and we could be exposed to a risk of litigation and possible significant liability.

Further, if we fail to adequately maintain our information technology infrastructure, we may have outages and data loss. Excessive outages may affect our ability to timely and efficiently deliver products to customers or develop new products. Such disruptions and data loss may adversely impact our ability to fulfill orders and interrupt other processes. Delayed sales or lost customers resulting from these disruptions could adversely affect our financial results, stock price and reputation.

The State of California enacted the California Consumer Privacy Act of 2018, or CCPA, effective on January 1, 2020. Our and our business partners' or contractors' failure to fully comply with the CCPA and other laws could lead to significant fines and require onerous corrective action. In addition, data security breaches experienced by us or our business partners or contractors could result in the loss of trade secrets or other intellectual property, public disclosure of sensitive commercial data, and the exposure of personally identifiable information (including sensitive personal information) of our employees, customers, suppliers, contractors and others.

Unauthorized use or disclosure of, or access to, any personal information maintained by us or on our behalf, whether through breach of our systems, breach of the systems of our suppliers or vendors by an unauthorized party, or through employee or contractor error, theft or misuse, or otherwise, could harm our business. If any such unauthorized use or disclosure of, or access to, such personal information was to occur, our operations could be seriously disrupted, and we could be subject to demands, claims and litigation by private parties, and investigations, related actions, and penalties by regulatory authorities. In addition, we could incur significant costs in notifying affected persons and entities and otherwise complying with the multitude of foreign, federal, state and local laws and regulations relating to the unauthorized access to, or use or disclosure of, personal information. Finally, any perceived or actual unauthorized access to, or use or disclosure of, such information could harm our reputation, substantially impair our ability to attract and retain customers and have an adverse impact on our business, financial condition and results of operations.

Item 1B. Unresolved Staff Comments.

We have received no written comments regarding our periodic or current reports from the staff of the Securities and Exchange Commission that were issued 180 days or more preceding the end of our 2021 fiscal year and that remain unresolved.

Item 2. Properties.

Our corporate headquarters, located in Pekin, Illinois, consists of plants and facilities comprising our Pekin production segment and totaling 145 acres on land we own. In Sacramento, California, we lease office space totaling 10,000 square feet under a lease expiring in 2029. In St. Louis, Missouri, we lease warehouse space totaling approximately 84,000 square feet under a lease expiring in 2030. We have plants located in Boardman, Oregon, at a 25 acre facility, and Burley, Idaho, at a 25 acre facility. The land in Boardman, Oregon is leased under a lease expiring in 2076. We own the land in Burley, Idaho. The plants and facilities in Oregon and Idaho comprise our Other production segment. We also own 31 acres of property and equipment in Canton, Illinois, which is held-for-sale. See "Business—Production Facilities".

Item 3. Legal Proceedings.

We are subject to legal proceedings, claims and litigation arising in the ordinary course of business. While the amounts claimed may be substantial, the ultimate liability cannot presently be determined because of considerable uncertainties that exist. Therefore, it is possible that the outcome of those legal proceedings, claims and litigation could adversely affect our quarterly or annual operating results or cash flows when resolved in a future period. However, based on facts currently available, management believes such matters will not adversely affect in any material respect our financial position, results of operations or cash flows.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information

Our common stock trades on The Nasdaq Capital Market under the symbol "ALTO". We also have non-voting common stock outstanding, which is convertible into our voting common stock, and which is not listed on an exchange.

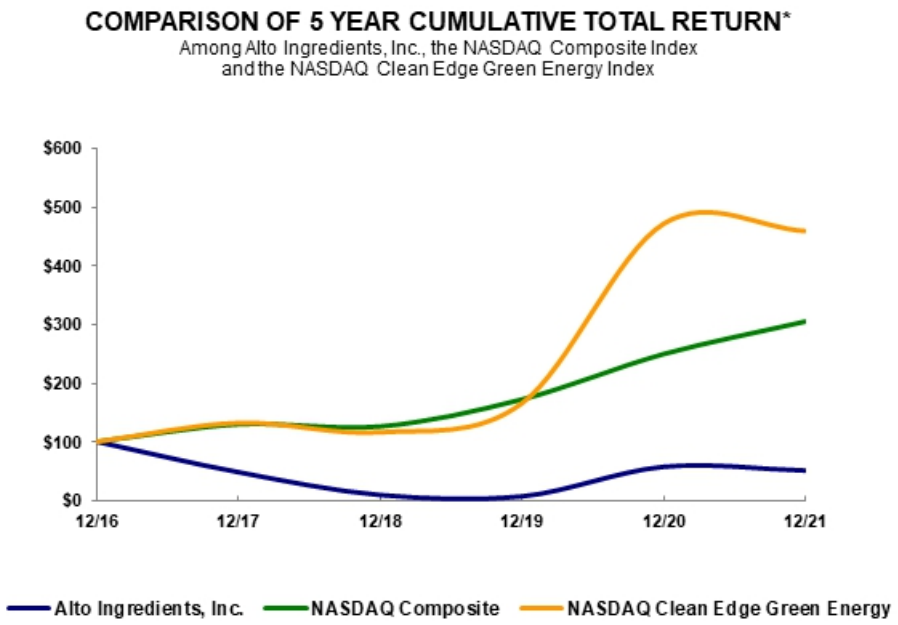
Security Holders

As of March 11, 2022, we had 73,726,517 shares of common stock outstanding held of record by approximately 310 stockholders and 896 shares of non-voting common stock outstanding held of record by one stockholder. These holders of record include depositories that hold shares of stock for brokerage firms which, in turn, hold shares of stock for numerous beneficial owners. On March 11, 2022, the closing sales price of our common stock on The Nasdaq Capital Market was $6.13 per share.

Performance Graph

The graph below shows a comparison of the cumulative total stockholder return on our common stock with the cumulative total return on The NASDAQ Composite Index and The NASDAQ Clean Edge Green Energy Index, or Peer Group, in each case over the five-year period ended December 31, 2021.

The graph assumes $100 invested at the indicated starting date in our common stock and in each of The NASDAQ Composite Index and the Peer Group, with the reinvestment of all dividends. We have not paid or declared any cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. Stockholder returns over the indicated periods should not be considered indicative of future stock prices or stockholder returns. This graph assumes that the value of the investment in our common stock and each of the comparison groups was $100 on December 31, 2016.



*$100 invested on 12/31/16 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

	12/16	12/17	12/18	12/19	12/20	12/21
Alto Ingredients, Inc.	**100.00**	**47.89**	**9.06**	**6.84**	**57.16**	**50.63**
NASDAQ Composite	**100.00**	**129.64**	**125.96**	**172.17**	**249.51**	**304.85**
NASDAQ Clean Edge Green Energy	**100.00**	**132.05**	**116.05**	**165.57**	**471.59**	**459.13**

Dividend Policy

We have never paid cash dividends on our common stock and do not intend to pay cash dividends on our common stock in the foreseeable future. We anticipate that we will retain any earnings for use in the continued development of our business.

Our current and future debt financing arrangements may limit or prevent cash distributions from our subsidiaries to us, depending upon the achievement of specified financial and other operating conditions and our ability to properly service our debt, thereby limiting or preventing us from paying cash dividends. Further, the holders of our outstanding Series B Preferred Stock are entitled to dividends of 7% per annum, payable quarterly in arrears. For the first nine months of 2019, we declared and paid in cash dividends on our outstanding shares of Series B Preferred Stock as they became due; however, for the fourth quarter of 2019, and for all of 2020, we accrued but did not declare or pay cash dividends under an agreement with the holders of our Series B Preferred Stock in an effort to preserve liquidity. During 2021, we declared and paid cash dividends on our outstanding shares of Series B Preferred Stock as they became due and paid in cash all accrued and unpaid dividends for 2019 and 2020 in respect of our Series B Preferred Stock.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. [Reserved]

Not Applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report. This discussion contains forward-looking statements, reflecting our plans and objectives that involve risks and uncertainties. Actual results and the timing of events may differ materially from those contained in these forward-looking statements due to a number of

factors, including those discussed in the section entitled "Risk Factors" and elsewhere in this report.

Overview

We are a leading producer and marketer of specialty alcohols and essential ingredients, and the largest producer of specialty alcohols in the United States.

We operate five alcohol production facilities. Three of our production facilities are located in the Midwestern state of Illinois and two of our facilities are located in the Western states of Oregon and Idaho. We have an annual alcohol production capacity of 350 million gallons. We market all of the alcohols produced at our facilities as well as fuel-grade ethanol produced by third parties. In 2021, we marketed approximately 480 million gallons combined of our own alcohols as well as fuel-grade ethanol produced by third parties, and over 1.2 million tons of essential ingredients on a dry matter basis.

We report our financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for Company-produced alcohols and essential ingredients on an aggregated basis, and third party fuel-grade ethanol, (2) Pekin production, which includes the production and sale of alcohols and essential ingredients produced at our Pekin, Illinois campus, or Pekin Campus, and (3) Other production, which includes the production and sale of renewable fuel and essential ingredients produced at all of our other production facilities on an aggregated basis, none of which are individually so significant as to be considered a reportable segment.

Our mission is to expand our business as a leading producer and marketer of specialty alcohols and essential ingredients. We intend to accomplish this goal in part by investing in our specialized and higher value specialty alcohol production and distribution infrastructure, expanding production in high-demand essential ingredients, expanding and extending the sale of our products into new regional and international markets, building efficiencies and economies of scale and by capturing a greater portion of the value stream.

On January 14, 2022, we acquired Eagle Alcohol Company LLC, or Eagle Alcohol, for $14.0 million in cash plus an estimated net working capital adjustment of $1.3 million in cash. The members of Eagle Alcohol are eligible to receive up to an additional $14.0 million of contingent consideration, payable through a combination of cash and our common stock over the next five years, subject to the satisfaction of certain conditions.

Eagle Alcohol specializes in break bulk distribution of specialty alcohols. The company purchases bulk alcohol from suppliers, including us. Then it stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that garner a premium to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, pharma, and related-process industries via its own dedicated trucking fleet and common carrier. Eagle Alcohol generated over $35 million in revenues in 2021. Eagle Alcohol is now one of our wholly-owned subsidiaries, and its former president, Dan Croghan, who has many years of experience and expertise in the chemical and alcohol distribution industry, continues on as our employee.

Production Segments

We produce specialty alcohols, fuel-grade ethanol and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the Health, Home & Beauty market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the Food & Beverage markets include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for Essential Ingredients markets include yeast, corn gluten and distillers grains used in commercial animal feed and pet foods. Our Renewable Fuels products include fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel fuel.

We produce our alcohols and essential ingredients at our production facilities described below. Our production facilities located in the Midwest are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock and enjoy logistical advantages that enable us to provide our products to both domestic and international markets via truck, rail or barge. Our production facilities located on the West Coast are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages.

We restarted our Magic Valley facility in November 2021 and we are now operating all of our production facilities. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

		Annual Production Capacity (estimated, in gallons)	
Production Facility	**Location**	**Fuel-Grade Ethanol**	**Specialty Alcohol**
Pekin Campus	Pekin, IL	110,000,000	140,000,000
Magic Valley	Burley, ID	60,000,000	—
Columbia	Boardman, OR	40,000,000	—

Marketing Segment

We market all of the alcohols and essential ingredients we produce at our facilities. We also market fuel-grade ethanol produced by third parties.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our fuel-grade ethanol customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery with very little effort on their part. Our customers collectively require fuel-grade ethanol volumes in excess of the supplies we produce at our facilities. We secure additional fuel-grade ethanol supplies from third-party fuel-grade ethanol producers. We arrange for transportation, storage and delivery of fuel-grade ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market essential ingredients from other producers.

See “Note 4 – Segments” to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Current Initiatives and Outlook

We further advanced our strategic initiatives in the fourth quarter. During the quarter, we sold our Stockton, California fuel-grade ethanol production facility, which completed our efforts to optimize our asset base by divesting non-core assets in Nebraska and California.

Shortly prior to the fourth quarter, we launched our first project to produce enhanced protein at our dry mill in Magic Valley, Idaho by installing Harvesting Technology’s patented CoPromax™ system. We chose this facility because of its location near cattle, poultry, pork and acquaculture markets to serve the growing demand for high protein feed. We restarted production at this facility in November and expect to commence expanded corn oil production in mid-2022. We expect full corn oil and protein feed production by year end. Once completed, we expect the CoPromax system to produce over 33,000 tons of feed annually with a protein content greater than 50%. The system will also increase corn oil yields by 50%, or nearly 9.0 million pounds annually. We expect the combination of additional sales of corn oil and premium prices from high protein feed to contribute over $9.0 million annually in earnings before interest, taxes, depreciation and amortization, or EBITDA, based on current market prices.

We plan to roll out the CoPromax system at our three other dry mills following its successful installation at our Magic Valley facility with the goal of having them fully operational by 2024. The total investment for all four facilities is $70.0 million. Assuming similar economics across all four dry mills, we estimate that the systems will contribute $34.0 million in EBITDA annually based on current market values. This initiative is one example of our efforts to grow and diversify our revenues and bolster the quantity and quality of our earnings.

We continue to work with new and existing customers to act as their certified producer of a growing variety of specialty alcohols used in common, everyday consumer goods, such as vinegars, spirits, mouthwash, cosmetics and cleaning supplies. To proactively address our customers’ growing needs, we extended to our Pekin wet mill in February 2022 the certifications we obtained for our ICP facility, thus creating full redundancy across our entire Pekin Campus. These certifications appeal to customers using high grade alcohols in Health, Home & Beauty products as well as distilled spirits. We believe the certifications help deepen existing customer relationships and enable new opportunities in domestic and export markets.

In January 2022, we completed the acquisition of Eagle Alcohol, an established leader in premium alcohol distribution. Eagle Alcohol expands the scope of our product offerings, our customer base and our commercial opportunities. We also expect the acquisition to accelerate our penetration into new markets and to lower our exposure to bulk alcohol price volatility, increasing our margins and creating new opportunities for organic growth. Eagle Alcohol fits perfectly into our strategic roadmap as we continue to raise the quality of our production to the highest grades of grain neutral spirits by further enhancing our distillation process, optimizing our production capabilities and integrating Eagle Alcohol’s strong distribution and sales services. We plan to invest $5.0 million in 2022 to further optimize specialty alcohol distribution and expect Eagle Alcohol to contribute $4.0 million in EBITDA for 2022 and between $8.0 million and $9.0 million in EBITDA annually starting in 2023, including synergies.

We plan to reinvest further in sustainable and profitable business segments, strengthening our core operations and further diversifying our product offerings in specialty alcohols and essential ingredients. We intend to expand corn storage at our Pekin Campus, which will increase our corn-buying flexibility and reduce our need to purchase product at premium prices when farmers and elevators are not shipping corn during holidays or unfavorable weather conditions. This capital improvement project represents an investment of approximately $6.0 million and is expected to yield over $2.0 million in EBITDA annually with a payback in less than three years beginning in the fourth quarter of 2022.

We are also evaluating an investment to bypass the local natural gas utility at our Pekin Campus, which we estimate would reduce natural gas prices by 11% based on 2021 values. This investment would also create an opportunity to sell renewable natural gas produced at our Pekin Campus directly into the pipeline in the future. The investment would be approximately $9.0 million in 2023 and yield a return of approximately $5.0 million in EBITDA annually beginning in 2024.

In addition, we remain actively engaged with third parties to evaluate a carbon capture and sequestration program at our Pekin Campus. Various alternatives are available, including development of the project as a standalone system sized to our facilities or interconnecting with other viable gathering and sequestration systems under development in proximity to our Pekin Campus.

Currently, we have contracted for sales of over 90 million gallons in specialty alcohols for 2022. This represents a 28% year-over-year increase in longer-term contracted sales volumes as compared to shorter-term sales arrangements, including spot sales, and excludes Eagle Alcohol’s contracted sales volumes. This increase is approximately equivalent to the increase in fixed-price specialty alcohol sales we contracted in 2021 compared to 2020. These sales, while still priced at a premium to fuel-grade ethanol, reflect tighter spreads to ethanol than we experienced in 2021 due to higher commodity prices as well as unusual swings in demand due to the pandemic. As demand and supply rebalance over time, we expect specialty alcohol margins to return to more stable and normalized levels.

Although our contracted volumes provide greater visibility into our anticipated results for 2022, extreme volatility in commodity prices, ongoing logistical constraints and the potential impact the war in Ukraine may have on corn supplies and other commodities prevent us from providing any specific 2022 revenue or gross profit guidance at this time. Nevertheless, we expect positive results throughout the year and anticipate that our cost-savings and other initiatives and our capital improvement projects completed in 2021 will contribute an additional $18 million in EBITDA for 2022, excluding our renewable fuels business. We also expect that the capital improvement projects outlined above will contribute an additional $45 million in EBITDA annually by the end of 2024, not including any additional benefits we may generate from carbon capture and sequestration or other projects that are under evaluation and development.

2021 Financial Performance Summary

Summary

Our consolidated net sales increased by $0.3 billion to $1.2 billion for 2021 from $0.9 billion for 2020. Our net income (loss) available to common stockholders increased by $60.6 million from a loss of $16.4 million for 2020 to income of $44.2 million for 2021.

Factors that contributed to our results of operations for 2021 include:

- *Net sales.* Our net sales for 2021 increased by $0.3 billion, or 35%, to $1.2 billion for 2021 from $0.9 billion for 2020 as a result of an increase in our average sales price per gallon, partially offset by a decrease in total alcohol gallons sold.
    - Our average sales price per gallon increased by $0.83, or 51%, to $2.46 for 2021 from $1.63 for 2020. The increase was driven primarily by higher fuel-grade ethanol prices in the fourth quarter of 2021 due to supply constraints and higher prices for oil and gasoline. We expect fuel-grade ethanol prices to normalize as additional production moderates the supply and demand imbalance.
    - Our total gallons sold declined by 56 million gallons, or 10%, to 480 million gallons for 2021 from 536 million gallons for 2020.
        - Our fuel-grade ethanol production sales volume declined by 20 million gallons, or 11%, to 161 million gallons for 2021 from 181 million gallons for 2020, primarily from reduced production at our California facilities. Our California production facilities were sold in 2021.

- Our specialty alcohol production sales volume declined by 1 million gallons, or 1%, to 90 million gallons for 2021 from 91 million gallons for 2020, as volumes declined slightly due to higher than normal spot sales in 2020 due to the pandemic. Although spot sales declined in 2021, our contracted sales increased significantly during the year as compared to 2020.

- Our third-party sales volume declined by 35 million gallons, or 13%, to 229 million gallons for 2021 from 264 million gallons for 2020. We intentionally reduced sales of third-party fuel-grade ethanol to focus on sales of inventory from our own production.

- *Gross Profit*. Our gross profit improved by $14.9 million to a gross profit of $67.8 million for 2021 from $52.9 million for 2020 as a result of substantially higher margins, particularly in the fourth quarter for fuel-grade ethanol, and due to strong demand for our specialty alcohols. In addition, we sold unprofitable fuel-grade ethanol production facilities, substantially reducing carrying costs.

Sales and Margins

We generate sales by marketing all of the alcohols produced by our production facilities, all of the fuel-grade ethanol produced by two other production facilities in the Western United States and fuel-grade ethanol purchased from other third-party suppliers throughout the United States. We also market essential ingredients produced by our production facilities, including dried yeast, corn gluten meal, corn gluten feed, and distillers grains and liquid feed used in commercial animal feed and pet foods.

Our profitability is highly dependent on various commodity prices, including the market prices of corn, natural gas and fuel-grade ethanol.

Our consolidated average alcohol sales price increased by 51% to $2.46 per gallon for 2021 compared to $1.63 per gallon for 2020. The average price of fuel-grade ethanol as reported by the Chicago Board of Options Trade, or CBOT, increased 69% to $2.11 per gallon for 2021 compared to $1.25 per gallon for 2020. Our average delivered cost of corn increased 62% to $6.22 per bushel for 2021 from $3.84 per bushel for 2020. The average price of corn as reported by the CBOT increased 56% to $5.67 per bushel for 2021 from $3.63 per bushel for 2020.

We believe that our gross profit margins depend primarily on six key factors:

- the prices of our specialty alcohols and the market price of fuel-grade ethanol, the latter of which is impacted by the price of gasoline and related petroleum products, and government regulation, including government ethanol mandates;

- the market price of key production input commodities, including corn and natural gas;

- the prices of our essential ingredients;

- our ability to anticipate trends in the prices of our alcohols, essential ingredients, and key input commodities, and our ability to implement appropriate risk management and opportunistic pricing strategies;

- the proportion of our sales of specialty alcohols to our sales of fuel-grade ethanol produced at our facilities; and

- the proportion of our sales of fuel-grade ethanol produced at our facilities to our sales of fuel-grade ethanol produced by unrelated third-parties.

We seek to optimize our gross profit margins by anticipating the factors above and, when resources are available, implementing hedging transactions and taking other actions designed to limit risk and address these factors. For example, we may seek to reduce inventory levels in anticipation of declining alcohol or essential ingredient prices and increase production and inventory levels in anticipation of rising alcohol or essential ingredient prices. We may also seek to alter our proportion or timing, or both, of purchase and sales commitments.

Our inability to anticipate the factors described above or their relative importance, and adverse movements in the factors themselves, could result in declining or even negative gross profit margins over certain periods of time. Our ability to anticipate these factors or favorable movements in these factors may enable us to generate above-average gross profit margins. However, given the difficulty associated with successfully forecasting any of these factors, we are unable to estimate our future gross profit margins.

Results of Operations

Selected Financial Information

The following selected financial information should be read in conjunction with our consolidated financial statements and notes to our consolidated financial statements included elsewhere in this report, and the other sections of "Management's Discussion and Analysis of Financial Condition and Results of Operations" contained in this report.

Certain performance metrics that we believe are important indicators of our results of operations include:

	Years Ended December 31,			Percentage Change	
	2021	2020	2019	2021 vs 2020	2020 vs 2019
Renewable fuel production gallons sold (in millions)	161.1	181.0	421.3	(11.0)%	(57.0)%
Specialty alcohol production gallons sold (in millions)	89.5	90.9	69.7	(1.5)%	30.4%
Third-party renewable fuel gallons sold (in millions)	229.0	264.4	328.4	(13.4)%	(19.5)%
Total gallons sold (in millions)	479.6	536.3	819.4	(10.6)%	(34.5)%
Total gallons produced (in millions)	251.7	262.1	494.6	(4.0)%	(47.0)%
Production capacity utilization	60%	53%	82%	13.2%	(35.4)%

Average sales price per gallon	$ 2.46	$ 1.63	$ 1.61	50.9%	1.2%
Corn cost per bushel—CBOT equivalent	$ 5.70	$ 3.56	$ 3.83	60.1%	(7.0)%
Average basis[1]	$ 0.52	$ 0.28	$ 0.43	85.7%	(34.9)%
Delivered cost of corn	$ 6.22	$ 3.84	$ 4.26	62.0%	(9.9)%
Total essential ingredients tons sold (in thousands)	1,236.2	1,447.5	2,821.7	(14.6)%	(48.7)%
Essential ingredient revenues as % of delivered cost of corn[2]	33.7%	44.1%	35.1%	(23.6)%	25.6%
Average CBOT ethanol price per gallon	$ 2.11	$ 1.25	$ 1.39	68.8%	(10.1)%
Average CBOT corn price per bushel	$ 5.67	$ 3.63	$ 3.83	56.2%	(5.2)%

(1) Corn basis represents the difference between the immediate cash price of delivered corn and the future price of corn for Chicago delivery.
(2) Essential ingredient revenues as a percentage of delivered cost of corn shows our yield based on sales of essential ingredients, including WDG and corn oil, generated from ethanol we produced.

Year Ended December 31, 2021 Compared to the Year Ended December 31, 2020

	Years Ended December 31,		Dollar Change Favorable (Unfavorable)	Percentage Change Favorable (Unfavorable)	Results as a Percentage of Net Sales for the Years Ended December 31,	
	2021	2020			2021	2020
	(dollars in thousands)					
Net sales	$ 1,207,892	$ 897,023	$ 310,869	34.7%	100.0%	100.0%
Cost of goods sold	1,140,108	844,164	(295,944)	(35.1)%	94.4%	94.1%
Gross profit	67,784	52,859	14,925	28.2%	5.6%	5.9%
Selling, general and administrative expenses	(29,185)	(31,980)	2,795	8.7%	(2.4)%	(3.6)%
Gain on litigation settlement	—	11,750	(11,750)	(100.0)%	0.0%	1.3%
Gain on sale of assets	4,571	1,580	2,991	189.3%	0.4%	0.2%
Asset impairments	(3,100)	(24,356)	21,256	87.3%	(0.3)%	(2.7)%
Income from operations	40,070	9,853	30,217	306.7%	3.3%	1.1%
Income from loan forgiveness	9,860	—	9,860	NM	0.8%	0.0%
Interest expense	(3,587)	(17,943)	14,356	80.0%	(0.3)%	(2.0)%
Fair value adjustments	—	(9,959)	9,959	100.0%	0.0%	(1.1)%
Other income, net	1,208	750	458	61.1%	0.1%	0.1%
Income (loss) before income taxes	47,551	(17,299)	64,850	NM	3.9%	(1.9)%
Provision (benefit) for income taxes	1,469	(17)	(1,486)	NM	0.1%	(0.0)%
Consolidated net income (loss)	46,082	(17,282)	63,364	NM	3.8%	(1.9)%
Net loss attributed to noncontrolling interests	—	2,166	(2,166)	(100.0)%	0.0%	0.2%
Net income (loss) attributed to Alto Ingredients, Inc.	$ 46,082	$ (15,116)	$ 61,198	NM	3.8%	(1.7)%
Preferred stock dividends	(1,265)	(1,268)	3	0.2%	(0.1)%	(0.1)%
Income allocated to participating securities	(600)	—	(600)	NM	(0.0)%	0.0%
Income (loss) available to common stockholders	$ 44,217	$ (16,384)	$ 60,601	NM	3.7%	(1.8)%

Net Sales

The increase in our consolidated net sales for 2021 as compared to 2020 was primarily due to an increase in our average sales price per gallon for our alcohols and sales price per ton for our essential ingredients, partially offset by a decrease in our total gallons sold and volume of essential ingredients sold. Our average sales price per gallon increased predominately due to higher fuel-grade ethanol prices, particularly in the fourth quarter, from supply constraints and higher oil and gasoline prices. Our average sales price for our essential ingredients increased predominately due to the higher corn prices.

Pekin Campus Production Segment

Net sales of alcohol from our Pekin Campus production segment increased by $167.8 million, or 51%, to $498.2 million for 2021 as compared to $330.4 million for 2020. Our total volume of production gallons sold increased 19.1 million gallons, or 10%, to 213.0 million gallons for 2021 as compared to 193.9 million gallons for 2020. At our Pekin Campus production segment's average sales price per gallon of $2.34 for 2021, we generated $44.7 million in additional net sales from our Pekin Campus production segment from the additional 19.1 million gallons of alcohol sold in 2021 as compared to 2020. The increase of $0.63, or 37%, in our Pekin Campus production segment's average sales price per gallon in 2021 as compared to 2020 improved our net sales from our Pekin Campus production segment by $123.1 million.

Net sales of essential ingredients increased $59.2 million, or 45%, to $189.5 million for 2021 as compared to $130.3 million for 2020. Our total volume of essential ingredients sold increased by 46,000 tons, or 6%, to 875,000 tons for 2021 from 829,000 tons for 2020. At our average sales price per ton of $216.59 for 2021, we generated an additional $10.0 million in net sales from the 46,000 additional tons of essential ingredients sold in 2021 as compared to 2020. The increase of $59.40, or 38%, in our average sales price per ton in 2021 as compared to 2020 increased our net sales from our Pekin Campus production segment by $49.2 million.

Marketing Segment

Net sales of fuel-grade ethanol from our marketing segment, excluding intersegment sales, increased by $123.5 million, or 48%, to $381.2 million for 2021 as compared to $257.7 million for 2020.

Our volume of third-party fuel-grade ethanol gallons sold reported gross by our marketing segment decreased by 23.0 million gallons, or 14%, to 140.9 million gallons for 2021 as compared to 163.9 million gallons for 2020. At our marketing segment's average sales price per gallon of $2.69 for 2021, net sales were $61.9 million lower as a result of the 23.0 million fewer gallons sold in 2021 as compared to 2020. This decline was more than offset by the $1.13 increase in our sales price per gallon for 2021. The increase of $1.13, or 72%, in our average sales price per gallon in 2021 as compared to 2020 increased our net sales from our third party fuel-grade ethanol gallons sold by $185.4 million.

Our volume of third-party fuel-grade ethanol gallons sold reported net by our marketing segment decreased by 12.4 million gallons, or 12%, to 88.1 million gallons for 2021 as compared to 100.5 million gallons for 2020.

Other Production Segment

Net sales of alcohol from our other production segment decreased by $29.8 million, or 22%, to $107.9 million for 2021 as compared to $137.7 million for 2020. Our total volume of gallons sold decreased by 40.4 million gallons, or 52%, to 37.6 million gallons for 2021 as compared to 78.0 million gallons for 2020. At our other production segment's average sales price per gallon of $2.87 for 2021, net sales were $115.9 million lower as a result of the 40.4 million fewer gallons sold in 2021 as compared to 2020. This decline was more than offset by the $1.10 increase in our sales price per gallon for 2021. The increase of $1.10, or 63%, in our average sales price per gallon in 2021 as compared to 2020 increased our net sales of alcohol from our other production segment by $86.1 million.

Net sales of essential ingredients decreased $9.8 million, or 24%, to $31.1 million for 2021 as compared to $40.9 million for 2020. Our total volume of essential ingredients sold decreased by 258,000 tons, or 42%, to 361,000 tons for 2021 from 619,000 tons for 2020. At our average sales price per ton of $86.00 for 2021, net sales were $22.2 million lower as a result of the 258,000 fewer tons sold in 2021 as compared to 2020. This decline was more than offset by the $19.96 increase in our sales price per ton for 2021. The increase of $19.96, or 30%, in our average sales price per ton in 2021 as compared to 2020 increased our net sales of essential ingredients from our other production segment by $12.4 million.

Cost of Goods Sold and Gross Profit

Our consolidated gross profit improved to a gross profit of $67.8 million for 2021 from a gross profit of $52.9 million for 2020, representing a gross profit margin of 5.6% for 2021 compared to 5.9% for 2020. Our consolidated gross profit improved due to significantly higher margin sales for fuel-grade ethanol as we successfully managed our profitable production facilities, partially offset by modest declines in specialty alcohol sales volumes and compared to unusually high spot margins in 2020.

Pekin Campus Production Segment

Our Pekin Campus production segment's gross profit declined by $20.5 million to a gross profit of $54.0 million for 2021 as compared to $74.5 million for 2020. Of this decline, $25.3 million is attributable to lower margins from our specialty alcohols, partially offset by $4.8 million in increased gross profit attributable to increased sales volumes in 2021 as compared to 2020. Margins in 2020 were unusually high due to strong spot price demand for sanitizers and disinfectants due to the coronavirus pandemic.

Marketing Segment

Our marketing segment's gross profit increased by $5.2 million to $10.8 million for 2021 as compared to $5.6 million for 2020. Of this increase, $7.0 million is attributable to higher margins from sales of third-party fuel-grade ethanol, partially offset by $1.8 million attributable to lower marketing volumes of third-party fuel-grade ethanol in 2021 as compared to 2020.

Other Production Segment

Our other production segment's gross profit improved by $30.2 million to a gross profit of $3.0 million for 2021 as compared to a gross loss of $27.2 million for 2020. Of this improvement, $33.4 million is attributable to an improved margin environment for fuel-grade ethanol, partially offset by a $3.2 million reduction in gross profit attributable to lower sales volumes in 2021 as compared to 2020.

Selling, General and Administrative Expenses

Our selling, general and administrative, or SG&A, expenses decreased $2.8 million to $29.2 million for 2021 as compared to $32.0 million for the same period in 2020. SG&A expenses declined primarily due to reduced legal and consulting expenses as we completed many of our strategic realignment initiatives in 2020. We expect SG&A expenses of under $30 million for 2022.

Gain on Sale of Assets

Gain on sale of assets increased $3.0 million to $4.6 million for 2021 as compared to $1.6 million for the same period in 2020. The gains in 2021 reflect the sale of our Madera and Stockton facilities. The gains in 2020 reflect the sale of certain land at our Magic Valley facility. These gains are not expected to recur in future periods.

Asset Impairments

We assess the impairment of long-lived assets, including property and equipment, when events or changes in circumstances indicate that the fair value of an asset could be less than the net book value of the asset. In addition, prior to our sales of our Madera and Stockton, California production facilities, we reviewed quarterly their fair values compared to their estimated sales prices, less estimated selling costs. As a result, we recorded an aggregate impairment charge of $3.1 million for 2021.

Income from Loan Forgiveness

In 2020, we received loan proceeds of $9.9 million under the Coronavirus Aid, Relief, and Economic Security Act through the Paycheck Protection Program administered by the U.S. Small Business Administration, or SBA. In 2021, we requested and were granted forgiveness for the full amount, and accordingly, we recognized income from loan forgiveness in 2021. Income from loan forgiveness is not expected to recur in future periods.

Interest Expense

Interest expense decreased $14.3 million to $3.6 million for 2021 from $17.9 million for 2020. The decrease in interest expense is primarily due to substantial principal payments on our outstanding indebtedness during the year, resulting in significantly lower average debt balances for 2021.

Year Ended December 31, 2020, Compared to the Year Ended December 31, 2019

An analysis of our financial results comparing 2020 to 2019 can be found under "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed with the Securities and Exchange Commission on March 26, 2021, which is available free of charge on the Securities and Exchange Commission's website at www.sec.gov.

Liquidity and Capital Resources

During the year ended December 31, 2021, we funded our operations primarily from cash flow from operations, cash proceeds from the sales of our Madera and Stockton facilities, proceeds from lines of credit and cash on hand. A portion of these funds was also used to repay in full our term debt and our other credit facilities and for capital expenditures. As of December 31, 2021, we had $50.6 million in cash and cash equivalents and $25.4 million available for borrowing under Kinergy's operating line of credit. We anticipate capital expenditures to range between $22 million and $28 million in 2022. We believe we have sufficient liquidity to meet our anticipated working capital, debt service, capital expenditure and other liquidity needs for at least the next twelve months from the date of this report.

Quantitative Year-End Liquidity Status

We believe that the following amounts provide insight into our liquidity and capital resources. The following selected financial information should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report, and the other sections of "Management's Discussion and Analysis of Financial Condition and Results of Operations" contained in this report (dollars in thousands).

	December 31, 2021	December 31, 2020	Change
Cash and cash equivalents	$ 50,612	$ 47,667	6.2%
Current assets	$ 229,526	$ 214,046	7.2%
Property and equipment, net	$ 222,550	$ 229,486	(3.0)%
Current liabilities	$ 69,602	$ 86,927	(19.9)%
Long-term debt, noncurrent portion	$ 50,361	$ 71,807	(29.9)%
Working capital	$ 159,924	$ 127,119	25.8%
Working capital ratio	3.30	2.46	34.1%

Restricted Net Assets

At December 31, 2021, we had approximately $69.4 million of net assets at our subsidiaries that were not available to be transferred to Alto Ingredients, Inc. in the form of dividends, distributions, loans or advances due to restrictions contained in the credit facilities of the subsidiaries.

Changes in Working Capital and Cash Flows

Working capital improved to $159.9 million at December 31, 2021, from $127.1 million at December 31, 2020, as a result of an increase of $15.5 million in current assets and a decrease of $17.3 million in current liabilities.

Current assets increased primarily due to an increase in accounts receivable and higher inventory values due to increased commodity prices for both alcohol and corn from the prior period, partially offset by a reduction in assets held-for-sale as we completed the sales of our Madera and Stockton facilities.

Our current liabilities decreased primarily due to a reduction in liabilities held-for-sale as we completed the sales of our Madera and Stockton facilities and a reduction in the current portion of our long-term debt, partially offset by an increase in accounts payable and accrued liabilities due to the timing of payments and an increase in derivative instruments.

Our cash, cash equivalents and restricted cash increased by $13.9 million due to $26.8 million in cash provided by our operating activities and $27.1 million in cash provided by our investing activities, partially offset by $40.0 million in cash used in our financing activities.

Cash provided by our Operating Activities

We generated $26.8 million in cash from our operating activities during 2021, as compared to $71.7 million in 2020. Specific factors that contributed significantly to the change in cash from our operating activities include:

- an increase of $74.1 million related to higher accounts receivable balances primarily due to the timing of payments and higher commodity sales prices;
- an increase of $35.5 million related to higher inventories primarily due to increased commodity prices;
- a reduction in the impact of noncash asset impairments on operating cash flows of $21.3 million;
- income from debt forgiveness of $9.9 million; and
- an increase in fair value adjustments of derivative instruments of $6.8 million.

These amounts were partially offset by:

- an improvement in net income of $63.4 million;
- an increase of $33.0 million in accounts payable and accrued expenses as commodity prices rose at the end of the year;
- a reduction of $7.0 million in depreciation expense as we reduced the amount of fixed assets held-for-use; and
- a decrease of $37.5 million in other assets due to position changes in derivative instruments.

Cash provided by our Investing Activities

We generated $27.1 million of cash from our investing activities for 2021, of which $24.0 million and $19.5 million in cash were generated from the sales of our Stockton and Madera facilities, respectively, partially offset by $16.4 million for additions to property and equipment resulting from our capital expenditure projects.

Cash used in our Financing Activities

Cash used in our financing activities was $40.0 million for 2021, which reflected payments on plant borrowings of $30.0 million, payments on our senior notes of $25.5 million and payments of preferred stock dividends of $2.9 million, partially offset by net proceeds of $17.9 million from Kinergy's operating line of credit.

Kinergy's Operating Line of Credit

Kinergy maintains an operating line of credit for an aggregate amount of up to $100.0 million. The credit facility matures on August 8, 2023. Interest accrues under the credit facility at a rate equal to (i) the daily Secured Overnight Financing Rate, plus (ii) a specified applicable margin ranging from 1.75% to 2.25%. The credit facility's monthly unused line fee is 0.25% to 0.375% of the amount by which the maximum credit under the facility exceeds the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to Alto Ingredients, Inc. as reimbursement for management and other services provided by Alto Ingredients, Inc. to Kinergy are limited under the terms of the credit facility to $1.5 million per fiscal quarter. The credit facility also includes the accounts receivable of our indirect wholly-owned subsidiary, Alto Nutrients, LLC, or Alto Nutrients, as additional collateral. Payments that may be made by Alto Nutrients to Alto Ingredients, Inc. as reimbursement for management and other services provided by Alto Ingredients, Inc. to Alto Nutrients are limited under the terms of the credit facility to $0.5 million per fiscal quarter. Alto Nutrients markets our essential ingredients and also provides raw material procurement services to our subsidiaries.

For all monthly periods in which excess borrowing availability falls below a specified level, Kinergy and Alto Nutrients must collectively maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling earnings before interest, taxes, depreciation and amortization divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 2.0 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness). The obligations of Kinergy and Alto Nutrients under the credit facility are secured by a first-priority security interest in all of their respective assets in favor of the lender.

We believe Kinergy and Alto Nutrients are in compliance with the fixed-charge coverage ratio covenant as of the filing of this report. The following table sets forth the fixed-charge coverage ratio financial covenant and the actual results for the periods presented:

	Years Ended December 31,	
	2021	2020
Fixed Charge Coverage Ratio Requirement	2.00	2.00
Actual	13.32	5.35
Excess	11.32	3.35

Alto Ingredients, Inc. has guaranteed all of Kinergy's obligations under the credit facility. As of December 31, 2021, Kinergy had an outstanding balance of $50.4 million and $25.4 million of unused borrowing availability under the credit facility.

Alto Pekin Credit Facilities

On December 15, 2016, Alto Pekin, LLC, or Alto Pekin, one of our indirect wholly-owned subsidiaries and the entity that holds two of our production facilities in Pekin, Illinois, entered into a Credit Agreement, or the Pekin Credit Agreement, with 1st Farm Credit Services, PCA and CoBank, ACB, or CoBank. Under the terms of the Pekin Credit Agreement, Alto Pekin borrowed from 1st Farm Credit Services $64.0 million under a term loan facility that matured on August 20, 2021, or the Pekin Term Loan, and up to $32.0 million under a revolving term loan facility that was to mature on February 1, 2022, or the Pekin Revolving Loan, and together with the Pekin Term Loan, the Pekin Credit Facility.

On November 5, 2021, we closed the sale of our Stockton, California facility and, using net proceeds from the sale, repaid the Pekin Credit Facility in full.

ICP Credit Facilities

On September 15, 2017, ICP, Compeer Financial, PCA, or Compeer, and CoBank as agent, entered into a Credit Agreement, or the ICP Credit Agreement. Under the terms of the ICP Credit Agreement, ICP borrowed from Compeer $24.0 million under a term loan facility that matured on September 20, 2021, or the ICP Term Loan, and up to $18.0 million under a revolving term loan facility that was to mature on September 1, 2022, or the ICP Revolving Loan, and together with the ICP Term Loan, the ICP Credit Facility.

On November 5, 2021, we closed the sale of our Stockton, California facility and, using net proceeds from the sale, repaid the ICP Credit Facility in full.

Senior Secured Notes

On December 12, 2016, we entered into a Note Purchase Agreement with five accredited investors and sold $55.0 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold. On June 26, 2017, we entered into a second Note Purchase Agreement with five accredited investors and sold an additional $13.9 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold, and collectively with the notes previously sold, the Notes.

On May 14, 2021, in connection with the sale of our Madera, California fuel-grade ethanol production facility, we repaid $19.3 million in principal on these Notes.

On November 5, 2021, we closed the sale of our Stockton, California facility and, using net proceeds from the sale, repaid the Notes in full.

CARES Act Loans

On May 4, 2020, Alto Ingredients, Inc. and Alto Pekin, received loan proceeds from Bank of America, NA under the Coronavirus Aid, Relief, and Economic Security Act through the Paycheck Protection Program administered by the SBA. Alto Ingredients, Inc. received $6.0 million and Alto Pekin received $3.9 million in loan proceeds. In June 2021, the SBA approved Alto Pekin's forgiveness application for the full amount of $3.9 million, and accordingly, we recognized income from loan forgiveness for the three months ended June 30, 2021. In September 2021, the SBA approved Alto Ingredients, Inc.'s forgiveness application for the full amount of $6.0 million, and accordingly, we recognized income from loan forgiveness for the three months ended September 30, 2021. The SBA may audit the loan forgiveness applications and further examine eligibility for forgiveness, including the facts and circumstances existing at the time the loans were made. We can provide no assurances that any loan forgiven will not require repayment following an audit by the SBA.

Other Cash Obligations

As of December 31, 2021, we had future commitments for certain capital projects totaling $19.4 million. These commitments are scheduled to be satisfied through mid-2022.

In connection with our acquisition of Eagle Alcohol, we committed to payments of contingent consideration of up to $9.0 million in cash over the next three years if certain targets are met.

Effects of Inflation

The impact of inflation was not significant to our financial condition or results of operations for 2021, 2020 or 2019.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of net sales and expenses for each period. The following represents a summary of our critical accounting policies and related estimates, defined as those policies that we believe are the most important to the portrayal of our financial condition and results of operations and that require management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effects of matters that are inherently uncertain.

Revenue Recognition

We recognize revenue primarily from sales of alcohols and essential ingredients.

We have five alcohol production facilities from which we produce and sell alcohols to our customers through our subsidiary Kinergy. Kinergy enters into sales contracts with customers under exclusive intercompany sales agreements with each of our five production facilities. Kinergy also acts as a principal when it purchases third party fuel-grade ethanol which it resells to its customers. Finally, Kinergy has exclusive sales agreements with other third-party owned fuel-grade ethanol plants under which it sells their fuel-grade ethanol production for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

We have five production facilities from which we produce and sell essential ingredients to our customers through our subsidiary Alto Nutrients. Alto Nutrients enters into sales contracts with essential ingredient customers under exclusive intercompany sales agreements with each of our five production facilities.

We recognize revenue from sales of alcohols and essential ingredients at the point in time when the customer obtains control of the products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, we enter into contracts with customers that contain multiple performance obligations to deliver volumes of alcohols or essential ingredients over a contractual period of less than 12 months. We allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognize the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When we are the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When we are the principal, we control the products before they are transferred to the customer because we are primarily responsible for fulfilling the promise to provide the products, we have inventory risk before the product has been transferred to a customer and we have discretion in establishing the price for the product.

See "Note 4 – Segments" of the Notes to Consolidated Financial Statements for our revenue-breakdown by type of contract.

Impairment of Long-Lived Assets and Held-for-Sale Classification

Our long-lived assets have been primarily associated with our production facilities, reflecting their original cost, adjusted for depreciation and any subsequent impairment.

We assess the impairment of long-lived assets, including property and equipment, when events or changes in circumstances indicate that the fair value of an asset could be less than the net book value of the asset. Generally, we assess long-lived assets for impairment by first determining the forecasted, undiscounted cash flows each asset is expected to generate plus the net proceeds expected from the sale of the asset. If the total amount of the undiscounted cash flows is less than the carrying value of the asset, we then determine the fair value of the asset. An impairment loss would be recognized when the fair value is less than the related net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are estimates based on our experience and knowledge of our operations and the industry in which we operate. These estimates could be significantly affected by future changes in market conditions, the economic environment, including inflation, and the purchasing decisions of our customers.

We review our intangible assets with indefinite lives at least annually or more frequently if impairment indicators arise. In our review, we determine the fair value of these assets using market multiples and discounted cash flow modeling and compare it to the net book value of the acquired assets.

Assets held-for-sale are assessed for impairment by comparing the carrying value to their expected net sales proceeds. In 2019, we entered into a term sheet with

Aurora Cooperative Elevator Company for the sale of our interest in two fuel-grade ethanol production facilities in Nebraska. We reviewed the criteria for held-for-sale classification of the long-lived assets associated with the pending transaction. Our analysis concluded that these long-lived assets should be classified as held-for-sale with a related impairment of $29.3 million to fair value. We did not recognize any other asset impairment charges in 2019.

In 2020, our Board of Directors approved a plan to sell our fuel-grade ethanol production facilities in Madera and Stockton, California, which were ultimately sold in 2021. We reviewed the criteria for held-for-sale classification of the long-lived assets associated with these asset groups. Our analysis concluded that these assets should be classified as held-for-sale as of December 31, 2020, and as such estimated the aggregate asset impairment of $22.3 million for 2020. We further evaluated the original estimate and recorded an additional asset impairment of $1.2 million for 2021. In 2021, we decided to sell our property and equipment located in Canton, Illinois. We reviewed the criteria for held-for-sale classification of the long-lived assets for this asset group. We concluded that these assets should be classified as held-for-sale as of December 31, 2021, and as such estimated the impairment of $1.9 million for 2021.

Valuation Allowance for Deferred Taxes

We account for income taxes under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax bases of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

We evaluate our deferred tax asset balance for realizability. To the extent we believe it is more likely than not that some portion or all of our deferred tax assets will not be realized, we will establish a valuation allowance against the deferred tax assets. Realization of our deferred tax assets is dependent upon future taxable income during the periods in which the associated temporary differences become deductible. We consider the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. These changes, if any, may require possible material adjustments to these deferred tax assets, resulting in a reduction in net income or an increase in net loss in the period when such determinations are made.

We had pre-tax consolidated income of $47.6 million for the year ended December 31, 2021. We had pre-tax consolidated losses of $17.3 million and $101.3 million for the years ended December 31, 2020 and 2019, respectively. Based on our current and prior results, we do not have significant evidence to support a conclusion that we will more likely than not be able to benefit from our remaining deferred tax assets. As such, we have recorded a valuation allowance against our net deferred tax assets.

Derivative Instruments

We evaluate our contracts to determine whether the contracts are derivative instruments. Management may elect to exempt certain forward contracts that meet the definition of a derivative from derivative accounting as normal purchases or normal sales. Normal purchases and normal sales are contracts that provide for the purchase or sale of something other than a financial instrument or derivative instrument that will be delivered in quantities expected to be used or sold over a reasonable period in the normal course of business. Contracts that meet the requirements of normal purchases or sales are documented as normal and exempted from the fair value accounting and reporting requirements of derivative accounting.

We enter into short-term cash, option and futures contracts as a means of securing purchases of corn, natural gas and sales of fuel-grade ethanol and managing exposure to changes in commodity prices. All of our exchange-traded derivatives are designated as non-hedge derivatives for accounting purposes, with changes in fair value recognized in net income. Although the contracts are economic hedges of specified risks, they are not designated or accounted for as hedging instruments.

Realized and unrealized gains and losses related to exchange-traded derivative contracts are included as a component of cost of goods sold in the accompanying financial statements. The fair values of contracts entered through commodity exchanges are presented on the accompanying balance sheet as derivative assets or liabilities. The selection of normal purchase or sales contracts, and use of hedge accounting, are accounting policies that can change the timing of recognition of gains and losses in the statement of operations.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to various market risks, including changes in commodity prices as discussed below. Market risk is the potential loss arising from adverse changes in market rates and prices. In the ordinary course of business, we may enter into various types of transactions involving financial instruments to manage and reduce the impact of changes in commodity prices. We do not have material exposure to interest rate risk. We do not expect to have any exposure to foreign currency risk as we conduct all of our transactions in U.S. dollars.

We produce alcohol and essential ingredients. Our business is sensitive to changes in the prices of ethanol and corn. In the ordinary course of business, we may enter into various types of transactions involving financial instruments to manage and reduce the impact of changes in ethanol and corn prices. We do not enter into derivatives or other financial instruments for trading or speculative purposes.

We are subject to market risk with respect to ethanol and corn pricing. Ethanol prices are sensitive to global and domestic ethanol supply; crude-oil supply and demand; crude-oil refining capacity; carbon intensity; government regulation; and consumer demand for alternative fuels. Our alcohol sales are priced using contracts that are either based on a fixed price or an indexed price tied to a specific market, such as the CBOT or the Oil Price Information Service. Under these fixed-priced arrangements, we are exposed to risk of a decrease in the market price of ethanol between the time the price is fixed and the time the alcohol is sold.

We satisfy our physical corn needs, the principal raw material used to produce alcohol and essential ingredients, based on purchases from our corn vendors. Generally, we determine the purchase price of our corn at or near the time we begin to grind. Additionally, we also enter into volume contracts with our vendors to fix the purchase price. As such, we are also subject to market risk with respect to the price of corn. The price of corn is subject to wide fluctuations due to unpredictable factors such as weather conditions, farmer planting decisions, governmental policies with respect to agriculture and international trade and global supply and demand. Under the fixed price arrangements, we assume the risk of a decrease in the market price of corn between the time the price is fixed and the time the corn is utilized.

Essential ingredients are sensitive to various demand factors such as numbers of livestock on feed, prices for feed alternatives and supply factors, primarily production of ethanol co-products by ethanol plants and other sources.

As noted above, we may attempt to reduce the market risk associated with fluctuations in the price of ethanol or corn by employing a variety of risk management and hedging strategies. Strategies include the use of derivative financial instruments such as futures and options executed on the CBOT and/or the New York Mercantile Exchange, as well as the daily management of physical corn.

These derivatives are not designated for special hedge accounting treatment, and as such, the changes in the fair values of these contracts are recorded on the balance sheet and recognized immediately in cost of goods sold. We recognized net gains of $21.6 million, $14.8 million and $0.6 million related to the change in the fair values of these contracts for the years ended December 31, 2021, 2020 and 2019, respectively.

At December 31, 2021, we prepared a sensitivity analysis to estimate our exposure to ethanol and corn. Market risk related to these factors was estimated as the potential change in pre-tax income resulting from a hypothetical 10% adverse change in the prices of our expected ethanol and corn volumes. The analysis uses average

CBOT prices for the year and does not factor in future contracted volumes. The results of this analysis for the year ended December 31, 2021, which may differ materially from actual results, are as follows (in millions):

Commodity	Volume	Unit of Measure	Approximate Adverse Change to Pre-Tax Income
Ethanol	250.6	Gallons	$ 52.9
Corn	89.5	Bushels	$ 50.7

Item 8. Financial Statements and Supplementary Data.

Reference is made to the financial statements, which begin at page F-1 of this report.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

We conducted an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by the company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures also include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2021 that our disclosure controls and procedures were effective at a reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is defined by the Public Company Accounting Oversight Board's Audit Standards AS 2201 as being a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis by the company's internal controls.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework set forth in *Internal Control — Integrated Framework (2013),* our management concluded that our internal control over financial reporting was effective as of December 31, 2021.

RSM US LLP, an independent registered public accounting firm, has issued an attestation report on our internal control over financial reporting as of December 31, 2021. That report is included in Part IV of this report.

Inherent Limitations on the Effectiveness of Controls

Management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control systems are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in a cost-effective control system, no evaluation of internal control over financial reporting can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been or will be detected.

These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of a simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information under the captions "Information about our Board of Directors, Board Committees and Related Matters" appearing in the Proxy Statement, is hereby incorporated by reference.

Item 11. Executive Compensation.

The information under the caption "Executive Compensation and Related Information," appearing in the Proxy Statement, is hereby incorporated by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information," appearing in the Proxy Statement, is hereby incorporated by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information under the captions "Certain Relationships and Related Transactions" and "Information about our Board of Directors, Board Committees and Related Matters—Director Independence" appearing in the Proxy Statement, is hereby incorporated by reference.

Item 14. Principal Accountant Fees and Services.

The information under the caption "Audit Matters—Principal Accountant Fees and Services," appearing in the Proxy Statement, is hereby incorporated by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a)(1) Financial Statements

Reference is made to the financial statements listed on and attached following the Index to Consolidated Financial Statements contained on page F-1 of this report.

(a)(2) Financial Statement Schedules

None.

(a)(3) Exhibits

Reference is made to the exhibits listed on the Index to Exhibits.

Item 16. Form 10-K Summary.

None.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Stockholders and the Board of Directors
Alto Ingredients, Inc.

Opinion on the Financial Statements
We have audited the accompanying consolidated balance sheets of Alto Ingredients, Inc. and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013, and our report dated March 14, 2022, expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion
These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters
Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. We determined that there are no critical audit matters.

/s/ RSM US LLP

We have served as the Company's auditor since 2015.

Rochester, Minnesota
March 14, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Stockholders and the Board of Directors
Alto Ingredients, Inc.

Opinion on the Internal Control Over Financial Reporting
We have audited Alto Ingredients, Inc. and subsidiaries’ (the Company) internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes to the consolidated financial statements of the Company and our report dated March 14, 2022, expressed an unqualified opinion.

Basis for Opinion
The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those

policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ RSM US LLP

Rochester, Minnesota
March 14, 2022

ALTO INGREDIENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except shares and par value)

ASSETS	December 31, 2021	December 31, 2020
Current Assets:		
Cash and cash equivalents	$ 50,612	$ 47,667
Restricted cash	11,513	520
Accounts receivable, net of allowance for doubtful accounts of $378 and $260, respectively	86,888	43,491
Inventories	54,373	37,925
Derivative assets	15,839	17,149
Assets held-for-sale	1,000	58,295
Other current assets	9,301	8,999
Total current assets	229,526	214,046
Property and equipment, net	222,550	229,486
Other Assets:		
Right of use operating lease assets, net	13,413	11,046
Notes receivable	11,641	14,337
Other assets	7,823	7,903
Total other assets	32,877	33,286
Total Assets	$ 484,953	$ 476,818

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED BALANCE SHEETS (CONTINUED)
(in thousands, except shares and par value)

LIABILITIES AND STOCKHOLDERS' EQUITY	December 31, 2021	December 31, 2020
Current Liabilities:		
Accounts payable – trade	$ 23,251	$ 13,047
Accrued liabilities	21,307	11,101
Current portion – operating leases	3,909	2,180
Current portion – long-term debt, net	—	25,533
Derivative liabilities	13,582	—
Liabilities held-for-sale	—	19,542
Other current liabilities	7,553	15,524
Total current liabilities	69,602	86,927
Long-term debt, net of current portion	50,361	71,807
Operating leases, net of current portion	9,382	8,715
Other liabilities	10,394	13,134
Total Liabilities	139,739	180,583
Commitments and contingencies (Notes 1, 7, 8, 9 and 14)		
Stockholders' Equity:		
Preferred stock, $0.001 par value; 10,000,000 shares authorized:		
Series A: 1,684,375 shares authorized; no shares issued and outstanding as of December 31, 2021 and 2020	—	—
Series B: 1,580,790 shares authorized; 926,942 shares issued and outstanding as of December 31, 2021 and 2020; liquidation preference of $18,075 as of December 31, 2021	1	1
Common stock, $0.001 par value; 300,000,000 shares authorized; 72,777,694 and 72,486,962 shares issued and outstanding as of December 31, 2021 and 2020, respectively	73	72

Non-voting common stock, $0.001 par value; 3,553,000 shares authorized; 896 shares issued and outstanding as of December 31, 2021 and 2020	—	—
Additional paid-in capital	1,037,205	1,036,638
Accumulated other comprehensive loss	(284)	(3,878)
Accumulated deficit	(691,781)	(736,598)
Total stockholders' equity	345,214	296,235
Total Liabilities and Stockholders' Equity	$ 484,953	$ 476,818

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31,		
	2021	**2020**	**2019**
Net sales	$ 1,207,892	$ 897,023	$ 1,424,881
Cost of goods sold	1,140,108	844,164	1,434,819
Gross profit (loss)	67,784	52,859	(9,938)
Selling, general and administrative expenses	(29,185)	(31,980)	(35,453)
Gain on litigation settlement	—	11,750	—
Gain on sale of assets	4,571	1,580	—
Asset impairments	(3,100)	(24,356)	(29,292)
Income (loss) from operations	40,070	9,853	(74,683)
Income from loan forgiveness	9,860	—	—
Interest expense, net	(3,587)	(17,943)	(20,206)
Loss on debt extinguishment	—	—	(6,517)
Fair value adjustments	—	(9,959)	—
Other income, net	1,208	750	104
Income (loss) before provision (benefit) for income taxes	47,551	(17,299)	(101,302)
Provision (benefit) for income taxes	1,469	(17)	(20)
Consolidated net income (loss)	46,082	(17,282)	(101,282)
Net loss attributed to noncontrolling interests	—	2,166	12,333
Net income (loss) attributed to Alto Ingredients, Inc.	$ 46,082	$ (15,116)	$ (88,949)
Preferred stock dividends	$ (1,265)	$ (1,268)	$ (1,265)
Income allocated to participating securities	$ (600)	$ —	$ —
Income (loss) available to common stockholders	$ 44,217	$ (16,384)	$ (90,214)
Income (loss) per share, basic	$ 0.62	$ (0.28)	$ (1.90)
Income (loss) per share, diluted	$ 0.61	$ (0.28)	$ (1.90)
Weighted-average shares outstanding, basic	71,098	58,609	47,384
Weighted-average shares outstanding, diluted	72,219	58,609	47,384

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)

	Years Ended December 31,		
	2021	**2020**	**2019**
Consolidated net income (loss)	$ 46,082	$ (17,282)	$ (101,282)
Other comprehensive income (expense) – net gain (loss) arising during the period on defined benefit pension plans	3,594	(1,508)	89
Total comprehensive income (loss)	49,676	(18,790)	(101,193)
Comprehensive loss attributed to noncontrolling interests	—	2,166	12,333
Comprehensive income (loss) attributed to Alto Ingredients, Inc.	$ 49,676	$ (16,624)	$ (88,860)

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands)

	Preferred Stock		Common Stock and Non-Voting Common		Additional Paid-In	Accumulated	Accum. Other Comprehensive	Non-Controlling	
	Shares	Amount	Shares	Amount	Capital	Deficit	Loss	Interests	Total
Balances, December 31, 2018	927	$ 1	45,771	$ 46	$ 932,179	$ (630,000)	$ (2,459)	$ 19,598	$ 319,365
Stock-based compensation	—	—	—	—	2,809	—	—	—	2,809
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	1,069	1	(159)	—	—	—	(158)
Common stock issuances ATM	—	—	3,137	3	3,667	—	—	—	3,670
Common stock issuances senior notes	—	—	5,531	6	3,811	—	—	—	3,817
Pension plan adjustment	—	—	—	—	—	—	89	—	89
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net loss	—	—	—	—	—	(88,949)	—	(12,333)	(101,282)
Balances, December 31, 2019	927	$ 1	55,508	$ 56	$ 942,307	$ (720,214)	$ (2,370)	$ 7,265	$ 227,045
Stock-based compensation	—	—	—	—	2,679	—	—	—	2,679
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	1,137	1	(602)	—	—	—	(601)
Common stock issuances	—	—	5,075	5	70,528	—	—	—	70,533
Warrant exercises	—	—	9,346	9	16,431	—	—	—	16,440
Common stock issuances ATM	—	—	1,421	1	5,295	—	—	—	5,296
Sale of interests in PAL	—	—	—	—	—	—	—	(5,099)	(5,099)
Pension plan adjustment	—	—	—	—	—	—	(1,508)	—	(1,508)
Preferred stock dividends	—	—	—	—	—	(1,268)	—	—	(1,268)
Net loss	—	—	—	—	—	(15,116)	—	(2,166)	(17,282)
Balances, December 31, 2020	927	$ 1	72,487	$ 72	$ 1,036,638	$ (736,598)	$ (3,878)	$ —	$ 296,235
Stock-based compensation	—	—	—	—	2,883	—	—	—	2,883
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	167	1	(2,778)	—	—	—	(2,777)
Common stock issuances	—	—	124	—	462	—	—	—	462
Pension plan adjustment	—	—	—	—	—	—	3,594	—	3,594
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net income	—	—	—	—	—	46,082	—	—	46,082
Balances, December 31, 2021	927	$ 1	72,778	$ 73	$ 1,037,205	$ (691,781)	$ (284)	$ —	$ 345,214

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Years Ended December 31,		
	2021	2020	2019
Operating Activities:			
Consolidated net income (loss)	$ 46,082	$ (17,282)	$ (101,282)
Adjustments to reconcile consolidated net income (loss) to cash provided by (used in) operating activities:			
Depreciation expense	23,292	30,268	47,909
Asset impairments	3,100	24,356	29,292
Income from loan forgiveness	(9,860)	—	—
Fair value adjustments	—	9,959	—
Gain on sale of assets	(4,571)	(1,580)	—
Loss on debt extinguishment	—	—	6,517
Inventory valuation	—	(257)	—
Gains on derivative instruments	(21,619)	(14,780)	(555)
Amortization of deferred financing costs	778	1,394	511
Amortization of debt discounts (premiums)	(230)	(230)	689
Noncash compensation	2,883	2,679	2,809
Bad debt expense	158	245	27
Interest expense added to senior notes	—	133	1,185
Changes in operating assets and liabilities:			
Accounts receivable	(43,554)	30,571	(6,698)
Inventories	(16,448)	19,090	(2,780)
Other current assets	38,989	1,507	3,895
Operating leases	(4,216)	(4,751)	(10,161)
Assets held-for-sale	(3,483)	1,012	—
Liabilities held-for-sale	2,305	9,110	—
Accounts payable and accrued expenses	13,215	(19,763)	(2,585)
Net cash provided by (used in) operating activities	$ 26,821	$ 71,681	$ (31,227)
Investing Activities:			
Proceeds from sale of Stockton	$ 24,000	$ —	$ —
Proceeds from sale of Madera	19,500	—	—
Proceeds from sale of interests in PAL	—	19,896	—
Proceeds from Magic Valley asset sale	—	10,000	—
Additions to property and equipment	(16,384)	(6,580)	(3,281)
Net cash provided by (used in) investing activities	$ 27,116	$ 23,316	$ (3,281)
Financing Activities:			
Proceeds from issuances of common stock and warrants	$ 462	$ 75,829	$ 3,670
Proceeds from warrant exercises	—	5,500	—

Proceeds from CARES Act loans	—	9,860	—
Net proceeds (payments) on Kinergy's line of credit	17,889	(45,826)	21,282
Payments on plant borrowings	(29,964)	(71,536)	(8,000)
Payments on senior notes	(25,533)	(40,249)	(3,748)
Preferred stock dividend payments	(2,853)	—	(946)
Proceeds from CoGen contract amendment	—	—	8,036
Debt issuance costs	—	—	(1,280)
Net cash provided by (used in) financing activities	$ (39,999)	$ (66,422)	$ 19,014
Net increase (decrease) in cash, cash equivalents and restricted cash	13,938	28,575	(15,494)
Cash, cash equivalents and restricted cash at beginning of period	48,187	19,612	35,106
Cash, cash equivalents and restricted cash at end of period	$ 62,125	$ 48,187	$ 19,612
Reconciliation of total cash, cash equivalents and restricted cash:			
Cash and cash equivalents	$ 50,612	$ 47,667	$ 18,997
Restricted cash	11,513	520	615
Total cash, cash equivalents and restricted cash	$ 62,125	$ 48,187	$ 19,612
Supplemental Information:			
Interest paid (net of capitalized interest)	$ 3,489	$ 17,469	$ 18,763
Capitalized interest	$ 628	$ 224	$ 563
Income tax (payments) refunds	$ (448)	$ 641	$ —
Noncash financing and investing activities:			
Initial right of use assets and liabilities recorded under ASC 842	$ —	$ —	$ 43,753
Issuance of common stock for senior note amendment	$ —	$ —	$ 3,817
Issuance of warrants for senior note amendment	$ —	$ —	$ 977
Accrued preferred stock dividends	$ —	$ 1,268	$ 319

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES.

Organization and Business – The consolidated financial statements include, for all periods presented, the accounts of Alto Ingredients, Inc., a Delaware corporation ("Alto Ingredients"), and its direct and indirect wholly-owned subsidiaries (collectively, the "Company"), including Kinergy Marketing LLC, an Oregon limited liability company ("Kinergy"), Alto Nutrients, LLC, a California limited liability company ("Alto Nutrients"), Alto Op Co., a Delaware corporation ("Alto Op Co."), Alto Pekin, LLC, a Delaware limited liability company ("Alto Pekin") and Alto ICP, LLC, a Delaware limited liability company ("ICP"), and the Company's production facilities in Oregon and Idaho. As discussed in Note 2, on May 14, 2021, and November 4, 2021, the Company completed the sale of its production facilities located in Madera and Stockton, California, respectively.

On December 15, 2016, the Company and Aurora Cooperative Elevator Company, a Nebraska cooperative corporation ("ACEC"), closed a transaction under a contribution agreement under which the Company contributed its Aurora, Nebraska ethanol production facilities and ACEC contributed its Aurora grain elevator and related grain handling assets to Pacific Aurora, LLC ("Pacific Aurora") in exchange for equity interests in Pacific Aurora. As a result, the Company owned 73.93% of Pacific Aurora and ACEC owned 26.07% of Pacific Aurora. As discussed further in Note 2, the Company sold its interest in Pacific Aurora on April 15, 2020. Therefore, from December 15, 2016, through April 15, 2020, the Company consolidated 100% of the results of Pacific Aurora and recorded ACEC's 26.07% equity interest as noncontrolling interests in the accompanying financial statements.

The Company is a leading producer and marketer of specialty alcohols and essential ingredients. The Company also produces and markets fuel-grade ethanol. The Company's production facilities in Pekin, Illinois are located in the heart of the Corn Belt, benefit from low-cost and abundant feedstock and allow for access to many additional domestic markets. In addition, the Company's ability to load unit trains and barges from these facilities allows for greater access to international markets. The Company's two production facilities in Oregon and Idaho are located in close proximity to both feed and fuel-grade ethanol customers and thus enjoy unique advantages in efficiency, logistics and product pricing.

The Company has a combined alcohol production capacity of 350 million gallons per year and produces, on an annualized basis, nearly 1.2 million tons of essential ingredients on a dry matter basis, such as dried yeast, corn gluten meal, corn gluten feed, and distillers grains and liquid feed used in commercial animal feed and pet foods. In addition, the Company sells alcohols acquired from other producers and markets fuel-grade ethanol produced by third parties.

The Company focuses on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the Health, Home & Beauty market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the Food & Beverage markets include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for Essential Ingredients markets include yeast, corn gluten and distillers grains used in commercial animal feed and pet foods. Renewable Fuels includes fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel fuel.

As of December 31, 2021, all of the Company's production facilities were operating. As market conditions change, the Company may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

On January 14, 2022, the Company acquired Eagle Alcohol Company LLC, a Missouri limited liability company ("Eagle Alcohol"). Eagle Alcohol specializes in break bulk distribution of specialty alcohols. Eagle Alcohol purchases bulk alcohol from suppliers, including the Company. Then it stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that garner a premium to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, pharma, and related-process industries via its own dedicated trucking fleet and common carrier. Eagle Alcohol generated over $35 million in revenues in 2021. Eagle Alcohol is now a wholly-owned subsidiary of the Company. See Note 16 for more details.

Basis of Presentation – The consolidated financial statements and related notes have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") and include the accounts of the Company. All significant intercompany accounts and transactions have been eliminated in consolidation.

Segments – A segment is a component of an enterprise whose operating results are regularly reviewed by the enterprise's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. The Company determines and discloses its segments in accordance with the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification ("ASC") Section 280, *Segment Reporting*, which defines how to determine segments. The Company reports financial and operating performance in three reportable segments (1) marketing and distribution, which includes marketing and merchant trading for Company-produced specialty alcohols, fuel-grade ethanol and essential ingredients, and third-party fuel-grade ethanol, (2) Pekin production, which includes the entire campus in Pekin, Illinois ("Pekin Campus"), and (3) other production, which includes all of the Company's other production facilities on an aggregated basis ("Other production").

Cash and Cash Equivalents – The Company considers all highly-liquid investments with an original maturity of three months or less to be cash equivalents. The Company maintains its accounts at several financial institutions. These cash balances regularly exceed amounts insured by the Federal Deposit Insurance Corporation; however, the Company does not believe it is exposed to any significant credit risk on these balances.

Restricted Cash – The Company's restricted cash comprises cash collateral balances held in derivative brokerage accounts.

Accounts Receivable and Allowance for Doubtful Accounts – Trade accounts receivable are presented at original invoice amount, net of the allowance for doubtful accounts. The Company sells specialty alcohols to large consumer product companies, sells fuel-grade ethanol to gasoline refining and distribution companies, sells essential ingredients to animal feed customers, including distillers grains and other feed co-products to dairy operators and animal feedlots and corn oil to poultry and biodiesel customers, in each case generally without requiring collateral. Due to a limited number of customers, the Company had significant concentrations of credit risk from sales as of December 31, 2021 and 2020, as described below.

The Company maintains an allowance for doubtful accounts for balances that appear to have specific collection issues. The collection process is based on the age of the invoice and requires attempted contacts with the customer at specified intervals. If, after a specified number of days, the Company has been unsuccessful in its collection efforts, a bad debt allowance is recorded for the balance in question. Delinquent accounts receivable are charged against the allowance for doubtful accounts once uncollectibility has been determined. The factors considered in reaching this determination are the apparent financial condition of the customer and the Company's success in contacting and negotiating with the customer. If the financial condition of a Company customer deteriorates, resulting in an impairment of ability to make payments, additional allowances may be required.

Of the accounts receivable balance, approximately $63,929,000 and $35,839,000 at December 31, 2021 and 2020, respectively, were used as collateral under Kinergy's operating line of credit. The allowance for doubtful accounts was $378,000 and $260,000 as of December 31, 2021 and 2020, respectively. The Company recorded a bad debt expense of $158,000, $245,000 and $27,000 for the years ended December 31, 2021, 2020 and 2019, respectively. The Company does not have any off-balance sheet credit exposure related to its customers.

Concentration Risks – Credit risk represents the accounting loss that would be recognized at the reporting date if counterparties failed completely to perform as contracted. Concentrations of credit risk, whether on- or off-balance sheet, that arise from financial instruments exist for groups of customers or counterparties when they have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic or other conditions described below. Financial instruments that subject the Company to credit risk consist of cash balances maintained in excess of federal depository insurance limits and accounts receivable which have no collateral or security. The Company has not experienced any significant losses in such accounts.

The Company sells specialty alcohols to consumer product companies and fuel-grade ethanol to gasoline refining and distribution companies. The Company sold to customers representing 10% or more of the Company's total net sales, as follows.

	Years Ended December 31,		
	2021	2020	2019
Customer A	13%	3%	9%
Customer B	9%	9%	11%
Customer C	1%	5%	13%

The Company had accounts receivable due from these customers totaling $14,336,000 and $5,756,000, representing 16% and 13% of total accounts receivable, as of December 31, 2021 and 2020, respectively.

The Company purchases corn, its largest cost component in producing alcohols, from its suppliers. The Company purchased corn from suppliers representing10% or more of the Company's total corn purchases, as follows:

	Years Ended December 31,		
	2021	2020	2019
Supplier A	14%	16%	16%
Supplier B	—%	9%	25%

As of December 31, 2021, approximately47% of the Company's employees were covered by a collective bargaining agreement.

Inventories – Inventories consisted primarily of bulk ethanol, specialty alcohols, corn, essential ingredients and unleaded fuel, and are valued at the lower of cost or net realizable value, with cost determined on a first-in, first-out basis. Inventory is net of valuation adjustments of $0 and $1,033,000 as of December 31, 2021 and 2020, respectively. Of the inventory balance, approximately $38,640,000 and $27,410,000 at December 31, 2021 and 2020, respectively, were used as collateral under Kinergy's operating line of credit. Inventory balances consisted of the following (in thousands):

	December 31,	
	2021	2020
Finished goods	$ 35,509	$ 25,154
Work in progress	6,909	4,333
Raw materials	10,837	7,074
Other	1,118	1,364
Total	$ 54,373	$ 37,925

Property and Equipment – Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the following estimated useful lives:

Buildings	40 years
Facilities and plant equipment	10 – 25 years
Other equipment, vehicles and furniture	5 – 10 years

The cost of normal maintenance and repairs is charged to operations as incurred. Significant capital expenditures that increase the life of an asset are capitalized and depreciated over the estimated remaining useful life of the asset. The cost of property and equipment sold, or otherwise disposed of, and the related accumulated depreciation or amortization are removed from the accounts, and any resulting gains or losses are reflected in current operations.

Intangible Asset – The Company assesses indefinite-lived intangible assets for impairment annually, or more frequently if circumstances indicate impairment may have occurred. If the carrying value of an indefinite-lived intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. If the Company determines that an impairment charge is needed, the charge will be recorded as an asset impairment in the consolidated statements of operations. The Company recorded a tradename valued at $2,678,000 in 2006 as part of its acquisition of Kinergy, which is included in other noncurrent assets in the accompanying consolidated balance sheets. The Company determined that the Kinergy tradename has an indefinite life and, therefore, rather than being amortized, will be tested annually for impairment. The Company did not record any impairment of the Kinergy tradename for the years ended December 31, 2021, 2020 and 2019.

Leases – The Company accounts for leases under ASC 842, whereby, lessees are required to recognize the following for all leases (with the exception of short-term leases) at the commencement date: (1) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted cash flow basis; and (2) a "right of use" asset, which is an asset that represents the lessee's right to use the specified asset for the lease term. See Note 8 for further information.

Derivative Instruments and Hedging Activities – Derivative transactions, which can include exchange-traded futures contracts, options and futures positions on the New York Mercantile Exchange or the Chicago Board of Trade, are recorded on the balance sheet as assets and liabilities based on the derivative's fair value. Changes in the fair value of derivative contracts are recognized currently in income unless specific hedge accounting criteria are met. If derivatives meet those criteria, and hedge accounting is elected, effective gains and losses are deferred in accumulated other comprehensive income (loss) and later recorded together with the hedged item in consolidated income (loss). For derivatives designated as a cash flow hedge, the Company formally documents the hedge and assesses the effectiveness with associated transactions. The Company has designated and documented contracts for the physical delivery of commodity products to and from counterparties as normal purchases and normal sales.

Revenue Recognition – The Company recognizes revenue under ASC 606. The provisions of ASC 606 include a five-step process by which an entity will determine revenue recognition, depicting the transfer of goods or services to customers in amounts reflecting the payment to which an entity expects to be entitled in exchange for those goods or services. ASC 606 requires the Company to apply the following steps: (1) identify the contract with the customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations in the contract; and (5) recognize revenue when, or as, the Company satisfies the performance obligation.

The Company recognizes revenue primarily from sales of alcohols and essential ingredients.

The Company has five production facilities from which it produces and sells alcohols to its customers through Kinergy. Kinergy enters into back-to-back sales contracts with its customers under exclusive intercompany sales agreements with each of the Company's five production facilities. Kinergy also acts as a principal when it purchases third party fuel-grade ethanol which it resells to its customers. Finally, Kinergy has exclusive sales agreements with other third-party owned fuel-grade ethanol production facilities under which it sells their fuel-grade ethanol for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

The Company has five production facilities from which it produces and sells essential ingredients to its customers through Alto Nutrients. Alto Nutrients enters into sales contracts with essential ingredient customers under exclusive intercompany sales agreements with each of the Company's five production facilities.

The Company recognizes revenue from sales of alcohols and essential ingredients at the point in time when the customer obtains control of the products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, the Company enters into contracts with customers that contain multiple performance obligations to deliver volumes of alcohols or essential ingredients over a contractual period of less than 12 months. The Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognizes the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When the Company is the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When the Company is the principal, the Company controls the products before they are transferred to the customer because the Company is primarily responsible for fulfilling the promise to provide the products, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product.

See Note 4 for the Company's revenue by type of contracts.

Shipping and Handling Costs – The Company accounts for shipping and handling costs relating to contracts with customers as costs to fulfill its promise to transfer its products. Accordingly, the costs are classified as a component of cost of goods sold in the accompanying consolidated statements of operations.

Selling Costs – Selling costs associated with the Company's product sales are classified as a component of selling, general and administrative expenses in the accompanying consolidated statements of operations.

Stock-Based Compensation – The Company accounts for the cost of employee services received in exchange for the award of equity instruments based on the fair value of the award, determined on the date of grant. The expense is recognized over the period during which an employee is required to provide services in exchange for the award. The Company accounts for forfeitures as they occur. The Company recognizes stock-based compensation expense as a component of either cost of goods sold or selling, general and administrative expenses in the consolidated statements of operations.

Impairment of Long-Lived Assets – The Company assesses the impairment of long-lived assets, including property and equipment, internally developed software and purchased intangibles subject to amortization, when events or changes in circumstances indicate that the fair value of assets could be less than their net book value. In such event, the Company assesses long-lived assets for impairment by first determining the forecasted, undiscounted cash flows the asset group is expected to generate plus the net proceeds expected from the sale of the asset group. If this amount is less than the carrying value of the asset, the Company will then determine the fair value of the asset group. An impairment loss would be recognized when the fair value is less than the related asset group's net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are judgments based on the Company's experience and knowledge of its operations and the industries in which it operates. These forecasts could be significantly affected by future changes in market conditions, the economic environment, including inflation, and purchasing decisions of the Company's customers. The Company performed an undiscounted cash flow analysis for its long-lived assets held-for-use, exclusive of the Company's assets held-for-sale, and for those that failed step 1, the Company performed a further fair value assessment, resulting in an impairment of $2.1 million for the year ended December 31, 2020. The Company's assessment of assets held-for-use did not result in an impairment for the years ended December 31, 2021 and 2019.

Deferred Financing Costs – Deferred financing costs are costs incurred to obtain debt financing, including all related fees, and are amortized as interest expense over the term of the related financing using the straight-line method, which approximates the effective interest rate method. Amortization of deferred financing costs was approximately $778,000, $1,394,000 and $511,000 for the years ended December 31, 2021, 2020 and 2019, respectively. Amortization was accelerated in 2020 to reflect increased payments of principal and the reduction of outstanding debt balances. Unamortized deferred financing costs were approximately $40,000 and $759,000 as of December 31, 2021 and 2020, respectively, and are recorded net of long-term debt in the consolidated balance sheets.

Provision for Income Taxes – Income taxes are accounted for under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

The Company accounts for uncertainty in income taxes using a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position for recognition by determining whether it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50% likely of being realized upon ultimate settlement. An uncertain tax position is considered effectively settled on completion of an examination by a taxing authority if certain other conditions are satisfied. Should the Company incur interest and penalties relating to tax uncertainties, such amounts would be classified as a component of interest expense and other income (expense), net, respectively. Deferred tax assets and liabilities are classified as noncurrent in the Company's consolidated balance sheets.

The Company files a consolidated federal income tax return. This return includes all wholly owned subsidiaries as well as the Company's pro-rata share of taxable income from pass-through entities in which the Company owns less than 100%. State tax returns are filed on a consolidated, combined or separate basis depending on the applicable laws relating to the Company and its subsidiaries.

Income (Loss) Per Share – Basic income (loss) per share is computed on the basis of the weighted-average number of shares of common stock outstanding during the period. Preferred dividends are deducted from net income (loss) attributed to Alto Ingredients, Inc. and are considered in the calculation of income (loss) available to common stockholders in computing basic income (loss) per share. Common stock equivalents to preferred stock are considered participating securities and are also included in this calculation when dilutive.

The following tables compute basic and diluted earnings per share (in thousands, except per share data):

	Year Ended December 31, 2021		
	Income Numerator	Shares Denominator	Per-Share Amount
Net income attributed to Alto Ingredients, Inc.	$ 46,082		
Less: Preferred stock dividends	(1,265)		
Less: Income allocated to participating securities	(600)		
Basic income per share:			
Income available to common stockholders	$ 44,217	71,098	$ 0.62

Add: Dilutive securities	—	1,121	
Diluted income per share:			
Income available to common stockholders	$ 44,217	72,219	$ 0.61

	Year Ended December 31, 2020		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Alto Ingredients, Inc.	$ (15,116)		
Less: Preferred stock dividends	(1,268)		
Basic and diluted loss per share:			
Loss available to common stockholders	$ (16,384)	58,609	$ (0.28)

	Year Ended December 31, 2019		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Alto Ingredients, Inc.	$ (88,949)		
Less: Preferred stock dividends	(1,265)		
Basic and diluted loss per share:			
Loss available to common stockholders	$ (90,214)	47,384	$ (1.90)

There were an aggregate of 964,000, 2,463,000 and 635,000 potentially dilutive shares from convertible securities outstanding as of December 31, 2021, 2020 and 2019, respectively. These convertible securities were not considered in calculating diluted loss per common share for the years ended December 31, 2021, 2020 and 2019 as their effect would be anti-dilutive. In addition, there were an aggregate of 8,900,500, 5,031,000 and 136,000 weighted-average antidilutive shares from outstanding out-of-the-money warrants.

Financial Instruments – The carrying values of cash and cash equivalents, restricted cash, accounts receivable, notes receivable, derivative assets, accounts payable, accrued liabilities and derivative liabilities are reasonable estimates of their fair values because of the short maturity of these items. The Company believes the carrying value of its long-term debt instruments are not considered materially different than fair value because the interest rates on these instruments are variable.

Employment-related Benefits – Employment-related benefits associated with pensions and postretirement health care are expensed based on actuarial analysis. The recognition of expense is affected by estimates made by management, such as discount rates used to value certain liabilities, investment rates of return on plan assets, increases in future wage amounts and future health care costs. Discount rates are determined based on a spot yield curve that includes bonds with maturities that match the expected timing of benefit payments under the plan.

Estimates and Assumptions – The preparation of the consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates are required as part of determining the allowance for doubtful accounts, net realizable value of inventory, estimated lives of property and equipment, long-lived asset impairments, fair value of warrants, valuation allowances on deferred income taxes and the potential outcome of future tax consequences of events recognized in the Company's financial statements or tax returns, and the valuation of assets acquired and liabilities assumed as a result of business combinations. Actual results and outcomes may materially differ from management's estimates and assumptions.

Uncertainty – The impact of the coronavirus pandemic has negatively impacted the demand for fuel-grade ethanol. Any future quarantines, labor shortages or other disruptions to the Company's operations, or those of its customers, may adversely impact the Company's revenues, ability to provide its services and operating results. In addition, a significant outbreak of epidemic, pandemic or contagious diseases in the human population could result in a widespread health crisis that could adversely affect the economies and financial markets of many countries, including the geographical area in which the Company operates, resulting in an economic downturn that could further affect demand for its goods and services. The extent to which the coronavirus pandemic impacts the Company's long-term results will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of the coronavirus pandemic and actions taken to mitigate the pandemic or its impact, among others.

Subsequent Events – Management evaluates, as of each reporting period, events or transactions that occur after the balance sheet date through the date that the financial statements are issued for either disclosure or adjustment to the consolidated financial results.

Reclassifications – Certain prior year amounts have been reclassified to conform to the current presentation. Such reclassifications had no effect on the consolidated net loss, working capital or stockholders' equity reported in the consolidated statements of operations and consolidated balance sheets.

2. ASSET SALES AND HELD-FOR-SALE CLASSIFICATION.

Pacific Aurora

On December 19, 2019, the Company entered into a term sheet covering the proposed sale of its73.93% ownership interest in Pacific Aurora to ACEC for $52.8 million, and as a result, the Company determined that as of December 31, 2019, the long-lived assets of Pacific Aurora should be classified as held-for-sale.

On April 15, 2020, the Company closed the sale of its ownership interest in Pacific Aurora and preliminarily received total consideration of $52.8 million, subject to working capital adjustments of approximately $35.3 million, resulting in cash proceeds of $19.9 million and the balance of $16.5 million in long-term ACEC promissory notes,

resulting in a net loss on sale of approximately $1.4 million, recorded as gain (loss) on sale of assets in the Company's consolidated statements of operations. Approximately $14.5 million of the cash proceeds were used to repay a portion of the Company's term debt. In September 2020, the Company and ACEC agreed to certain post-closing adjustments to the purchase price, resulting in a decrease of $0.9 million, and a corresponding reduction in the aggregate principal amount owed under the long-term ACEC promissory notes.

The Company received two promissory notes, as adjusted, in the amounts of $8.6 million and $7.0 million as part consideration for the sale, both maturing on April 15, 2025. The $8.6 million note accrues interest at an annual rate of 5.00%. Interest payments are due quarterly beginning July 1, 2020 and principal payments of $0.4 million are due quarterly beginning July 1, 2021. The $7.0 million note accrues interest at an annual rate of 4.50%. Interest payments are due quarterly beginning July 1, 2020 and principal payments of $0.4 million are due quarterly beginning January 3, 2022. As discussed in Note 16, on February 23, 2022, these notes were amended and now mature on June 30, 2022.

In addition, upon the sale, the Company no longer had noncontrolling interests on its balance sheet and no longer records income (loss) of noncontrolling interests for future periods.

For the years ended December 31, 2020 and 2019, Pacific Aurora contributed $39.6 million and $163.5 million in net sales, $8.4 million and $43.4 million in pre-tax loss, and $2.2 million and $12.3 million in net loss attributed to noncontrolling interests, respectively.

Magic Valley

On November 30, 2020, the Company sold 134 acres, the related rail loop and grain handling assets at its Magic Valley facility located in Burley, Idaho for $10.0 million in cash. The Company retained the fuel-grade ethanol production facility and terminal on the remaining 25 acres and has entered into certain agreements with the buyer for delivery of grain to the plant. Upon the sale, the Company recognized a gain on sale of $3.2 million in gain on sale of assets in the accompanying consolidated statements of operations.

Stockton and Madera

In October 2020, the Company's Board of Directors approved a plan to sell the Company's fuel-grade ethanol production facilities located in Madera and Stockton, California. As a result, the Company determined the related long-lived asset groups should be classified as held-for-sale at December 31, 2020. The analysis of these potential sales resulted in an aggregate asset impairment of $1.2 million and $22.3 million in the Company's Other production segment for the years ended December 31, 2021 and 2020, respectively.

On May 14, 2021, the Company closed the sale of its Madera facility for total consideration of $28.3 million, comprised of $19.5 million in cash and $8.8 million in assumption of liabilities, resulting in a net loss on sale of less than $0.1 million, included in gain on sale of assets in the Company's consolidated statements of operations. All of the cash proceeds were used to repay a significant portion of the Company's term debt and accrued interest.

On November 5, 2021, the Company closed the sale of its Stockton facility for gross proceeds of $24.0 million in cash, resulting in a net gain on sale of $4.6 million, recorded in gain on sale of assets in the Company's consolidated statements of operations. With the net cash proceeds, the Company repaid its parent notes payable and the Alto Pekin and ICP loans in full.

For the year ended December 31, 2021, net sales attributed to the results of operations for Stockton and Madera were $2.6 million and $0, respectively. For the year ended December 31, 2020, net sales attributed to the results of operations for Stockton and Madera were $21.9 million and $22.7 million, respectively. For the year ended December 31, 2019, net sales attributed to the results of operations for Stockton and Madera were $132.9 million and $82.7 million, respectively. For the year ended December 31, 2021, pre-tax loss attributed to the results of operations for Stockton and Madera was $2.8 million and $2.0 million, respectively. For the year ended December 31, 2020, pre-tax loss attributed to the results of operations for Stockton and Madera was $6.5 million and $6.1 million, respectively. For the year ended December 31, 2019, pre-tax loss attributed to the results of operations for Stockton and Madera was $3.9 million and $2.7 million, respectively. The above pre-tax results include asset impairments associated with Stockton and Madera recorded for the year ended December 31, 2021 of $0 and $1.2 million and for the year ended December 31, 2020 were $17.9 million and $4.4 million, respectively.

Canton

During 2021, the Company agreed to sell certain assets of the Company's property and equipment in Canton, Illinois. As a result, the Company determined the related long-lived asset groups should be classified as held-for-sale at December 31, 2021. The analysis of the potential sale resulted in an asset impairment of $1.9 million in the Company's Other production segment for the year ended December 31, 2021. As of December 31, 2021, the Company recorded $1.0 million in assets held-for-sale associated with this transaction. For the years ended December 31, 2021, 2020 and 2019 there were no sales from Canton. For the years ended December 31, 2021, 2020 and 2019, pre-tax losses attributed to Canton were less than $1.0 million for each year.

3. INTERCOMPANY AGREEMENTS.

The Company, directly or through one of its subsidiaries, has entered into the following management and marketing agreements:

Affiliate Management Agreement – Alto Ingredients entered into an Affiliate Management Agreement ("AMA") with its operating subsidiaries, under which Alto Ingredients agreed to provide operational, administrative and staff support services. These services generally include, but are not limited to, administering the subsidiaries' compliance with their credit agreements and performing billing, collection, record keeping and other administrative and ministerial tasks. Alto Ingredients agreed to supply all labor and personnel required to perform its services under the AMA, including the labor and personnel required to operate and maintain the production facilities and marketing activities. These services are billed at a predetermined amount per subsidiary each month plus out of pocket costs such as employee wages and benefits.

The AMAs have an initial term of one year and automatic successive one year renewal periods. Alto Ingredients may terminate the AMA, and any subsidiary may terminate

the AMA, at any time by providing at least 90 days prior notice of such termination.

Alto Ingredients recorded revenues of approximately $9,774,000, $11,724,000 and $12,682,000 related to the AMAs in place for the years ended December 31, 2021, 2020 and 2019, respectively. These amounts have been eliminated upon consolidation.

Ethanol Marketing Agreements – Kinergy entered into separate marketing agreements with each of the Company's production facilities, which granted it the exclusive right to purchase, market and sell the alcohols produced at those facilities. Under the terms of the marketing agreements, within ten days after delivering alcohol to Kinergy, an amount is paid to Kinergy equal to (i) the estimated purchase price payable by the third-party purchaser of the alcohol, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated incentive fee payable to Kinergy, which equals 1% of the aggregate third-party purchase price, provided that the marketing fee shall not be less than $0.015 per gallon and not more than $0.0225 per gallon. Each of the marketing agreements had an initial term of one year and successive one year renewal periods at the option of the individual plant.

Kinergy recorded revenues of approximately $4,496,000, $4,275,000 and $7,900,800 related to the marketing agreements for the years ended December 31, 2021, 2020 and 2019, respectively. These amounts have been eliminated upon consolidation.

Corn Procurement and Handling Agreements – Alto Nutrients entered into separate corn procurement and handling agreements with each of the Company's production facilities, with the exception of the Pacific Aurora facilities. Under the terms of the corn procurement and handling agreements, each facility appointed Alto Nutrients as its exclusive agent to solicit, negotiate, enter into and administer, on its behalf, corn supply arrangements to procure the corn necessary to operate the facility. Alto Nutrients also provides grain handling services including, but not limited to, receiving, unloading and conveying corn into the facility's storage and, in the case of whole corn delivered, processing and hammering the whole corn.

Under these agreements, Alto Nutrients receives a fee of $0.03 per bushel of corn delivered to each production facility as consideration for its procurement and handling services, payable monthly. Each corn procurement and handling agreement had an initial term of one year and successive one year renewal periods at the option of the individual facility. Alto Nutrients recorded revenues of approximately $2,694,000, $2,595,000 and $4,288,000 related to the corn procurement and handling agreements for the years ended December 31, 2021, 2020 and 2019, respectively. These amounts have been eliminated upon consolidation.

Through April 15, 2020, each Pacific Aurora production facility operated under a grain procurement agreement with ACEC. Under this agreement, ACEC received a fee of $0.03 per bushel of corn delivered to each facility as consideration for ACEC's procurement and handling services, payable monthly. The grain procurement agreement had an initial term of one year and successive one year renewal periods at the option of the individual facility. Pacific Aurora recorded expenses of approximately $210,000 and $1,103,000 for the years ended December 31, 2020 and 2019, respectively, associated with these agreements. These amounts have not been eliminated upon consolidation as they were with a related but unconsolidated third-party.

Essential Ingredients Marketing Agreements – Alto Nutrients entered into separate marketing agreements with each of the Company's production facilities (except for the Company's Magic Valley facility), which grant Alto Nutrients the exclusive right to market, purchase and sell the various essential ingredients produced at each facility. Under the terms of the marketing agreements, within ten days after a facility delivers essential ingredients to Alto Nutrients, the production facility is paid an amount equal to (i) the estimated purchase price payable by the third-party purchaser of the essential ingredients, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated amount of fees and taxes payable to governmental authorities in connection with the tonnage of the essential ingredients produced or marketed, minus (iv) the estimated incentive fee payable to the Company, which equals (a) 5% of the aggregate third-party purchase price for wet corn gluten feed, wet distillers grains, corn condensed distillers solubles and distillers grains with solubles, or (b) 1% of the aggregate third-party purchase price for corn gluten meal, dry corn gluten feed, dry distillers grains, corn germ and corn oil. Each marketing agreement had an initial term of one year and successive one year renewal periods at the option of the individual facility.

Alto Nutrients recorded revenues of approximately $2,871,000, $2,778,000 and $6,029,000 related to the marketing agreements for the years ended December 31, 2021, 2020 and 2019, respectively. These amounts have been eliminated upon consolidation.

4. SEGMENTS.

The Company reports its financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for Company-produced alcohols and essential ingredients on an aggregated basis, and third-party fuel-grade ethanol (2) Pekin Campus production, which includes the production and sale of alcohols and essential ingredients produced at the Company's Pekin, Illinois campus, and (3) Other production, which includes the production and sale of fuel-grade ethanol and essential ingredients produced at all of the Company's other production facilities on an aggregated basis, none of which are individually so significant to be considered a reportable segment.

Income before provision for income taxes includes management fees charged by Alto Ingredients to the segments. The Pekin Campus production segment incurred $4,344,000, $4,344,000 and $4,014,000 in management fees for the years ended December 31, 2021, 2020 and 2019, respectively. The marketing and distribution segment incurred $3,480,000 in management fees for each of the years ended December 31, 2021, 2020 and 2019, respectively. The Other production segment incurred $4,950,000, $3,893,000 and $5,188,000 in management fees for the years ended December 31, 2021, 2020 and 2019, respectively. Corporate activities include selling, general and administrative expenses, consisting primarily of corporate employee compensation, professional fees and overhead costs not directly related to a specific operating segment.

During the normal course of business, the segments do business with each other. The preponderance of this activity occurs when the Company's marketing segment markets alcohol produced by the production segments for a marketing fee, as discussed in Note 3. These intersegment activities are considered arms'-length transactions. Consequently, although these transactions impact segment performance, they do not impact the Company's consolidated results since all revenues and corresponding costs are eliminated in consolidation.

For the year ended December 31, 2021, capital expenditures incurred by the Pekin Campus segment and the Other production segment were approximately $4.3 million and $2.1 million, respectively. For the years ended December 31, 2020 and 2019, capital expenditures were substantially all incurred at the Company's Pekin Campus production segment.

The following tables set forth certain financial data for the Company's operating segments (in thousands):

	Years Ended December 31,		
	2021	2020	2019
Net Sales			
Pekin Campus production, recorded as gross:			
Alcohol sales	$ 498,195	$ 330,432	$ 343,610
Essential ingredient sales	189,535	130,270	138,987
Intersegment sales	1,193	645	1,110
Total Pekin Campus sales	688,923	461,347	483,707
Marketing and distribution:			
Alcohol sales, gross	$ 379,422	$ 256,209	$ 355,101
Alcohol sales, net	1,753	1,529	1,831
Intersegment sales	10,061	9,648	18,219
Total marketing and distribution sales	391,236	267,386	375,151
Other Production, recorded as gross:			
Alcohol sales	$ 107,931	$ 137,703	$ 455,343
Essential ingredient sales	31,056	40,880	130,009
Intersegment sales	964	1,309	509
Total Other production sales	139,951	179,892	585,861
Intersegment eliminations	(12,218)	(11,602)	(19,838)
Net sales as reported	$ 1,207,892	$ 897,023	$ 1,424,881
Cost of goods sold:			
Pekin Campus production	$ 638,371	$ 389,125	$ 481,262
Marketing and distribution	371,371	253,465	347,185
Other production	136,401	206,412	612,040
Intersegment eliminations	(6,035)	(4,838)	(5,668)
Cost of goods sold as reported	$ 1,140,108	$ 844,164	$ 1,434,819
Income (loss) before provision (benefit) for income taxes:			
Pekin Campus production	$ 41,622	$ 53,898	$ (21,441)
Marketing and distribution	11,756	4,889	12,533
Other production	(3,762)	(54,677)	(77,019)
Corporate activities	(2,065)	(21,409)	(15,375)
	$ 47,551	$ (17,299)	$ (101,302)
Depreciation expense:			
Pekin Campus production	$ 17,352	$ 17,450	$ 17,535
Other production	5,890	12,691	30,107
Corporate activities	50	127	267
	$ 23,292	$ 30,268	$ 47,909

Interest expense:			
Pekin Campus production	$ 756	$ 6,038	$ 7,556
Marketing and distribution	963	1,574	3,053
Other production	167	334	13
Corporate activities	1,701	9,997	9,584
	$ 3,587	$ 17,943	$ 20,206

The following table sets forth the Company's total assets by operating segment (in thousands):

	December 31, 2021	December 31, 2020
Total assets:		
Pekin Campus production	$ 266,197	$ 234,439
Marketing and distribution	130,302	89,337
Other production	57,046	102,409
Corporate assets	31,408	50,633
	$ 484,953	$ 476,818

5. PROPERTY AND EQUIPMENT.

Property and equipment consisted of the following (in thousands):

	December 31,	
	2021	2020
Facilities and plant equipment	$ 364,039	$ 357,740

Land	4,072	4,837
Other equipment, vehicles and furniture	7,656	7,858
Construction in progress	22,505	11,828
	398,272	382,263
Accumulated depreciation	(175,722)	(152,777)
	$ 222,550	$ 229,486

Depreciation expense was $23,292,000, $30,268,000 and $47,909,000 for the years ended December 31, 2021, 2020 and 2019, respectively.

The Company capitalized interest of $628,000, $224,000 and $563,000 for the years ended December 31, 2021, 2020 and 2019, respectively, related to its capital investment activities.

6. DERIVATIVES.

The business and activities of the Company expose it to a variety of market risks, including risks related to changes in commodity prices. The Company monitors and manages these financial exposures as an integral part of its risk management program. This program recognizes the unpredictability of financial markets and seeks to reduce the potentially adverse effects that market volatility could have on operating results.

Commodity Risk – Cash Flow Hedges – The Company uses derivative instruments to protect cash flows from fluctuations caused by volatility in commodity prices for periods of up to twelve months in order to protect gross profit margins from potentially adverse effects of market and price volatility on alcohol sales and purchase commitments where the prices are set at a future date and/or if the contracts specify a floating or index-based price. In addition, the Company hedges anticipated sales of alcohol to minimize its exposure to the potentially adverse effects of price volatility. These derivatives may be designated and documented as cash flow hedges and effectiveness is evaluated by assessing the probability of the anticipated transactions and regressing commodity futures prices against the Company's purchase and sales prices. Ineffectiveness, which is defined as the degree to which the derivative does not offset the underlying exposure, is recognized immediately in cost of goods sold. For the years ended December 31, 2021, 2020 and 2019, the Company did not designate any of its derivatives as cash flow hedges.

Commodity Risk – Non-Designated Hedges – The Company uses derivative instruments to lock in prices for certain amounts of corn and alcohols by entering into exchange-traded futures contracts or options for those commodities. These derivatives are not designated for hedge accounting treatment. The changes in fair value of these contracts are recorded on the balance sheet and recognized immediately in cost of goods sold. The Company recognized net gains of $21,619,000, $14,780,000 and $555,000 as the change in the fair value of these contracts for the years ended December 31, 2021, 2020 and 2019, respectively.

Non-Designated Derivative Instruments – The classification and amounts of the Company's derivatives not designated as hedging instruments, and related cash collateral balances, are as follows (in thousands):

	As of December 31, 2021			
	Assets		Liabilities	
Type of Instrument	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Restricted cash	$ 11,513		
Commodity contracts	Derivative assets	$ 15,839	Derivative liabilities	$ 13,582

	As of December 31, 2020			
	Assets		Liabilities	
Type of Instrument	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Restricted cash	$ 520		
Commodity contracts	Derivative assets	$ 17,149	Derivative liabilities	$ —

The above amounts represent the gross balances of the contracts; however, the Company does have a right of offset with each of its derivative brokers, but its intent is to close out positions individually, therefore, they are reported at gross.

The classification and amounts of the Company's recognized gains (losses) for its derivatives not designated as hedging instruments are as follows (in thousands):

		Realized Gains (Losses) For the Years Ended December 31,		
Type of Instrument	Statements of Operations Location	2021	2020	2019
Commodity contracts	Cost of goods sold	$ 32,618	$ 2,102	$ (4,568)
		$ 32,618	$ 2,102	$ (4,568)

	Unrealized Gains (Losses)

Type of Instrument	Statements of Operations Location	For the Years Ended December 31, 2021	2020	2019
Commodity contracts	Cost of goods sold	$ (10,999)	$ 12,678	$ 5,123
		$ (10,999)	$ 12,678	$ 5,123

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7. DEBT.

Long-term borrowings are summarized as follows (in thousands):

	December 31, 2021	December 31, 2020
Kinergy line of credit	$ 50,401	$ 32,512
Pekin loans	—	20,580
ICP loans	—	9,384
CARES Act loans	—	9,860
Parent notes payable	—	25,533
	50,401	97,869
Less unamortized debt premium	—	230
Less unamortized debt financing costs	(40)	(759)
Less short-term portion	—	(25,533)
Long-term debt	$ 50,361	$ 71,807

Kinergy Line of Credit – Kinergy has an operating line of credit for an aggregate amount of up to $100,000,000. The line of credit matures on August 2, 2023. The credit facility is based on Kinergy's eligible accounts receivable and inventory levels, subject to certain concentration reserves. The credit facility is subject to certain other sublimits, including inventory loan limits. Interest accrues under the line of credit at a rate equal to (i) the daily Secured Overnight Financing Rate, plus (ii) a specified applicable margin ranging between 1.75% and 2.25%. The applicable margin was 2.00%, for a total rate of 2.05% at December 31, 2021. The credit facility's monthly unused line fee is an annual rate equal to 0.25% to 0.375% depending on the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to the Company as reimbursement for management and other services provided by the Company to Kinergy are limited under the terms of the credit facility to $1,500,000 per fiscal quarter. The credit facility also includes the accounts receivable of Alto Nutrients as additional collateral. Payments that may be made by Alto Nutrients to the Company as reimbursement for management and other services provided by the Company to Alto Nutrients are limited under the terms of the credit facility to $500,000 per fiscal quarter.

If the monthly excess borrowing availability of Kinergy and Alto Nutrients falls below certain thresholds, they are collectively required to maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling earnings before interest, taxes, depreciation and amortization divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 2.0 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness).

The obligations of Kinergy and Alto Nutrients under the credit facility are secured by a first-priority security interest in all of their assets in favor of the lender. Alto Ingredients has guaranteed all of Kinergy's obligations under the line of credit. As of December 31, 2021, Kinergy had $25.4 million in unused borrowing availability under the credit facility.

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Pekin Loans – On December 15, 2016, Alto Pekin entered into a credit agreement with 1st Farm Credit Services, PCA and CoBank, ACB, ("CoBank"). Under the terms of the agreement, Alto Pekin borrowed from 1st Farm Credit Services $64.0 million under a term loan facility that was to mature on August 20, 2021 and up to $32.0 million under a revolving term loan facility that was to mature on February 1, 2022. These loans were secured by a first-priority security interest in all of Alto Pekin's assets.

On November 5, 2021, the Company repaid in full the outstanding balances on these loans.

ICP Loans — On September 15, 2017, ICP, Compeer Financial, PCA, or Compeer, and CoBank as agent, entered into a credit agreement. Under the terms of the agreement, ICP borrowed from Compeer $24.0 million under a term loan facility that was to mature on September 20, 2021, and up to $18.0 million under a revolving term loan facility that was to mature on September 1, 2022. These loans were secured by a first-priority security interest in all of ICP's assets.

On November 5, 2021, the Company repaid in full the outstanding balances on these loans.

Parent Notes Payable – On December 12, 2016, the Company entered into a Note Purchase Agreement with five accredited investors and sold $35.0 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold. On June 26, 2017, the Company entered into a second Note Purchase Agreement with five accredited investors and sold an additional $13.9 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold (and collectively with the notes previously sold, the "Notes"). The Notes were secured by a first-priority security interest in all of the Company's equity interests in Alto Op Co.

On May 14, 2021, with proceeds from the Company's sale of its Madera, California facility, the Company repaid $19.3 million of principal on the Notes, resulting in an aggregate remaining balance of $0.7 million.

On November 5, 2021, the Company repaid the remaining outstanding balance on the Notes.

CARES Act Loans – On May 4, 2020, Alto Ingredients and Alto Pekin, received loan proceeds from Bank of America, NA under the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act"), through the Paycheck Protection Program administered by the U.S. Small Business Administration ("SBA"). Alto Ingredients received $6.0 million and Alto Pekin received $3.9 million in loan proceeds. Under the terms of the loans, certain amounts may be forgiven if they are used for qualifying expenses as described in the CARES Act. In June 2021, the SBA approved Alto Pekin's forgiveness application for the full amount of $3.9 million. In September 2021, the SBA approved Alto Ingredients' forgiveness application for the full amount of $6.0 million. As a result, the Company recognized income from loan forgiveness of $9.9 million for the year ended December 31, 2021. The SBA may audit the loan forgiveness applications and further examine eligibility for forgiveness, including the facts and circumstances existing at the time the loans were made. The Company can provide no assurances that any loan forgiven will not require repayment following an audit by the SBA.

Maturities of Long-term Debt – The Company's long-term debt matures as follows (in thousands):

December 31:	
2022	$ —
2023	50,401
	$ 50,401

8. LEASES.

The Company leases equipment and land for certain of its facilities. Operating lease right of use assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. The Company uses its estimated incremental borrowing rate, unless an implicit rate is readily determinable, as the discount rate for each lease in determining the present value of lease payments. For the years ended December 31, 2021 and 2020, the Company's weighted-average discount rate was 6.00%. Operating lease expense is recognized on a straight-line basis over the lease term.

Upon the adoption of ASC 842, the Company elected the following practical expedients allowable under the guidance: not to reassess whether any expired or existing contracts are or contain leases; not to reassess the lease classification for any expired or existing leases; not to reassess initial direct costs for any existing leases; not to separately identify lease and non-lease components; and not to evaluate historical land easements. Additionally, the Company elected the short-term lease exemption policy, applying the requirements of ASC 842 to only long-term (greater than 1 year) leases.

The Company determines if an arrangement is a lease or contains a lease at inception.The Company's leases have remaining lease terms of approximately 1 year to 54 years, which includes options to extend the lease when it is reasonably certain the Company will exercise those options. For the year ended December 31, 2021, the weighted-average remaining lease terms of equipment and land-related leases were 3.08 years and 22.82 years, respectively. The Company does not have lease arrangements with residual value guarantees, sale-leaseback terms or material restrictive covenants. The Company does not have any material finance lease obligations nor sublease agreements.

Leases consist of the following:

	Classification	December 31, 2021	December 31, 2020
Assets			
Operating	Right of use operating lease assets, net	$ 13,413	$ 11,046
Liabilites			
Operating - Current	Current portion, operating leases	$ 3,909	$ 2,180
Operating - Noncurrent	Operating leases, net of current portion	$ 9,382	$ 8,715

The Components of lease costs were as follows (in thousands):

	Years Ended December 31, 2021	2020	2019
Fixed lease cost	$ 4,500	$ 5,732	$ 10,093
Variable lease cost	238	212	328
Net lease cost	$ 4,738	$ 5,944	$ 10,421

The following table summarizes the remaining maturities of the Company's operating lease liabilities, assuming all land lease extensions are taken, as of December 31, 2021 (in thousands):

Year Ended:	Equipment	Land Related
2022	$ 4,201	$ 559
2023	2,778	461
2024	1,535	436
2025	1,082	595
2026	504	608
2027-76	—	5,382
Less Interest	(932)	(3,918)
	$ 9,168	$ 4,123

9. PENSION PLANS.

Retirement Plan - The Company sponsors a defined benefit pension plan (the "Retirement Plan") that is noncontributory, and covers only "grandfathered" unionized employees at its Alto Pekin production facilities. Benefits are based on a prescribed formula based upon the employee's years of service. Employees hired after November 1, 2010, are not eligible to participate in the Retirement Plan. The Company uses a December 31st measurement date for its Retirement Plan. The Company's funding policy is to make the minimum annual contribution required by applicable regulations.

Information related to the Retirement Plan as of and for the years ended December 31, 2021 and 2020 is presented below (dollars in thousands):

	2021	2020
Changes in plan assets:		
Fair value of plan assets, beginning	$ 17,588	$ 15,654
Actual gains	2,399	1,969
Benefits paid	(763)	(721)
Company contributions	763	686
Participant contributions	—	—
Fair value of plan assets, ending	$ 19,987	$ 17,588
Less: projected accumulated benefit obligation	$ 23,828	$ 24,629
Funded status, (underfunded)/overfunded	$ (3,841)	$ (7,041)
Amounts recognized in the consolidated balance sheets:		
Other liabilities	$ (3,841)	$ (7,041)
Accumulated other comprehensive loss	$ 574	$ 3,199
Assumptions used in computation of benefit obligations:		
Discount rate	2.80%	2.50%
Expected long-term return on plan assets	5.75%	6.25%
Rate of compensation increase	—	—

	Years Ended December 31,		
	2021	2020	2019
Components of net periodic benefit costs are as follows:			
Service cost	$ 436	$ 405	$ 374
Interest cost	605	690	760
Amortization of net loss	98	—	—
Expected return on plan assets	(952)	(903)	(760)
Net periodic benefit cost	$ 187	$ 192	$ 374

The Company expects to make contributions in the year ending December 31, 2022 of approximately $0.85 million. Net periodic benefit cost for 2022 is estimated at less than $0.1 million.

The following table summarizes the expected benefit payments for the Company's Retirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2022	$ 850
2023	900
2024	940
2025	1,000
2026	1,020
2027-31	5,780
	$ 10,490

See Note 16 for discussion of the Retirement Plan's fair value disclosures.

Historical and future expected returns of multiple asset classes were analyzed to develop a risk-free real rate of return and risk premiums for each asset class. The overall rate for each asset class was developed by combining a long-term inflation component, the risk-free real rate of return, and the associated risk premium. A weighted-average rate was developed based on those overall rates and the target asset allocation of the Retirement Plan.

The Company's pension committee is responsible for overseeing the investment of pension plan assets. The pension committee is responsible for determining and monitoring the appropriate asset allocations and for selecting or replacing investment managers, trustees, and custodians. The Retirement Plan's current investment target allocations are 50% equities and 50% debt. The pension committee periodically reviews the actual asset allocation in light of these targets and rebalances investments as necessary. The pension committee also evaluates the performance of investment managers as compared to the performance of specified benchmarks and peers and monitors the investment managers to ensure adherence to their stated investment style and to the Retirement Plan's investment guidelines.

Postretirement Plan - The Company also sponsors a health care plan and life insurance plan (the "Postretirement Plan") that provides postretirement medical benefits and life insurance to certain "grandfathered" unionized employees at its Alto Pekin production facilities. Employees hired after December 31, 2000, are not eligible to participate in the Postretirement Plan. The plan is contributory, with contributions required at the same rate as active employees. Benefit eligibility under the plan reduces at age 65 from a defined benefit to a defined dollar cap based upon years of service.

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Information related to the Postretirement Plan as of December 31, 2021 and 2020 is presented below (dollars in thousands):

	2021	2020
Amounts at the end of the year:		
Accumulated/projected benefit obligation	$ 4,313	$ 5,296
Fair value of plan assets	—	—
Funded status, (underfunded)/overfunded	$ (4,313)	$ (5,296)
Amounts recognized in the consolidated balance sheets:		
Accrued liabilities	$ (210)	$ (300)
Other liabilities	$ (4,103)	$ (4,996)
Accumulated other comprehensive (income) loss	$ (290)	$ 679
Discount rate used in computation of benefit obligations	2.50%	2.05%

	Years Ended December 31,		
	2021	2020	2019
Components of net periodic benefit costs are as follows:			
Service cost	$ 42	$ 54	$ 67
Interest cost	105	151	219
Amortization of prior service cost	25	30	122
Net periodic benefit cost	$ 172	$ 235	$ 408
Amounts recognized in the plan for the year:			
Participant contributions	$ 32	$ 26	$ 24
Benefits paid	$ 217	$ 200	$ 195

The Company does not expect to recognize any amortization of net actuarial loss during the year ended December 31, 2021.

The following table summarizes the expected benefit payments for the Company's Postretirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2022	$ 210
2023	240
2024	260
2025	280
2026	330
2027-2031	1,720
	$ 3,040

For purposes of determining the cost and obligation for pre-Medicare postretirement medical benefits, a 7.00% annual rate of increase in the per capita cost of covered benefits (i.e., health care trend rate) was assumed for the Postretirement Plan in 2023, adjusted to a rate of 4.50% in 2032. Assumed health care cost trend rates have a significant effect on the amounts reported for health care plans.

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10. INCOME TAXES.

The Company recorded a provision (benefit) for income taxes as follows (in thousands):

	Years Ended December 31,		
	2021	2020	2019
Current provision (benefit)	$ 1,469	$ —	$ (22)
Deferred provision (benefit)	—	(17)	2
Total	$ 1,469	$ (17)	$ (20)

A reconciliation of the differences between the United States statutory federal income tax rate and the effective tax rate as provided in the consolidated statements of operations is as follows:

	Years Ended December 31,		
	2021	2020	2019
Statutory rate	21.0%	21.0%	21.0%
State income taxes, net of federal benefit	6.0	5.7	5.7
Change in valuation allowance	(18.8)	(9.4)	(22.4)

Income from loan forgiveness	(5.5)	—	—
Fair value adjustments	—	(12.7)	—
Noncontrolling interest	—	(3.4)	(3.3)
Non-deductible items	0.4	(0.4)	(0.1)
Other	(0.1)	(0.8)	(1.0)
Effective rate	3.0%	(0.0)%	(0.1)%

Deferred income taxes are provided using the asset and liability method to reflect temporary differences between the financial statement carrying amounts and the tax bases of assets and liabilities using presently enacted tax rates and laws. The components of deferred income taxes included in the consolidated balance sheets were as follows (in thousands):

	December 31,	
	2021	2020
Deferred tax assets:		
Net operating loss carryforwards	$ 46,159	$ 61,208
Capital loss	28,640	29,684
Disallowed interest	1,059	6,255
R&D, Energy and AMT credits	3,742	3,864
Pension liability	2,189	3,235
Railcar contracts	618	302
Stock-based compensation	479	441
Allowance for doubtful accounts and other assets	367	461
Other	2,646	1,963
Total deferred tax assets	85,899	107,413
Deferred tax liabilities:		
Property and equipment	(8,896)	(16,243)
Intangibles	(749)	(749)
Derivatives	(606)	(4,497)
Other	(300)	(472)
Total deferred tax liabilities	(10,551)	(21,961)
Valuation allowance	(75,584)	(85,688)
Net deferred tax liabilities, included in other liabilities	$ (236)	$ (236)

A portion of the Company's net operating loss carryforwards are subject to provisions of the tax law that limit the use of losses incurred by a corporation prior to the date certain ownership changes occur. These limitations also apply to certain depreciation deductions associated with assets on hand at the time of the ownership change and otherwise allowable during the five-year period following the ownership change. As the five-year limitation period lapsed in 2019, these disallowed deductions are reflected in property and equipment in the schedule above but continue to be subject to the annual limitation that applies to the pre-change net operating losses. Due to the limitation on the use of net operating losses and depreciation deductions, a significant portion of these carryforwards will expire regardless of whether the Company generates future taxable income. After reducing these net operating loss carryforwards for the amount which will expire due to this limitation, the Company had remaining federal net operating loss carryforwards of approximately $168,720,000 and state net operating loss carryforwards of approximately $173,825,000 at December 31, 2021. These net operating loss carryforwards expire as follows (in thousands):

Tax Years	Federal	State
2022–2026	$ 3,831	$ 3,374
2027–2031	16,289	76,288
2032–2036	55,671	24,796
2037 and after*	92,929	69,367
Total NOLs	$ 168,720	$ 173,825

* Includes indefinite life federal net operating losses of $80.7 million generated after 2017.

Approximately $99,236,000 is available to utilize against federal taxable income for 2022.

To the extent amounts are not utilized in any year, they may be carried forward to the next year until expiration. These amounts may change if there are future additional limitations on their utilization.

Federal capital loss of $107,699,000 may be carried forward for 5 years and will expire in 2025. State capital loss of $103,098,000 may be carried forward for 5 years for most of the states in which the Company files returns and will expire in 2025.

In assessing whether the deferred tax assets are realizable, a more likely than not standard is applied. If it is determined that it is more likely than not that deferred tax assets will not be realized, a valuation allowance must be established against the deferred tax assets. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which the associated temporary differences become deductible. Management considers the scheduled reversal of deferred tax

liabilities, projected future taxable income and tax planning strategies in making this assessment.

A valuation allowance was established in the amount of $75,584,000 and $85,688,000 as of December 31, 2021 and 2020, respectively, based on the Company's assessment of the future realizability of certain deferred tax assets. The valuation allowance on deferred tax assets is related to future deductible temporary differences and net operating loss carryforwards for which the Company has concluded it is more likely than not that these items will not be realized in the ordinary course of operations.

For the year ended December 31, 2021, the Company recorded a decrease in valuation allowance of $10,104,000. This was primarily related to utilization of net operating losses as the Company generated taxable income for the year. For the year ended December 31, 2020, the Company recorded an increase in valuation allowance of $1,623,000. This was primarily the offsetting impact of an increase in deferred tax assets associated with the capital loss carryforward offset by changes in depreciation and other adjustments associated with property plant and equipment, and mark-to-market adjustments related to derivatives in 2020. For the year ended December 31, 2019, the Company recorded an increase in the valuation allowance of $43,477,000. Of this increase, $22,641,000 was primarily the offsetting impact of an increase in deferred tax assets associated with additional net operating losses in 2019. The remaining increase of $20,836,000 relates to a deferred asset related to previously disallowed depreciation discussed above.

The Company is subject to income tax in the United States federal jurisdiction and various state jurisdictions and has identified its federal tax return and tax returns in state jurisdictions below as "major" tax filings. These jurisdictions, along with the years still open to audit under the applicable statutes of limitation, are as follows:

Jurisdiction	Tax Years
Federal	2018 – 2020
Alabama	2018 – 2020
Arizona	2017 – 2020
Arkansas	2018 – 2020
California	2017 – 2020
Colorado	2017 – 2020
Connecticut	2018 – 2020
Georgia	2018 – 2020
Idaho	2018 – 2020
Illinois	2018 – 2020
Indiana	2018 – 2020
Iowa	2018 – 2020
Kansas	2018 – 2020
Louisiana	2018 – 2020
Michigan	2018 – 2020
Minnesota	2018 – 2020
Mississippi	2018 – 2020
Missouri	2018 – 2020
Nebraska	2018 – 2020
New Mexico	2018 – 2020
Oklahoma	2018 – 2020
Oregon	2018 – 2020
Pennsylvania	2018 – 2020
Rhode Island	2018 – 2020
South Carolina	2018 – 2020
Tennessee	2018 – 2020
Texas	2017 – 2020

However, because the Company had net operating losses and credits carried forward in several of the jurisdictions, including the United States federal and California jurisdictions, certain items attributable to closed tax years are still subject to adjustment by applicable taxing authorities through an adjustment to tax attributes carried forward to open years.

11. PREFERRED STOCK.

The Company has 6,734,835 undesignated shares of authorized and unissued preferred stock, which may be designated and issued in the future on the authority of the Company's Board of Directors. As of December 31, 2021, the Company had the following designated classes of preferred stock:

Series A Preferred Stock – The Company has authorized 1,684,375 shares of Series A Cumulative Redeemable Convertible Preferred Stock ("Series A Preferred Stock"), with none outstanding at December 31, 2021 and 2020. Shares of Series A Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

Upon any issuance, the Series A Preferred Stock would rank senior in liquidation and dividend preferences to the Company's common stock. Holders of Series A Preferred Stock would be entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 5% per annum of the purchase price per share of the Series A Preferred Stock. The holders of the Series A Preferred Stock would have conversion rights initially equivalent to two shares of common stock for each share of Series A Preferred Stock, subject to customary antidilution adjustments. Certain specified issuances will not result in antidilution adjustments. The shares of Series A Preferred Stock would also be subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series A Preferred Stock of 25% or more. Accrued but unpaid dividends on the Series A Preferred Stock are to be paid in cash upon any conversion of the Series A Preferred Stock.

The holders of Series A Preferred Stock would have a liquidation preference over the holders of the Company's common stock equivalent to the purchase price per share of the Series A Preferred Stock plus any accrued and unpaid dividends on the Series A Preferred Stock. A liquidation would be deemed to occur upon the happening of customary events, including transfer of all or substantially all of the Company's capital stock or assets or a merger, consolidation, share exchange, reorganization or other transaction or series of related transactions, unless holders of 66 2/3% of the Series A Preferred Stock vote affirmatively in favor of or otherwise consent to such transaction.

Series B Preferred Stock – The Company has authorized 1,580,790 shares of Series B Cumulative Convertible Preferred Stock ("Series B Preferred Stock"), with926,942 shares outstanding at December 31, 2021 and 2020. Shares of Series B Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

The Series B Preferred Stock ranks senior in liquidation and dividend preferences to the Company's common stock. Holders of Series B Preferred Stock are entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 7.00% per annum of the purchase price per share of the Series B Preferred Stock; however, subject to the provisions of the Letter Agreement described below, such dividends may, at the option of the Company, be paid in additional shares of Series B Preferred Stock based initially on the liquidation value of the Series B Preferred Stock. In addition to the quarterly cumulative dividends, holders of the Series B Preferred Stock are entitled to participate in any common stock dividends declared by the Company to its common stockholders. The holders of Series B Preferred Stock have a liquidation preference over the holders of the Company's common stock initially equivalent to $19.50 per share of the Series B Preferred Stock plus any accrued and unpaid dividends on the Series B Preferred Stock. A liquidation will be deemed to occur upon the happening of customary events, including the transfer of all or substantially all of the capital stock or assets of the Company or a merger, consolidation, share exchange, reorganization or other transaction or series of related transaction, unless holders of 66 2/3% of the Series B Preferred Stock vote affirmatively in favor of or otherwise consent that such transaction shall not be treated as a liquidation. The Company believes that such liquidation events are within its control and therefore has classified the Series B Preferred Stock in stockholders' equity.

As of December 31, 2021, the Series B Preferred Stock was convertible into964,230 shares of the Company's common stock. The conversion ratio is subject to customary antidilution adjustments. In addition, antidilution adjustments are to occur in the event that the Company issues equity securities, including derivative securities convertible into equity securities (on an as-converted or as-exercised basis), at a price less than the conversion price then in effect. The shares of Series B Preferred Stock are also subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series B Preferred Stock of 25% or more. The forced conversion is to be based upon the conversion ratio as last adjusted. Accrued but unpaid dividends on the Series B Preferred Stock are to be paid in cash upon any conversion of the Series B Preferred Stock.

The holders of Series B Preferred Stock vote together as a single class with the holders of the Company's common stock on all actions to be taken by the Company's stockholders. Each share of Series B Preferred Stock entitles the holder to approximately 0.03 votes per share on all matters to be voted on by the stockholders of the Company. Notwithstanding the foregoing, the holders of Series B Preferred Stock are afforded numerous customary protective provisions with respect to certain actions that may only be approved by holders of a majority of the shares of Series B Preferred Stock.

In 2008, the Company entered into Letter Agreements with Lyles United LLC ("Lyles United") and other purchasers under which the Company expressly waived its rights under the Certificate of Designations relating to the Series B Preferred Stock to make dividend payments in additional shares of Series B Preferred Stock in lieu of cash dividend payments without the prior written consent of Lyles United and the other purchasers.

On or about December 19, 2019, the Company and the holders of its Series B Preferred Stock entered into letter agreements under which the holders agreed that until the earlier of (i) the Company's repayment of its obligations in respect of its senior secured notes and thereafter until the next scheduled quarterly installment of Series B Preferred Stock dividends, or (ii) the occurrence of a specified event of default under the letter agreement, or (iii) two years from the date of the letter agreement (collectively, the "Waiver Period"), the holders waive any rights and remedies against the Company with respect to any unpaid dividends. Cumulative dividends on the Series B Preferred Stock continued to accrue during the Waiver Period and remained owing to the holders of the Series B Preferred Stock. The letter agreement expired in December 2021. As a result, the Company paid all accrued and unpaid Series B Preferred Stock dividends and resumed quarterly dividend payments on its Series B Preferred Stock on December 31, 2021.

Registration Rights Agreement – In connection with the sale of its Series B Preferred Stock, the Company entered into a registration rights agreement with Lyles United. The registration rights agreement is to be effective until the holders of the Series B Preferred Stock, and their affiliates, as a group, own less than 10% for each of the series issued, including common stock into which such Series B Preferred Stock has been converted. The registration rights agreement provides that holders of a majority of the Series B Preferred Stock, including common stock into which such Series B Preferred Stock has been converted, may demand and cause the Company to register on their behalf the shares of common stock issued, issuable or that may be issuable upon conversion of the Preferred Stock and as payment of dividends thereon, and upon exercise of the related warrants (collectively, the "Registrable Securities"). The Company is required to keep such registration statement effective until such time as all of the Registrable Securities are sold or until such holders may avail themselves of Rule 144 for sales of Registrable Securities without registration under the Securities Act of 1933, as amended. The holders are entitled to two demand registrations on Form S-1 and unlimited demand registrations on Form S-3; provided, however, that the Company is not obligated to effect more than one demand registration on Form S-3 in any calendar year. In addition to the demand registration rights afforded the holders under the registration rights agreement, the holders are entitled to unlimited "piggyback" registration rights. These rights entitle the holders who so elect to be included in registration statements to be filed by the Company with respect to other registrations of equity securities. The Company is responsible for all costs of registration, plus reasonable fees of one legal counsel for the holders, which fees are not to exceed $25,000 per registration. The registration rights agreement includes customary representations and warranties on the part of both the Company and the holders and other customary terms and conditions.

12. COMMON STOCK AND WARRANTS.

Warrants issued to Senior Noteholders – On December 22, 2019, in connection with an extension of the Company's Notes, the Company issued warrants to purchase an aggregate of 5,500,000 shares of the Company's common stock. The warrants had an exercise price of $1.00 per share and were exercisable commencing June 22, 2020 and were to expire on December 22, 2020. The Company had determined that the warrants issued in this transaction did not meet the conditions for classification in stockholders' equity and as such, the Company recorded them as a liability at fair value. These warrants were initially valued at $977,000 as of December 31, 2019. Until they were exercised, the Company revalued them at each reporting period. In August 2020, these warrants were fully exercised for $1.00 per share. See Note 15 for the Company's fair value assumptions.

Warrants issued in Equity Offering – On October 28, 2020, the Company closed an underwritten public offering of 5,075,000 shares of its common stock at a public offering price of $8.42 per share and 5-year pre-funded warrants to purchase 3,825,493 shares of common stock at a public offering price of $8.42 per pre-funded warrant. The Company had determined that the warrants issued in this transaction did not meet the conditions for classification in stockholders' equity and as such, the Company recorded them as a liability at fair value. In November 2020, these warrants were fully exercised. For the period they were outstanding in 2020, the Company revalued them at each reporting period. See Note 15 for the Company's fair value assumptions.

In addition, in a concurrent private placement, the Company also issued to the investor, for a nominal price, warrants to purchase an additional 8,900,493 shares of common stock at an exercise price of $9.757 per share. The warrants became exercisable after the six-month anniversary of the offering and will expire on the 18-month anniversary of the offering, or April 28, 2022. The Company had determined that when initially issued, these warrants did not meet the conditions for classification in stockholders' equity, however, in November 2020, the Company amended these warrants which then met the conditions of classification in stockholders' equity and as such, the Company recorded them initially as a liability at fair value and upon their amendment, reclassified their then fair value to equity. See Note 15 for the Company's fair value assumptions.

The aggregate gross proceeds from the offerings of common stock, pre-funded warrants and warrants were approximately $75.0 million. The net offering proceeds were approximately $70.5 million after deducting underwriting discounts and commissions and other estimated offering expenses.

The following table summarizes warrant activity for the years ended December 31, 2021, 2020 and 2019 (number of shares in thousands):

	Number of Shares	Price per Share	Weighted Average Exercise Price
Balance at December 31, 2018	—	$ —	$ —
Warrants issued	5,500	$ 1.00	$ 1.00
Balance at December 31, 2019	5,500	$ 1.00	$ 1.00
Warrants exercised	(5,500)	$ 1.00	$ 1.00
Pre-funded warrants issued	3,825	$ 0.00	$ 0.00
Pre-funded warrants exercised	(3,825)	$ 0.00	$ 0.00
Series A warrants issued	8,900	$ 9.76	$ 9.76
Balance at December 31, 2020	8,900	$ 9.76	$ 9.76
Balance at December 31, 2021	8,900	$ 9.76	$ 9.76

Nonvoting Common Stock – In 2015, the Company issued nonvoting common stock convertible at a holder's election into voting common stock. As of December 31, 2021, an aggregate of 3,539,236 shares of nonvoting common stock had been converted into an equal number of shares of the Company's voting common stock. As of December 31, 2021, 896 shares of nonvoting common stock were outstanding.

At-the-Market Program – In October 2018, the Company established an "at-the-market" equity distribution program under which it could offer and sell shares of common stock to, or through, sales agents by means of ordinary brokers' transactions on The Nasdaq Stock Market, in block transactions, or as otherwise agreed between the Company and its sales agent at prices deemed appropriate. For the years ended December 31, 2020 and 2019, the Company issued 1,421,000 and 3,137,000 shares of common stock through its "at-the-market" equity program that resulted in net proceeds of $5,296,000 and $3,670,000 and fees paid to its sales agent of $171,000 and $66,000, respectively. The Company terminated its "at-the-market" program in October 2020.

13. STOCK-BASED COMPENSATION.

The Company has two equity incentive compensation plans: a 2006 Stock Incentive Plan and a 2016 Stock Incentive Plan.

2006 Stock Incentive Plan – The 2006 Stock Incentive Plan authorized the issuance of incentive stock options ("ISOs") and non-qualified stock options ("NQOs"), restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company's officers, directors or key employees or to consultants that do business with the Company for up to an aggregate of 1,715,000 shares of common stock. In June 2016, the 2006 Stock Incentive plan was terminated, except to the extent of issued and outstanding unvested stock awards and options.

2016 Stock Incentive Plan – On June 16, 2016, the Company's shareholders approved the 2016 Stock Incentive Plan, which authorizes the issuance of ISOs, NQOs, restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company's officers, directors or key employees or to consultants that do business with the Company initially for up to an aggregate of 1,150,000 shares of common stock. On June 14, 2018, the Company's shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 3,650,000 shares. On November 7, 2019, the Company's shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 5,650,000 shares. On November 18, 2020, the Company's shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 7,400,000 shares.

Stock Options – Summaries of the status of Company's stock option plans as of December 31, 2021 and 2020 and of changes in options outstanding under the Company's plans during those years are as follows (number of shares in thousands):

	Years Ended December 31,			
	2021		2020	
	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
Outstanding at beginning of year	207	$ 4.16	229	$ 4.15

Options exercised	(124)	3.74	(22)	3.74
Options expired	(9)	12.90	—	—
Outstanding at end of year	74	$ 3.74	207	$ 4.16
Options exercisable at end of year	74	$ 3.74	207	$ 4.16

Stock options outstanding as of December 31, 2021 were as follows (number of shares in thousands):

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted-Average Remaining Contractual Life (yrs.)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
$ 3.74	74	1.46	$ 3.74	74	$ 3.74

The aggregate intrinsic value of the options outstanding was $79,000, $262,000 and $0 as of December 31, 2021, 2020 and 2019, respectively.

Restricted Stock – A summary of unvested restricted stock activity is as follows (shares in thousands):

	Number of Shares	Weighted-Average Grant Date Fair Value Per Share
Unvested at December 31, 2019	2,201	$ 1.84
Issued	1,663	$ 1.25
Vested	(1,290)	$ 2.08
Canceled	(314)	$ 1.33
Unvested at December 31, 2020	2,260	$ 1.34
Issued	750	$ 5.76
Vested	(1,525)	$ 1.64
Canceled	(98)	$ 2.77
Unvested at December 31, 2021	1,387	$ 3.30

The fair value of the common stock at vesting aggregated $8,810,000, $1,639,000 and $599,000 for the years ended December 31, 2021, 2020 and 2019, respectively. Stock-based compensation expense related to employee and non-employee restricted stock and option grants recognized in the accompanying consolidated statements of operations, was as follows (in thousands):

	Years Ended December 31,		
	2021	2020	2019
Employees	$ 1,758	$ 2,025	$ 2,422
Non-employees	1,125	654	387
Total stock-based compensation expense	$ 2,883	$ 2,679	$ 2,809

Employee grants typically have a two or three-year vesting schedule, while non-employee grants have a one-year vesting schedule. At December 31, 2021, the total compensation expense related to unvested awards which had not been recognized was $3,036,000 and the associated weighted-average period over which the compensation expense attributable to those unvested awards will be recognized was approximately 0.61 years.

14. COMMITMENTS AND CONTINGENCIES.

Commitments – The following is a description of significant commitments at December 31, 2021:

Sales Commitments – At December 31, 2021, the Company had entered into sales contracts with its major customers to sell certain quantities of alcohol and essential ingredients. The Company had open alcohol indexed-price contracts for 155,326,000 gallons as of December 31, 2021 and open fixed-price alcohol sales contracts totaling $205,701,000 as of December 31, 2021. The Company had open fixed-price sales contracts for essential ingredients totaling $18,758,000 and open indexed-price sales contracts of essential ingredients for 5,054,000 tons as of December 31, 2021. These sales contracts are scheduled for completion over the next twelve months.

Purchase Commitments – At December 31, 2021, the Company had indexed-price purchase contracts to purchase 62,748,000 gallons of alcohol and fixed-price purchase contracts to purchase $153,986,000 of alcohol from its suppliers. The Company had fixed-price purchase contracts to purchase $2,022,000 of corn from its suppliers as of December 31, 2021. The Company had fixed-price purchase contracts for natural gas totaling $18,300,000 and indexed-price purchase contracts for natural gas totaling 3,900,000 MMBTU. The Company also had future commitments for certain capital projects totaling $19,400,000. These purchase commitments are scheduled to be satisfied through mid-2022.

Contingencies – The following is a description of significant contingencies at December 31, 2021:

Litigation – The Company is subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When the Company is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and the amount of the loss can be reasonably estimated, the Company will record a liability for the loss. If the loss is not probable or the amount of the loss cannot be reasonably estimated, the Company discloses the claim if the likelihood of a potential loss is reasonably possible, and the amount involved could be material. While there can be no assurances, the Company does not expect that any of its pending legal proceedings will have a material financial impact on the Company's operating results.

15. FAIR VALUE MEASUREMENTS.

The fair value hierarchy prioritizes the inputs used in valuation techniques into three levels, as follows:

- Level 1 – Observable inputs – unadjusted quoted prices in active markets for identical assets and liabilities;
- Level 2 – Observable inputs other than quoted prices included in Level 1 that are observable for the asset or liability through corroboration with market data; and
- Level 3 – Unobservable inputs – includes amounts derived from valuation models where one or more significant inputs are unobservable. For fair value measurements using significant unobservable inputs, a description of the inputs and the information used to develop the inputs is required along with a reconciliation of Level 3 values from the prior reporting period.

Pooled separate accounts – Pooled separate accounts invest primarily in domestic and international stocks, commercial paper or single mutual funds. The net asset value is used as a practical expedient to determine fair value for these accounts. Each pooled separate account provides for redemptions by the Retirement Plan at reported net asset values per share, with little to no advance notice requirement, therefore these funds are classified within Level 2 of the valuation hierarchy.

Long-Lived Assets Held-for-Sale – The Company recorded its long-lived assets associated with its property and equipment held-for-sale at fair value at December 31, 2021 and 2020 of $1,000,000 and $58,295,000, respectively. The fair values of these assets are based on observable values for the assets through corroboration with market data and are designated as Level 3 inputs.

Warrants issued to Senior Noteholders – The Company's warrants issued December 22, 2019, were valued using the Black-Scholes Valuation Model and adjusted for quarterly. On August 5, 2020, these warrants were exercised in full and prior to exercise, the Company adjusted their fair value using the following assumptions (fair value dollars in thousands):

Original Issuance	Exercise Price	Volatility	Risk Free Interest Rate	Term (years)	Fair Value
12/22/19	$ 1.00	178.0%	0.08%	0.10	$ 8,474

The assumptions used and related fair value for these warrants as of December 31, 2019 were as follows (fair value dollars in thousands):

Original Issuance	Exercise Price	Volatility	Risk Free Interest Rate	Term (years)	Fair Value
12/22/19	$ 1.00	76.0%	1.66%	3.00	$ 977

Warrants issued in Equity Offering – The Company issued pre-funded warrants and other warrants with exercise prices of $0.001 and $9.757, respectively. The Company valued these warrants upon issuance using the Binomial valuation methodology. On November 16, 2020, the pre-funded warrants were exercised, and as a result, were revalued immediately prior to their exercise. Further, the other warrants were amended on November 24, 2020, resulting in equity accounting, and accordingly were revalued immediately prior to their amendment. The assumptions used were as follows (fair value dollars in thousands):

Warrant Type	Valuation Date	Exercise Price	Volatility	Risk Free Interest Rate	Term (years)	Fair Value
Pre-funded	10/28/2020	$ 0.01	97.0%	0.34%	5.00	$ 23,638
Other	10/28/2020	$ 9.76	134.0%	0.14%	1.50	$ 27,048
Pre-funded	11/16/2020	$ 0.01	97.0%	0.40%	4.95	$ 21,916
Other	11/24/2020	$ 9.76	135.0%	0.13%	1.45	$ 31,231

The fair values of the warrants are based on unobservable inputs and are designated as Level 3 inputs. The changes in the Company's fair value of its Level 3 inputs with respect to its warrants were as follows (in thousands):

	Warrants to Senior Noteholders	Pre-funded Warrants	Other Warrants
Balance, December 31, 2019	$ 977	$ —	$ —
Issuance of warrants in October 2020 offering	—	23,638	27,048
Exercise of warrants/reclass to equity in 2020	(8,474)	(21,917)	(31,231)
Adjustments to fair value for 2020	7,497	(1,721)	4,183
Balance, December 31, 2021	$ —	$ —	$ —

Other Derivative Instruments – The Company's other derivative instruments consist of commodity positions. The fair values of the commodity positions are based on quoted prices on the commodity exchanges and are designated as Level 1 inputs.

The following table summarizes recurring and nonrecurring fair value measurements by level at December 31, 2021 (in thousands):

	Fair Value	Level 1	Level 2	Level 3	Benefit Plan Percentage Allocation
Assets:					
Derivative financial instruments	$ 15,839	$ 15,839	$ —	$ —	
Long-lived assets held-for-sale	1,000	—	—	1,000	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	5,612	—	5,612	—	28%
Small/Mid U.S. Equity(3)	3,684	—	3,684	—	18%
International Equity(4)	2,909	—	2,909	—	15%
Fixed Income(5)	7,782	—	7,782	—	39%
	$ 36,826	$ 15,839	$ 19,987	$ 1,000	
Liabilities:					
Derivative financial instruments	$ 13,582	$ 13,582	$ —	$ —	

The following table summarizes recurring and nonrecurring fair value measurements by level at December 31, 2020 (in thousands):

	Fair Value	Level 1	Level 2	Level 3	Benefit Plan Percentage Allocation
Assets:					
Derivative financial instruments	$ 17,149	$ 17,149	$ —	$ —	
Long-lived assets held-for-sale	58,295	—	—	58,295	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	5,470	—	5,470	—	31%
Small/Mid U.S. Equity(3)	2,605	—	2,605	—	15%
International Equity(4)	2,921	—	2,921	—	17%
Fixed Income(5)	6,592	—	6,592	—	37%
	$ 93,032	$ 17,149	$ 17,588	$ 58,295	
Liabilities:					
	$ —	$ —	$ —	$ —	

(1) See Note 9 for accounting discussion.

(2) This category includes investments in funds comprised of equity securities of large U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(3) This category includes investments in funds comprised of equity securities of small- and medium-sized U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(4) This category includes investments in funds comprised of equity securities of foreign companies including emerging markets. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(5) This category includes investments in funds comprised of U.S. and foreign investment-grade fixed income securities, high-yield fixed income securities that are rated below investment-grade, U.S. treasury securities, mortgage-backed securities, and other asset-backed securities. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

16. SUBSEQUENT EVENTS.

Acquisition of Eagle Alcohol – On January 14, 2022, Alto Ingredients, Inc. purchased 100% of the membership interests of Eagle Alcohol. The purchase price was $14.0 million in cash plus an estimated net working capital adjustment of $1.3 million in cash. The selling members of Eagle Alcohol are eligible to receive up to an additional $14.0 million of contingent consideration, payable through a combination of $9.0 million in cash over the next three years and an aggregate of $5.0 million in the Company's common stock on the fourth and fifth year anniversaries of the closing date, subject to the satisfaction of certain conditions, including continued employment with the Company.

Eagle Alcohol specializes in break bulk distribution of specialty alcohols. Eagle Alcohol purchases bulk alcohol from suppliers, including the Company. Then it stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that garner a premium to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, pharma, and related-process industries via its own dedicated trucking fleet and common carrier. The acquisition will provide the Company further vertical integration and reach new markets in the specialty alcohol industry.

Eagle Alcohol's unaudited results for 2021 generated $35.7 million in net sales and $3.6 million in pre-tax income. Assuming the acquisition had closed on January 1, 2021, the combined consolidated financials of the Company, on a pro forma unaudited basis, excluding any intangible amortization, would have resulted in net sales of $1,243.6 million, pre-tax income of $51.2 million, and diluted earnings per share of $0.66.

The allocation of the estimated purchase price has not been completed. Preliminarily, the Company estimates acquired tangible assets of approximately $8.6 million, acquired intangible assets, including any goodwill, of approximately $12.8 million and liabilities of approximately $6.1 million.

The Company expects to recognize certain identifiable intangible assets with respect to customers and tradename, which is ongoing and an estimate cannot be provided. In addition, a final valuation may include either an asset or liability associated with any material out-of-market contract positions.

The actual determination of the purchase price allocation on the closing date will be based on the final net tangible and intangible assets of Eagle Alcohol as of January 14, 2022, based on completion of the valuation of the fair value of such net assets. The Company anticipates that the ultimate purchase price allocation of balance sheet amounts such as current assets and liabilities, property and equipment, intangible assets and long-term assets and liabilities will differ from the preliminary assessment noted above, including any income tax impact. Any changes to the initial estimates of the fair value of the acquired assets and assumed liabilities will be recorded as adjustments to those assets and liabilities and residual amounts will be allocated to goodwill if net assets acquired are less than the purchase price. If net assets acquired exceed the purchase price, the residual amount will result in a bargain purchase gain.

Amendments to Notes Receivable – On February 23, 2022, the Company settled certain post-closing indemnification claims with ACEC, amending the Company's notes receivable with ACEC. These amendments reduced the overall principal balance by $1.6 million and accelerated the maturity dates of the notes to June 30, 2022.

INDEX TO EXHIBITS

Exhibit Number	Description*	Where Located				
		Form	File Number	Exhibit Number	Filing Date	Filed Herewith
2.1	Asset Purchase Agreement dated April 23, 2021 by and among the Registrant, Pacific Ethanol Madera LLC and Seaboard Energy California, LLC	10-Q	000-21467	10.1	08/10/2021	
2.2	First Amendment to Asset Purchase Agreement dated July 30, 2021 by and among the Registrant, Pacific Ethanol Madera LLC and Seaboard Energy California, LLC	10-Q	000-21467	10.2	08/10/2021	
2.3	Asset Purchase Agreement dated November 5, 2021 by and among the Registrant, Pacific Ethanol Stockton LLC and Pelican Acquisition LLC					X
3.1	Certificate of Incorporation	10-Q	000-21467	3.1	11/06/2015	
3.2	Certificate of Designations, Powers, Preferences and Rights of the Series A Cumulative Redeemable Convertible Preferred Stock	10-Q	000-21467	3.2	11/06/2015	
3.3	Certificate of Designations, Powers, Preferences and Rights of the Series B Cumulative Convertible Preferred Stock	10-Q	000-21467	3.3	11/06/2015	
3.4	Certificate of Amendment to Certificate of Incorporation dated June 3, 2010	10-Q	000-21467	3.4	11/06/2015	
3.5	Certificate of Amendment to Certificate of Incorporation effective June 8, 2011	10-Q	000-21467	3.5	11/06/2015	
3.6	Certificate of Amendment to Certificate of Incorporation effective May 14, 2013	10-Q	000-21467	3.6	11/06/2015	
3.7	Certificate of Amendment to Certificate of Incorporation effective July 1, 2015	10-Q	000-21467	3.7	11/06/2015	
3.8	Certificate of Amendment to Certificate of Incorporation effective January 12, 2021	8-K	000-21467	3.1	01/13/2021	
3.9	Second Amended and Restated Bylaws	8-K	000-21467	3.2	01/13/2021	
4.1	Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934	10-K	000-21467	4.1	03/30/2020	
10.1	2006 Stock Incentive Plan, as amended#	S-8	333-196876	4.1	06/18/2014	
10.2	2016 Stock Incentive Plan, as amended#	S-8	333-250180	4.10	11/18/2020	
10.3	Form of Employee Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.5	03/15/2018	

Exhibit Number	Description*	Where Located				
		Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.4	Form of Non-Employee Director Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.6	03/15/2017	
10.5	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Christopher W. Wright#	10-K	000-21467	10.8	03/15/2017	
10.6	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Bryon T. McGregor#	10-K	000-21467	10.9	03/15/2017	
10.7	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and James R. Sneed#	10-K	000-21467	10.12	03/15/2017	

10.8	Second Amended and Restated Employment Agreement dated July 26, 2018 between the Registrant and Michael D. Kandris#	8-K	000-21467	10.1	08/07/2020	
10.9	Employment Agreement dated February 1, 2022 between the Registrant and Auste M. Graham#					X
10.10	Form of Indemnity Agreement between the Registrant and each of its Executive Officers and Directors#	10-K	000-21467	10.46	03/31/2010	
10.11	Policy for Recoupment of Incentive Compensation dated March 29, 2018#	10-K	000-21467	10.17	03/18/2019	
10.12	Form of Clawback Policy Acknowledgement and Agreement#	10-K	000-21467	10.18	03/18/2019	
10.13	Registration Rights Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.4	03/27/2008	
10.14	Letter Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.5	03/27/2008	
10.15	Letter Agreement dated May 22, 2008 among the Registrant, Neil M. Koehler, Bill Jones, Paul P. Koehler and Thomas D. Koehler#	8-K	000-21467	10.3	05/23/2008	
10.16	Second Amended and Restated Credit Agreement dated August 2, 2017 among Kinergy Marketing LLC, Pacific Ag. Products, LLC, Wells Fargo Bank, National Association, and the parties thereto from time to time as lenders	8-K	000-21467	10.1	08/08/2017	

		Where Located				
Exhibit Number	**Description***	**Form**	**File Number**	**Exhibit Number**	**Filing Date**	**Filed Herewith**
10.17	Amendment No. 1 to Second Amended and Restated Credit Agreement dated March 27, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC and Wells Fargo Bank, National Association	10-Q	000-21467	10.7	05/03/2019	
10.18	Amendment No. 2 to Second Amended and Restated Credit Agreement dated July 31, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association	8-K	000-21467	10.1	08/06/2019	
10.19	Amendment No. 3 to Second Amended and Restated Credit Agreement dated November 19, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association	10-K	000-21467	10.61	03/30/2020	
10.20	Waiver, Consent and Amendment No. 4 to Second Amended and Restated Credit Agreement dated March 8, 2021 by and among Kinergy Marketing LLC, Alto Nutrients, LLC and Wells Fargo Bank, National Association					X
10.21	Waiver, Consent, and Amendment No. 5 to Second Amended and Restated Credit Agreement dated June 10, 2021 by and among Kinergy Marketing LLC, Alto Nutrients, LLC and Wells Fargo Bank, National Association					X
10.22	Second Amended and Restated Guarantee dated August 2, 2017 by the Registrant in favor of Wells Fargo Bank, National Association, for and on behalf of the lenders	8-K	000-21467	10.2	08/08/2017	
10.23	Secured Promissory Note (Negotiable) dated April 15, 2020 in the amount of $8,580,000 by Pacific Aurora, LLC in favor of Pacific Ethanol Central, LLC	8-K	000-21467	10.4	04/21/2020	
10.24	Secured Promissory Note (Non-Negotiable) dated April 15, 2020 in the amount of $7,920,000 by Pacific Aurora, LLC in favor of Pacific Ethanol Central, LLC	8-K	000-21467	10.5	04/21/2020	
10.25	Series A Warrant to Purchase Common Stock dated October 28, 2020 for 8,900,493 shares by and between the Registrant and CVI Investments, Inc.	10-K	000-21467	10.85	03/26/2021	

		Where Located				
Exhibit Number	**Description***	**Form**	**File Number**	**Exhibit Number**	**Filing Date**	**Filed Herewith**
10.26	Registration Rights Agreement dated October 28, 2020 by and between the Registrant and CVI Investments, Inc.	10-K	000-21467	10.86	03/26/2021	
21.1	Subsidiaries of the Registrant					X
23.1	Consent of Independent Registered Public Accounting Firm					X
31.1	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X

31.2	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X
32.1	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X
101.INS	Inline XBRL Instance Document	X
101.SCH	Inline XBRL Taxonomy Extension Schema	X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase	X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase	X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase	X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase	X
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101)	X

(#) A contract, compensatory plan or arrangement to which a director or executive officer is a party or in which one or more directors or executive officers are eligible to participate.

(*) Certain of the agreements filed as exhibits contain representations and warranties made by the parties thereto. The assertions embodied in such representations and warranties are not necessarily assertions of fact, but a mechanism for the parties to allocate risk. Accordingly, investors should not rely on the representations and warranties as characterizations of the actual state of facts or for any other purpose at the time they were made or otherwise.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on this 14th day of March, 2022.

ALTO INGREDIENTS, INC.

/s/ MICHAEL D. KANDRIS
Michel D. Kandris
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ WILLIAM L. JONES William L. Jones	Chairman of the Board and Director	March 14, 2022
/s/ MICHAEL D. KANDRIS Michael D. Kandris	President, Chief Executive Officer (Principal Executive Officer), Chief Operating Officer and Director	March 14, 2022
/s/ BRYON T. MCGREGOR Bryon T. McGregor	Chief Financial Officer (Principal Financial and Accounting Officer)	March 14, 2022
/s/ TERRY L. STONE Terry L. Stone	Director	March 14, 2022
/s/ JOHN L. PRINCE John L. Prince	Director	March 14, 2022
/s/ DOUGLAS L. KIETA Douglas L. Kieta	Director	March 14, 2022
/s/ GILBERT E. NATHAN Gilbert E. Nathan	Director	March 14, 2022
/s/ DIANNE S. NURY Dianne S. Nury	Director	March 14, 2022

Exhibit 2.3

EXECUTION COPY

ASSET PURCHASE AGREEMENT

dated as of November 5, 2021
by and among

PACIFIC ETHANOL STOCKTON LLC

as Seller,

PELICAN ACQUISITION LLC

as Purchaser,

and for purposes of Article V and Article XI,

ALTO INGREDIENTS, INC.

as Seller Parent

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Exhibits

Schedules

ASSET PURCHASE AGREEMENT

THIS ASSET PURCHASE AGREEMENT (this "**Agreement**"), dated effective as of November 5, 2021, is made and entered into by and among Pacific Ethanol Stockton LLC, a Delaware limited liability company (the "**Seller**"), Pelican Acquisition LLC, a California limited liability company (the "**Purchaser**"), and, for purposes of Article V and Article XI hereof, Alto Ingredients, Inc. a Delaware corporation ("**Seller Parent**"). Seller, Purchaser and (as provided above) Seller Parent are each referred to individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, Seller is the owner of the Facility and certain assets related to the Facility; and

WHEREAS, Seller wishes to sell to Purchaser, and Purchaser wishes to purchase from Seller, all right, title and interest in and to the Purchased Assets, and in connection therewith Purchaser is willing to assume the Assumed Liabilities, all upon the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and the mutual representations, warranties, covenants, agreements and conditions set forth in this Agreement, and for other good and valuable consideration, the sufficiency and receipt of which is hereby acknowledged, the Parties intending to be legally bound, agree as follows:

ARTICLE I

DEFINITIONS

Section 1.1 Definitions. The following terms have the following meanings when used herein:

"**Acceptable Bank**" means any United States commercial bank(s) or financial institution(s) or a United States branch of a foreign commercial bank(s) or financial institution(s) having a long-term unsecured senior debt rating of at least A2 or better by Moody's and A or better by S&P.

"**Action**" means any claim, action, lawsuit, arbitration, inquiry, proceeding or investigation by or before any Governmental Authority.

"**Affiliate**" means, with respect to any Person, any other Person directly or indirectly controlling or controlled by, or under direct or indirect common control with, such Person. For purposes of this definition, a Person shall be deemed to control another Person if it (a) owns or controls more than fifty percent (50%) of the voting equity of the other Person (or other comparable ownership if the Person is not a corporation) or (b) possesses the power to direct or cause the direction of the management policies of a Person, by contract or otherwise.

"**Agreed Amount**" has the meaning set forth in Section 11.5(a)(ii).

"**Agreement**" has the meaning set forth in the preamble to this Agreement.

"**Airgas Sublease**" means that certain sublease agreement dated March 15, 2018, between Seller, as sublessor, and Airgas USA, LLC, a Delaware limited liability company, as sublessee.

"**Allocation Schedule**" has the meaning set forth in Section 3.3.

"**Ancillary Agreements**" means any and all written agreements (including the Bill of Sale, Assignment and Assumption Agreement, the Transition Services Agreement, the Stockton Transit Agreement and the Ethanol Marketing Agreement), documents, certificates or other instruments to be entered into or executed by Seller, Purchaser, or their Affiliates, in connection with the transactions contemplated by this Agreement.

"**Annual Adjustment Date**" has the meaning set forth in in Sections 1.2.1 and 5.4.1 of the Ground Lease.

"**Asset Acquisition Statement**" has the meaning set forth in Section 3.3.

"**Assigned Contracts**" and "**Assigned Contract**" have the meanings set forth in Section 2.1(c).

"**Assumed Liabilities**" means the following Liabilities (in each case, excluding any and all Excluded Liabilities): (a) all Liabilities of Seller under each of the Assigned Contracts and Assumed Permits accruing after the Closing Date; (b) all Liabilities for Taxes to the extent arising out of the ownership or operation of the Purchased Assets or the Assumed Liabilities after the Closing Date or otherwise apportioned to Purchaser pursuant to Article II or otherwise in this Agreement; (c) any Liabilities relating to or arising out of Purchaser's ownership or operation of the Purchased Assets from and after the Closing Date; and (d) all Liabilities of Seller and/or Seller Parent, as applicable, under the Site Leases, the Airgas Sublease and the Maintenance Agreement first arising after the Closing Date and not relating to any breach, default or violation of Seller or any other act or omission of Seller thereunder. For the avoidance of doubt, Assumed Liabilities shall not include Liabilities for Seller's portion of the Conveyance Taxes.

"**Assumed Permits**" has the meaning set forth in Section 2.1(e).

"**Base Rent**" has the meaning set forth in Section 1.2.2 of the Ground Lease.

"**Bill of Sale and Assignment and Assumption Agreement**" means a bill of sale and assignment and assumption agreement, to be entered into by and among Seller, Seller Parent and Purchaser, on the other, in substantially the form attached hereto as Exhibit A.

"**Books, Records and Files**" has the meaning set forth in Section 2.1(d).

"**Business Day**" means any day that is not a Saturday, a Sunday or other day on which banks are required or authorized by Law to be closed in the State of California.

"**CARB**" means the California Air Resources Board or any successor body politic or corporate.

"**CARB Compliance Requirements**" has the meaning set forth in Section 7.11.

"**Closing**" has the meaning set forth in Section 4.1.

"**Closing Date**" has the meaning set forth in Section 4.1.

"**Code**" means the Internal Revenue Code of 1986, as amended.

"**Competition Law**" means any Law that prohibits, restricts or regulates actions having the purpose or effect of monopolization or restraint of trade or lessening of competition through merger or acquisition.

"**Confidential Information**" means all ideas, information, knowledge and discoveries, whether or not patentable, trademarkable or copyrightable, that are not

generally known in the trade or industry and about which Seller or its Affiliates have knowledge as a result of their participation in, or direct or indirect beneficial ownership of the Facility or the Purchased Assets, or negotiation or consummation of the transactions contemplated by this Agreement, including all information or knowledge relating to Purchaser or its Affiliates. Notwithstanding the foregoing, the term "**Confidential Information**" shall not include any information that now or hereafter is in the public domain by means other than disclosure after the date hereof by Seller or its Affiliates.

"**Confidentiality Agreement**" has the meaning set forth in Section 7.2(b).

"**Consent**" means any consent, approval, authorization, registration, declaration, filing, notice of, with or to any Person or under any Law, or the expiration or termination of a waiting period under any Competition Law, in each case required to permit the consummation of the transactions contemplated by this Agreement.

"**Contract**" means any loan or credit agreement, bond, debenture, note, mortgage, indenture, lease, supply agreement, affiliate agreement, hedging or futures agreements, distribution agreement, sales agreement, license agreement, manufacturing agreement or other contract, agreement, arrangement, obligation, commitment or instrument that is legally binding, other than a Permit.

"**Conveyance Taxes**" has the meaning set forth in Section 8.5.

"**Contested Amount**" has the meaning set forth in Section 11.5(a)(ii).

"**Deductible**" has the meaning set forth in Section 11.4(c)(i).

"**Direct Claim**" has the meaning set forth in Section 11.5(b)(i).

"**Direct Claim Agreed Amount**" has the meaning set forth in Section 11.5(b)(ii).

"**Direct Claim Contested Amount**" has the meaning set forth in Section 11.5(b)(ii).

"**Direct Claim Notice**" has the meaning set forth in Section 11.5(b)(i).

"**Direct Claim Response Notice**" has the meaning set forth in Section 11.5(b)(ii).

"**Easements**" means all licenses, concessions, easements, rights-of-way, encroachment agreements, restrictive covenants, municipal right-of-way agreements and other agreements (other than leases and Permits) to which Seller or its Affiliates is a party relating to the ownership, rights in, access to, or use or operation of the Facility, including those Easements described on Schedule 5.5(b).

"**Employee Benefit Plan**" means any bonus, deferred compensation, pension, retirement, profit-sharing, incentive, share appreciation right, thrift, savings, employment, termination, severance, compensation, welfare, medical, health or other plan, agreement, policy or arrangement currently maintained, sponsored or contributed to, or required to be contributed to, by Seller Parent for the benefit of any Facility Employee.

"**Encumbrance**" means any lien, pledge, hypothecation, charge, mortgage, security interest or other encumbrance.

"**End Date**" has the meaning set forth in Section 10.1(b).

"**Engineering Review**" has the meaning set forth in Section 7.17.

"**Environmental Attributes**" means any emissions or renewable energy credits, energy conservation credits, benefits, offsets and allowances, emission reduction credits or words of similar import or regulatory effect (including emissions reduction credits or allowances under all applicable emission trading, compliance or budget programs, or any other federal, state or regional emission, renewable energy or energy conservation trading or budget program) that have been held, allocated to or acquired for the development, construction, ownership, lease, operation, use or maintenance of the Facility.

"**Environmental Laws**" means any and all Laws, whenever in effect, and any amendments thereto (whether common law, public law, rule, order, regulation, or otherwise), directives, judgments, and other requirements promulgated or entered into by any Governmental Authority relating to the environment, human health, public safety (but only with respect to exposure to Hazardous Materials), air, wildlife, wildlife habitat, preservation or reclamation of natural, cultural or archaeological resources, or to the management, handling, use, generation, treatment, storage, transportation, disposal, manufacture, distribution, formulation, packaging, labeling, Release or threatened Release of or exposure to Hazardous Materials, including but not limited to: the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("**CERCLA**"), as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. §§ 9601 et seq.; the Federal Water Pollution Control Act, 33 U.S.C. § 1251 et seq.; the Clean Air Act, 42 U.S.C. § 7401 et seq.; the Toxic Substances Control Act, 15 U.S.C. § 2601 et seq.; the Emergency Planning and Community Right to Know Act of 1986, 42 U.S.C. § 11001 et seq.; the Safe Drinking Water Act, 42 U.S.C. § 300(f) et seq.; the Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq.; the Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. § 136 et seq.; the Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 et seq.; the Oil Pollution Act of 1990, 33 U.S.C. § 2701 et seq.; the Occupational Safety and Health Act, 29 U.S.C. § 651 et seq.; the National Environmental Policy Act, 42 U.S.C. § 4321 et seq.; the Endangered Species Act, 16 U.S.C. § 1531 et seq.; the Bald and Golden Eagle Protection Act, 16 U.S.C. § 668 et seq.; the Migratory Bird Treaty Act, 16 U.S.C. § 703 et seq.; National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.; and any similar, analogous, or implementing state or local Laws, all amendments or regulations promulgated thereunder; and any applicable standard of conduct under any common law doctrine, including but not limited to, negligence, nuisance, or trespass, personal injury, or property damage related to protection of the environment or related to or arising out of the presence, Release, or exposure to Hazardous Materials.

"**Environmental Notice**" means any written directive, notice of violation or infraction, or notice respecting any claim or demand relating to actual or alleged non-compliance with any Environmental Law or any term or condition of any Permit.

"**EPA**" means the United States Environmental Protection Agency.

"**ERISA**" means the Employee Retirement Income Security Act of 1974 and the applicable rules and regulations promulgated thereunder.

"**Escrow Holder**" has the meaning set forth in Section 4.1.

"**Ethanol Marketing Agreement**" means that certain Ethanol Marketing Agreement to be entered into at the Closing by and between Kinergy and Purchaser, in substantially the form attached hereto as Exhibit B.

"**Excluded Liabilities**" has the meaning set forth in Section 2.3.

"**Expiry Date**" has the meaning set forth in Section 7.12.

"**Facility**" means Seller's ethanol plant located on the Site, including without limitation all ethanol producing equipment, auxiliary equipment, logistical assets and appurtenant facilities, such as any water treatment facilities and waste disposal facilities. "**Facility**" also includes (i) all facilities, fixtures, furnishings, equipment, and rights used in connection with or otherwise appurtenant to the ownership, use, or operation of the Facility, and (ii) the Real Property and all other property used in connection with or otherwise appurtenant to the ownership, use, or operation of the Facility.

"**Facility Employee**" means any employee of Seller Parent employed at the Facility.

"**Final Contested Amount**" has the meaning set forth in Section 11.5(a)(ii).

"**Final Direct Claim Contested Amount**" has the meaning set forth in Section 11.5(b)(ii).

"**Governmental Authority**" means any nation, government, state or other political subdivision thereof, whether foreign or domestic, including any municipality, township or county, and any entity exercising executive, legislative, judicial, regulatory, or administrative functions of or pertaining to government, including any corporation, or other entity, owned or controlled by any of the foregoing.

"**Governmental Order**" means any order, writ, judgment, injunction, decree, stipulation, determination or award entered by or with any Governmental Authority.

"**Ground Lease**" means that certain Ordinance No. 218 Lease by The Stockton Port District to Pacific Ethanol Stockton, LLC, dated February 5, 2007, by and between Seller and The Stockton Port District, as amended by the First Addendum to Lease (Ordinance No. 218), dated August 1, 2008, by and between Seller and The Stockton Port District, and as recorded in the official records of San Joaquin County, California pursuant to the Memorandum of Lease, dated August 1, 2008, by and between Seller and The Stockton Port District, which lease term was extended to February 4, 2027 pursuant to an email correspondence by and between Seller and The Stockton Port District on May 10, 2018 and confirmed by that letter from The Port of Stockton dated September 23, 2021.

"**Hazardous Materials**" means (a) materials listed in 40 C.F.R. § 302.4 and materials defined as hazardous substances pursuant to Section 101(14) of CERCLA, (b) any substances regulated by any Governmental Authority as a "hazardous substance," "extremely hazardous substance," "hazardous material," "hazardous waste," "infectious waste," "medical waste," "toxic substance," "toxic pollutant," "contaminant," "pollutant" or any other formulation intended to classify substances by reason of deleterious properties such as ignitability, corrosivity, reactivity, carcinogenicity, toxicity, or reproductive toxicity, and (c) pollutants, effluents, residues, contaminants, asbestos, petroleum (including crude oil or any fraction thereof, all petroleum- related products, by-products, and wastes), polychlorinated biphenyls, urea formaldehyde, radon gas, methane gas, radioactive materials (including any source, special nuclear, or by-product material), explosives, chlorofluorocarbons, lead or lead-based materials, and any other substance with respect to which any requirement or Liability may be imposed pursuant to any Environmental Law.

"**Indebtedness**" means, with respect to any Person: (a) any indebtedness for borrowed money or issued in substitution for or exchange of indebtedness for borrowed money, including any such indebtedness evidenced by any note, bond (including surety and appeal bonds, performance bonds and other obligations of a like nature), letter of credit (to the extent of any amounts drawn thereunder by the beneficiary thereof), debenture, mortgage or similar debt instrument; (b) bank overdrafts or Liability obligations under a letter of credit, bankers' acceptance note, purchase facility or other similar facility; (c) Liabilities for the deferred purchase price of property acquired by, or services rendered to, such Person that are required to be classified and accounted for under generally accepted account principles as debt (excluding accounts payable arising in the ordinary course of business but including all Liabilities created or arising under any conditional sale or other title retention agreement with respect to any such property); (d) Liabilities in respect of finance leases; (e) all unpaid penalties (including prepayment penalties), interest, fees, premiums, costs and expenses (if any) relating to any indebtedness or Liabilities specified in clauses (a) through (d) above; (f) obligations in respect of derivative, hedges or similar instruments; (g) any off-balance sheet indebtedness; (h) all guarantees given by such Person in respect of Indebtedness of any other Person and any Indebtedness of any other Person that is secured by an Encumbrance on the property of such Person; and (i) Liabilities under any interest rate protection agreement, interest rate future agreement, interest rate option agreement, interest rate swap agreement or other similar agreement designed to protect against fluctuations in interest rates or other currency fluctuations.

"**Indemnified Party**" means any Person asserting a claim for indemnification under any provision of Article XI.

"**Indemnifying Party**" means any Person against whom a claim for indemnification is being asserted under any provision of Article XI.

"**Intellectual Property**" means (a) patents, patent applications (including patents issued thereon) and statutory invention registrations, including reissues, divisions, continuations, continuations in part, extensions and reexaminations thereof, (b) trademarks, service marks, trade names, service names, trade dress and logos, including all goodwill associated therewith, and registrations and applications for registration thereof, and all reissues, extensions and renewals of any of the foregoing, (c) copyrightable works, copyrights, moral rights, mask work rights, database rights and design rights, whether or not registered, and registrations and applications for registration thereof, and (d) intellectual property rights arising from or in respect of trade secrets and other confidential or proprietary processes, methods, designs, formulae, technical information, know-how, drawings, blueprints, designs, quality assurance and control procedures, design tools, simulation capability, manuals and technical information.

"**IRS**" means the United States Internal Revenue Service.

"**Kinergy**" means Kinergy Marketing, LLC, an Oregon limited liability company and wholly-owned subsidiary of Seller Parent.

"**Knowledge**" means (i) in the case of Seller, the actual knowledge (after reasonable inquiry) of Michael D. Kandris, Bryon McGregor, Rob Olander, Jeff Unsinger, Patrick McKenzie and Christopher W. Wright, and (ii) in the case of Purchaser, the actual knowledge (after reasonable inquiry) of John Zuckerman, Tom Zuckerman, Neil Koehler and Paul Koehler.

"**Law**" means any United States federal, state or local, or any foreign, statute, law, ordinance, regulation, rule, code, order, other requirement or rule of law.

"**Liability**" or "**Liabilities**" means (a) any direct or indirect liability, Indebtedness, guaranty, endorsement, claim, Loss, obligation or responsibility, whether fixed or unfixed, known or unknown, asserted or unasserted, liquidated or unliquidated, secured or unsecured, absolute or contingent, due or to become due, accrued or unaccrued, and

(b) anything done or omitted to be done or any act, neglect, default, omission, breach of contract or breach of duty on the part of Seller on or prior to the Closing Date or referable to the period up and including the Closing Date.

"**Litigation**" means any complaint, Action, suit, proceeding, mediation, arbitration or other alternate dispute resolution procedure, demand, review, citation, demand, summons, audit, examination, investigation, subpoena of any nature, inquiry, (whether civil, criminal, regulatory, administrative or otherwise) in law or in equity.

"**Losses**" means any losses, liabilities, fines, damages, penalties, costs and expenses (including without limitation interest, court costs, reasonable fees of attorneys, accountants and other experts), in each case that are suffered, incurred, or due and payable.

"**Low Carbon Fuel Standard Regulation**" means the regulation set forth in Title 17 of the California Code of Regulations, §§ 95480-95503.

"**Maintenance Agreement**" means that certain Maintenance Agreement for the Pacific Ethanol Stockton Project, dated December 11, 2006, by and among Seller Parent, State Building & Construction Trade Council of California and San Joaquin, Claveras, Alpine Building & Construction Trade Council.

"**Material Adverse Effect**" means an event, change, occurrence, circumstance, development or effect that has or could have a material adverse effect, individually or in the aggregate, on the Purchased Assets, taken as a whole, or the ability of Seller or Purchaser to perform its respective obligations under this Agreement or any Ancillary Agreement; provided, however, that in no event shall any of the following, alone or in combination, be deemed to constitute, or be taken into account, in determining whether there has been, or would be, a Material Adverse Effect: (a) any adverse change attributable to (i) the disclosure or execution of this Agreement, (ii) the disclosure or consummation of the transactions contemplated by this Agreement or any of the Ancillary Agreements, or (iii) the business or activities in which Purchaser or its Affiliates are, or are proposed to be, engaged, or the identity of Purchaser or its Affiliates as Purchaser of the Purchased Assets, in each case, as a result of the announcement or pendency of this Agreement; (b) any event, change or effect (i) in the domestic or international financial, credit, securities or commodities markets (including interest rates, currency exchanges rates, and securities price levels or trading volumes), or domestic or international economic, regulatory or political conditions or (ii) in the industries and markets in which the Purchased Assets are used, including competition in any of the geographic areas in which the Purchased Assets are used; (c) global, national, regional or local political conditions or trends; (d) acts of war, terrorism (including by cyberattack or otherwise) or military or governmental action (or the escalation of any of the foregoing); (e) manmade disasters, natural disasters, weather developments, pandemics (including the novel coronavirus, COVID-19), and acts of God, including earthquakes, hurricanes, tsunamis, typhoons, lightning, hail storms, blizzards, tornadoes, droughts, crop shortages, floods, rising sea levels, cyclones, arctic frosts, mudslides and wildfires; (f) any event, change or effect resulting from any changes or anticipated or proposed changes including repeal or anticipated or proposed repeal, of any (i) Law or any legislative or political conditions, policy or practices of any Governmental Authority applicable to the use of the Purchased Assets, including and without limiting the generality of the foregoing, the Renewable Fuel Standard Program and other programs, quotas, and regulations under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007, or (ii) applicable accounting regulations or principles, in each case of the foregoing subclauses (i) or (ii), including any change in the interpretation or enforcement thereof; (g) any action required to be taken pursuant to this Agreement or any Ancillary Agreement; or (h) any action or omission by Purchaser or its Affiliates, or action or omission approved or consented to by Purchaser or its Affiliates after the date hereof; except, in respect of the changes described in clauses (b) through (f), to the extent such changes would reasonably be expected to have a material, disproportionate effect on the Purchased Assets relative to comparable assets and properties (and then only to the extent of such disproportionate impact).

"**Non-Assigned Contract**" has the meaning set forth in Section 7.15(a)

"**Ordinary Course of Business**" means the ordinary and usual course of maintenance of the Purchased Assets by Seller as of the date hereof.

"**Party**" and "**Parties**" have the meanings set forth in the preamble to this Agreement.

"**Pending Claim**" has the meaning set forth in Section 7.12.

"Performance Reports" has the meaning set forth in Section 5.5(e).

"**Periodic Taxes**" has the meaning set forth in Section 8.1.

"**Permits**" means all permits (including all permits required by Environmental Laws), licenses, franchises, registrations, approvals, variances, qualifications, consents, certificates (including permanent unconditional certificates of occupancy), zoning by-laws or zoning approvals, and any authorizations or agreements of any sort whatsoever by or from any Governmental Authority, including any certificates of need, provider numbers and accreditation necessary to the siting, interconnection, ownership and operation of the Facility.

"**Permitted Encumbrances**" means the following: (i) Encumbrances for utilities and current Taxes not yet due and payable; (ii) applicable zoning Laws, building codes, land use restrictions and other similar restrictions imposed by Law; (iii) all Assumed Liabilities and Assigned Contracts; (iv) the Airgas Sublease; (v) prior to the Closing Date, any Encumbrances set forth on Schedule 5.5(a); and (vi) such other Encumbrances or title exceptions as set forth in the Title Policy which have been accepted or waived in writing by Purchaser on the Closing Date.

"**Person**" means any individual, corporation, partnership, limited partnership, joint venture, limited liability company, trust or unincorporated organization or Governmental Authority or any other entity.

"**Post-Closing Tax Period**" means any taxable period (or portion thereof) commencing after the Closing Date, including such portion of any Straddle Period commencing after the Closing Date.

"**Pre-Closing Tax Period**" means any taxable period (or portion thereof) ending on or prior to the Closing Date, including such portion of any Straddle Period up to and including the Closing Date.

"**Purchase Price**" has the meaning set forth in Section 3.1.

"**Purchased Assets**" has the meaning set forth in Section 2.1.

"**Purchaser**" has the meaning set forth in the preamble to this Agreement.

"**Purchaser Indemnified Parties**" means Purchaser, its Affiliates, and their respective directors, officers, agents, successors and permitted assigns.

"**Real Property**" means all interests in real property leased by and to Seller with respect to the Facility, including the Site Leases, the Airgas Sublease, and all of Seller's right, title, and interest in and to all other privileges, rights, Easements, and appurtenant rights related to such real property, Site Leases, and Airgas Sublease.

"**Release**" means (a) any releasing, spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, migrating, disposing or dumping into the indoor or outdoor environment, and (b) any other action defined as or included in the definition of "release" or words of similar import under any applicable Environmental Law.

"**Renewable Fuel Standard Program**" means the Renewable Fuel Standard Program under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 and implementing regulations, including 40 C.F.R. Part 80, Subpart M.

"**Rent Start Date**" has the meaning set forth in Section 1.2.35 of the Ground Lease.

"**Replacement Letter of Credit**" has the meaning set forth in Section 7.12.

"**Reports**" means all surveys, title policies, opinions or other title reports, tests, evaluations, inspections and investigations of the Real Property that are in Seller's possession or control, including soils testing, geotechnical borings and compaction surveys, wetlands delineations, historic resource and environmental site assessments.

"**Response Notice**" has the meaning set forth in Section 11.5(a)(ii).

"**Schedules**" means the schedules attached to this Agreement.

"**Seller**" has the meaning set forth in the preamble to this Agreement.

"**Seller Indemnified Parties**" means Seller, Seller Parent, their respective Affiliates, and their respective directors, officers, agents, successors and permitted assigns.

"**Seller Parent**" has the meaning set forth in the preamble.

"**Seller Parent Letter of Credit**" means an irrevocable, standby letter of credit for the benefit of Purchaser in a face value equal to $2,400,000 and with a term of nineteen (19) months, substantially in the form of Exhibit C, from an Acceptable Bank.

"**Site**" has the meaning set forth in Section 5.5(c).

"**Site Leases**" has the meaning set forth in Section 5.5(b).

"**State**" means any one of the states comprising the United States of America.

"**Stockton Transit Agreement**" means that certain Stockton Transit Agreement to be entered into at the Closing by and between Kinergy and Purchaser, in substantially the form attached hereto as Exhibit E.

"**Straddle Period**" means any taxable period beginning before the Closing Date and ending on or after the Closing Date.

"**Survival Expiration Date"** has the meaning set forth in Section 7.12.

"**Tangible Personal Property**" means all office equipment and supplies, machinery, equipment, hardware, furniture, fixtures, tools, tangible or digital computer systems (including computers, screens, servers, workstations, routers, hubs, switches, networks, data communications lines and hardware) and telecommunications systems and all other tangible personal property; provided, however, that Tangible Personal Property shall not include any Intellectual Property.

"**Tax**" (or "**Taxes**" as the context may require) means any and all federal, state, local or foreign taxes, fees, levies, duties, tariffs, imposts and other charges of any kind, imposed by any Governmental Authority or taxing authority, including taxes or other charges on, measured by, or with respect to income, franchise, windfall or other profits, gross receipts, property, sales, use, capital stock, payroll, employment, social security, workers' compensation, unemployment compensation or net worth; taxes or other charges in the nature of excise, withholding, ad valorem, stamp, transfer, unclaimed property, value-added or gains taxes; license, registration and documentation fees; and customs duties, tariffs and similar charges (whether or not imposed on Seller or on any of its Affiliates).

"**Tax Return**" means any return, report, declaration, election, estimate, information statement, claim for refund and return or other document (including any related or supporting information and any amendment to any of the foregoing) filed or required to be filed with any taxing authority with respect to Taxes.

"**Third Party Claim**" has the meaning set forth in Section 11.5(a)(i).

"**Third Party Claim Notice**" has the meaning set forth in Section 11.5(a)(i).

"**Title Insurer**" means North American Title Company.

"**Title Policy**" means an ALTA Owner's Policy of title insurance issued by the Title Insurer insuring that title to (i) the leasehold interest in the Real Property and (ii) the Easements are vested in Purchaser (or its designated vestee), subject only to Permitted Encumbrances, in the amount equal to $24,000,000, with extended coverages and endorsements as Purchaser shall have reasonably requested.

"**Transition Services Agreement**" means that certain Transition Services Agreement, to be entered into at the Closing by and between Seller Parent and Purchaser, in substantially the form attached hereto as Exhibit D.

"**United States**" means the United States of America and its territories and possessions.

Section 1.2 Interpretation . Unless otherwise required by the context in which any term appears:

(a) The singular shall include the plural, the plural shall include the singular, and the masculine shall include the feminine and neuter.

(b) References to "Articles," "Sections," "Annexes," "Schedules" or "Exhibits" shall be to articles, sections, annexes, schedules or exhibits of or to this Agreement. The words "herein," "hereof," "herewith" and "hereunder" and words of similar import shall refer to this Agreement as a whole and not to any particular section or subsection of this Agreement, and references to "clauses" shall be to separate clauses of the section or subsection in which the reference occurs. The words "include," "includes" or "including" shall mean "including, without limitation" and the word "or" shall not be exclusive.

(c) The term "day" shall mean a calendar day, commencing at 12:00 a.m. (prevailing Pacific time). The term "month" shall mean a calendar month; provided, however, that when a period measured in months commences on a date other than the first day of a month, the period shall run from the date on which it commences to the corresponding date in the next month and, as appropriate, to succeeding months thereafter. Whenever an event is to be performed or a payment is to be made by a particular date and the date in question falls on a day which is not a Business Day, the event shall be performed, or the payment shall be made, on the next succeeding Business Day; provided, however, that all calculations shall be made regardless of whether any given day is a Business Day and whether or not any given period ends on a Business Day.

(d) All references to "dollars" or "$" shall be deemed references to the lawful money of the United States. All references to a particular entity shall include such entity's successors and permitted assigns unless otherwise specifically provided herein.

(e) All references herein to any Law or to any Contract or other agreement shall be to such Law, Contract or other agreement as amended, supplemented or modified from time to time unless otherwise specifically provided herein.

(f) The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event of an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any provisions of this Agreement.

ARTICLE II

PURCHASE AND SALE

Section 2.1 Purchase and Sale of the Purchased Assets. On the terms and subject to the conditions of this Agreement, at and as of the Closing Date, Seller shall sell, assign, convey, transfer and deliver, or cause to be sold, assigned, conveyed, transferred and delivered, to Purchaser, and Purchaser shall purchase and acquire and take assignment and delivery from Seller and, with respect to certain Assigned Contracts, Seller's Affiliates, all of Seller's and, with respect to certain Assigned Contracts, Seller's Affiliates', right, full title and interest, free and clear of any Encumbrances (other than Permitted Encumbrances), in each and all of the Purchased Assets. "**Purchased Assets**" shall mean all properties, assets, interests and rights of every nature, tangible and intangible of Seller and, with respect to certain Assigned Contracts, Seller's Affiliates', real or personal, now or existing or hereafter acquired, whether or not reflected on the books or financial statements of Seller constituting or otherwise relating to the Facility, and in any event, including the following assets:

(a) the Facility, including all Tangible Personal Property located at the Facility, including those items listed on Schedule 2.1(a);

(b) Seller's leasehold interest in and to the Real Property described on Schedule 5.5(c) pursuant to the Site Leases and the Airgas Sublease;

(c) the Contracts of Seller and/or Seller's Affiliates', listed on Schedule 2.1(c) (the "**Assigned Contracts**");

(d) copies of all documents, instruments, papers, books, records, files, data and certificates (collectively, "**Books, Records and Files**") to the extent exclusively related to the Facility; provided, however, that Seller may redact any information subject to attorney-client privilege or to the extent used in, or related to, the Excluded Liabilities from Books, Records and Files;

(e) all Permits relating to the Facility (including associated air credits, emissions credits and entitlements), but only if and to the extent that such Permits are transferable by Seller to Purchaser, as the case may be, by assignment or otherwise (including upon request or application to a Governmental Authority or any third party, or which will pass to Purchaser, as the case may be, as successor in title to the Purchased Assets by operation of Law), listed on Schedule 5.6(c) (the "**Assumed Permits**");

(f) all causes of action, lawsuits, judgments, claims and demands of any nature available to or being pursued by Seller or any of its Affiliates to the extent related to the Purchased Assets, the Assumed Liabilities or the ownership, use, function or value of any Purchased Asset, whether arising by way of counterclaim or otherwise; and

(g) all guaranties, warranties, indemnities and similar rights in favor of Seller or any of its Affiliates to the extent related to any Purchased Asset.

Section 2.2 Assumed Liabilities. On the terms and subject to the conditions of this Agreement, at and as of the Closing Date, Purchaser shall assume and shall perform, pay and discharge when due the Assumed Liabilities.

Section 2.3 Excluded Liabilities. Notwithstanding anything in this Agreement to the contrary, Purchaser shall not and does not assume, and shall be deemed not to have assumed and shall not be obligated to pay, perform, discharge or in any other manner be liable or responsible for (a) any Liabilities of Seller that are not Assumed Liabilities, whether existing on the Closing Date or arising thereafter, (b) any expenses incurred or to be incurred by Seller in connection with this Agreement and the consummation of the transactions contemplated hereby, (c) any Liabilities arising out of, relating to or with respect to the employment or engagement (or termination thereof) by Seller or any of its Affiliates of any individual, including any and all employees and contractors of Seller and its Affiliates, (d) any Liabilities that relate to any Employee Benefit Plan, (e) except as provide in Article VIII, all Taxes with respect to the Purchased Assets or the Facility, (f) all Indebtedness of Seller, (g) any liability of Seller under the Low Carbon Fuel Standard Regulation existing on or accrued as of the Closing Date, and (h) any other Liabilities expressly allocated to Seller under this Agreement (collectively, the "**Excluded Liabilities**").

ARTICLE III

PURCHASE PRICE

Section 3.1 Purchase Price. Subject to the terms and conditions of this Agreement, at the Closing, as consideration for the sale, transfer, conveyance and assignment of the Purchased Assets to Purchaser, Purchaser shall deliver to Seller (or one or more of its designees) one or more wire transfers of immediately available funds to the wire transfer address or addresses as provided by Seller to Purchaser on or before the Business Day prior to the Closing Date equal to $24,000,000 (the "**Purchase Price**").

Section 3.2 Proration. Any charges for utilities or rent related to the Site or Purchased Assets for periods within which the Closing Date falls, if any, will be prorated between Seller on the one hand, and Purchaser on the other hand, as of the Closing Date. The parties will settle such expenses as mutually agreed upon, either as of, or as soon as reasonably practicable following the Closing Date, with Seller bearing the portion of such expenses allocable to all periods ending on or before the Closing Date, and Purchaser bearing the portion of such expenses allocable to all periods following the Closing Date.

Section 3.3 Allocation of Purchase Price. Seller and Purchaser shall allocate the Purchase Price and the Assumed Liabilities among the Purchased Assets as specified in attached Schedule 3.3 (the "**Allocation Schedule**"), and, in accordance with §1060 of the Code, Seller shall prepare and deliver to Purchaser copies of Form 8594 consistent with such allocation and any required exhibits thereto (the "**Asset Acquisition Statement**") within thirty (30) days after the Closing. All income and other Tax Returns and reports filed by Seller and Purchaser shall be prepared consistently with the Allocation Schedule. Neither Purchaser nor Seller shall, nor will they permit their respective Affiliates to, take any position inconsistent with the Asset Acquisition Statement.

ARTICLE IV

CLOSING

Section 4.1 Closing Date. Subject to the terms and conditions of this Agreement, the closing of the transactions contemplated by this Agreement (the "**Closing**") shall take place remotely via an exchange of documents and signatures and by wire transfer of funds on the fifth (5^{th}) Business Day following the satisfaction or waiver of each of the conditions set forth in Article IX (other than those conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of those conditions at the Closing) unless another place, time and/or date as are agreed to in writing by the Parties (the day on which the Closing takes place, the "**Closing Date**"). The Closing shall be deemed to have occurred and to be effective as of 12:01 a.m. Pacific Time on the Closing Date. The exchange of documents and signatures, the wire transfer of funds, and other actions required to complete the Closing shall be effectuated through an escrow with Title Insurer's office located at 1217 West Tokay Street, Suite A, Lodi, California 95240, Attn: Jennifer Patino (jennifer.patino@doma.com) ("**Escrow Holder**"). Seller and Purchaser shall execute such escrow instructions as may be appropriate to enable Escrow Holder to effectuate the Closing in accordance with the terms of this Agreement; provided, however, that in the event of any conflict between the provisions of this Agreement and any escrow instructions, the terms of this Agreement shall control. Escrow Holder's escrow fee shall be paid equally by Seller and Purchaser.

Section 4.2 Closing Deliveries by Seller. At the Closing, Seller shall deliver or cause to be delivered to Purchaser the following:

(a) a duly executed counterpart of the Bill of Sale and Assignment and Assumption Agreement;

(b) an Assignment and Assumption of Lease, Consent to Assignment and Acknowledgement, together with a Memorandum of Assignment and Assumption of Lease, both in the forms attached hereto as Exhibit F, duly executed by Seller and The Stockton Port District;

(c) an Assignment and Assumption of Sublease, in the form attached hereto as Exhibit G, duly executed by Seller;

(d) Seller Parent Letter of Credit, in the form attached hereto as Exhibit C, duly issued by an Acceptable Bank for the benefit of Purchaser;

(e) a Transition Services Agreement, in the form attached hereto as Exhibit D, duly executed by Seller Parent;

(f) a Stockton Transit Agreement, in the form attached hereto as Exhibit E, duly executed by Kinergy;

(g) an Ethanol Marketing Agreement, in the form attached hereto as Exhibit B, duly executed by Kinergy;

(h) the certificate required by Section 9.3(c);

(i) a certificate of non-foreign status of Seller dated as of the Closing Date, in the form attached hereto as Exhibit H, that satisfies the requirements of Section 1445(b)(2) of the Code and Treasury Regulation §1.1445-2(b)(2);

(j) a California Form RE 593 or applicable exemption certificate, in the form attached hereto as Exhibit I;

(k) a landlord estoppel certificate with respect to the Site Leases signed by The Stockton Port District in form reasonably satisfactory to Purchaser and a tenant estoppel certificate with respect to the Airgas Sublease, in form reasonably satisfactory to Purchaser;

(l) an owner's affidavit in form and substance sufficient to allow for issuance of the Title Policy;

(m) the Title Policy; and

(n) such other assignments and other instruments of transfer or conveyance as Purchaser may reasonably request or as may otherwise be necessary to evidence or effect the sale, assignment, transfer, conveyance and delivery of the Purchased Assets to Purchaser and assumption of Assumed Liabilities by Purchaser.

Section 4.3 Closing Deliveries by Purchaser. At the Closing, Purchaser shall deliver to Seller the following:

(a) the Purchase Price, by wire transfer of immediately available funds to an account or accounts designated by Seller no later than five (5) Business Days prior to the Closing Date;

(b) a duly executed counterpart of the Bill of Sale and Assignment and Assumption Agreement;

(c) duly executed counterparts of the Assignment and Assumption of Lease, Consent to Assignment and Acknowledgement and the Memorandum of Assignment and Assumption of Lease;

(d) a duly executed counterpart of the Assignment and Assumption of Sublease;

(e) a duly executed counterpart of the Transition Services Agreement;

(f) a duly executed counterpart of the Stockton Transit Agreement;

(g) a duly executed counterpart of the Ethanol Marketing Agreement;

(h) a Preliminary Change of Ownership Report, duly executed by Purchaser; and

(i) the certificate required by Section 9.2(c).

ARTICLE V

REPRESENTATIONS AND WARRANTIES OF SELLER AND SELLER PARENT

Except as set forth in the Schedules (it being understood and agreed by the Parties that disclosure of any item in any section or subsection of the Schedules shall be deemed disclosure with respect to any other section or subsection of the Schedules to which the relevance of such item is reasonably apparent), Seller and Seller Parent, jointly and severally, hereby represent and warrant to Purchaser as follows:

Section 5.1 Organization and Qualification; Authority and Enforceability.

(a) Seller is a limited liability company duly organized, validly existing and in good standing under the Laws of the State of Delaware and has all necessary corporate power and authority to enter into, execute and deliver this Agreement and the Ancillary Agreements, to carry out its obligations hereunder and thereunder and to consummate the transactions contemplated hereby and thereby. The individuals identified with respect to Seller in the definition of the term "Knowledge" are the individuals within Seller's organization who are most knowledgeable of the matters to which the representations and warranties of Seller set forth in this Article V pertain.

(b) The execution and delivery of this Agreement and the Ancillary Agreements by Seller, the performance by Seller of its obligations hereunder and thereunder and the consummation by Seller of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Seller. This Agreement has been, and the Ancillary Agreements when executed and delivered by Seller will be, duly executed and delivered by Seller, and, assuming due authorization, execution and delivery by Purchaser and any other parties thereto, this Agreement is, and the Ancillary Agreements when executed and delivered by Seller will be, legal, valid and binding obligations of Seller, enforceable against it in accordance with their respective terms, subject in each case to the effect of any applicable bankruptcy, reorganization, insolvency, moratorium, rehabilitation, liquidation, fraudulent conveyance, preferential transfer or similar Laws now or hereafter in effect relating to or affecting creditors' rights and remedies generally and subject, as to enforceability, to the effect of general equitable principles (regardless of whether enforcement is sought in a proceeding in equity or at law).

Section 5.2 No Conflict. Except for the approvals set forth on Schedule 5.3, and except as may result from any facts or circumstances relating solely to Purchaser, the execution, delivery and performance by Seller of this Agreement and the Ancillary Agreements do not, and the consummation of the transactions contemplated hereby and compliance by Seller with the terms hereof will not, (a) conflict with or violate any provision of the certificate of organization or limited liability company or operating agreement of Seller, (b) conflict with or violate any Law or Governmental Order applicable to Seller or the Purchased Assets or (c) conflict with, result in any breach of, constitute a default (or event that, with the giving of notice or lapse of time, or both, would become a default) under, require any Consent under, or give to others any rights of termination, acceleration or cancellation of, any Contract included in the Purchased Assets to which Seller is a party, except, in the case of clauses (b) and (c), as would not reasonably be expected to have a Material Adverse Effect.

Section 5.3 Consents. The approvals or consents of, or notices to, any third party required for or in connection with the execution and delivery of this Agreement and the Ancillary Agreements by Seller or Seller Parent or in connection with the consummation of the transactions contemplated herein are set forth on Schedule 5.3. No other approval of a Governmental Authority or other Person is required for Seller's execution, delivery or performance of this Agreement and the Ancillary Agreements.

Section 5.4 Litigation. There is no Litigation pending or threatened against Seller or Seller's managers, members, or officers (in such capacity) or their respective business, assets (including the Purchased Assets) or Liabilities. To Seller's Knowledge, no event has occurred and no action has been taken that is reasonably likely to result in such Litigation. None of Seller, the Purchased Assets or Liabilities is subject to any Governmental Order.

Section 5.5 Title to and Condition of Properties and Facility; Performance Reports

(a) Seller is the direct owner, holder of record and beneficial owner of the Purchased Assets, and the Purchased Assets are the only assets used in the operation of the Facility. Except for the Permitted Encumbrances, there are no other interests in real property related to the Purchased Assets or required for access to the Real Property or for the operation of the Facility other than the Real Property. The Real Property is all the real property required for operation of the Facility. Except as set forth on Schedule 5.5(a), Seller has good title to or a valid leasehold interest in (as applicable) the Real Property and all of the tangible and intangible assets owned or leased by Seller in connection with the Facility, free and clear of all Encumbrances, other than Permitted Encumbrances. All assets related to the Facility are owned or leased by Seller and no Affiliate of Seller owns any interest in any material asset related to the Facility.

(b) All Real Property leases (the "**Site Leases**") and Easements necessary to operate and maintain the Facility are set forth on Schedule 5.5(b), have been executed and delivered by the applicable landowner, and are in full force and effect. Except as set forth on Schedule 5.5(b), Seller is not a sublessor or grantor under any sublease or other instrument granting to any Person any right to the possession, lease, occupancy, use or enjoyment of any of the Real Property and no other Person has any right to the possession, lease, occupancy, use or enjoyment of any of the Real Property, except as otherwise provided in the Permitted Encumbrances. Seller's use of the Real Property in connection with the operation of the Facility does not violate any Law, covenant, condition, restriction, Easement, license, permit or agreement applicable to Seller or the Real Property.

(c) Schedule 5.5(c) sets forth a legal description of all Real Property covered by the Site Leases and the Airgas Sublease, including a map of the areas covered by

the Site Leases and the Airgas Sublease (the "**Site**"). To Seller's Knowledge, no fact or condition exists that would prohibit or have a material effect on the existing rights of access to and from the Real Property from and to the existing highways and roads, and there is no pending or, to Seller's Knowledge, threatened restriction or denial, governmental or otherwise, upon such ingress and egress.

(d) Except for the components of the abandoned Cogeneration facility installed by Dresser Rand (now Siemens) that are non-functioning, to Seller's Knowledge, all Tangible Personal Property included in the Purchased Assets are (i) in good operating condition, ordinary wear and tear excepted, and (ii) suitable for the purposes to which they are currently being and/or were previously being used. Except as set forth in Schedule 5.5(d), to Seller's Knowledge, no Tangible Personal Property included in the Purchased Assets are in need of maintenance, repairs or inspection.

(e) Schedule 5.5(e) sets forth a list of certain management/operations reports (the '**Performance Reports**") provided by Seller to Purchaser regarding the performance of the Purchased Assets and the Facility. The information contained in the Performance Reports is accurate in all material respects.

(f) The Rent Start Date was October 1, 2008.

(g) The Annual Adjustment Date on which Base Rent is adjusted pursuant to Section 5.4 of the Ground Lease is October 1.

(h) The Base Rent currently payable under the Ground Lease (as adjusted on October 1. 2021) is $39,238.28 per month. Base Rent has been paid by Seller through November 30, 2021.

(i) Other than Base Rent, which is subject to annual rate increases, Seller is not obligated to make any regularly scheduled, recurring payments to The Stockton Port District, except a fixed monthly storm water discharge fee currently in the amount of $6,534.00.

(j) Neither the whole nor any portion of the Facility or the Purchased Assets, including the Real Property, is subject to any Governmental Order to be sold or is being condemned, expropriated or otherwise taken by any Governmental Authority with or without payment of compensation therefor, and to Seller's Knowledge it has not received any written notice that any such condemnation, expropriation or taking has been planned, scheduled or proposed. To Seller's Knowledge, it has not received any written notice of any existing, proposed or contemplated plan to construct, modify or realign any street, highway, power line or pipeline that could have a material and adverse effect on Purchaser's proposed use or occupancy of the Real Property after Closing.

(k) Seller has not granted any options, rights of first refusal or other purchase rights to any Person (other than Purchaser) with respect to the Purchased Assets.

(l) To Seller's Knowledge, it has not received written notice of any pending or threatened requests, applications or proceedings to alter or restrict the zoning or other use restrictions applicable to the Real Property.

Section 5.6 Compliance with Laws; Permits.

(a) Except as set forth on Schedule 5.6(a), Seller is not in material violation of any Laws or Governmental Orders applicable to Seller with respect to the operation of the Purchased Assets. Except as set forth on Schedule 5.6(a), for the past five (5) years Seller has not received written notice of any violation or alleged violation of any Laws or Governmental Orders by Seller applicable to the condition or operation of the Purchased Assets.

(b) All reports, filings and returns required to be filed by or on behalf of Seller with any Governmental Authority with respect to the Facility have been filed and, when filed, were true, correct and complete in all material respects.

(c) Schedule 5.6(c) sets forth all Permits (including Assumed Permits) held by Seller with respect to the Facility. To Seller's Knowledge, the notations on Schedule 5.6(c) indicating whether Permits are transferrable and what actions must be taken by Seller or Purchaser in connection with the Transactions are complete and correct.

(d) Except as set forth on Schedule 5.6(d), Seller possesses or previously possessed all material Permits necessary to entitle Seller to own, operate and use the Purchased Assets in compliance with all applicable Laws and regulations (including Environmental Laws) and to carry on and conduct the operation of the Site substantially as currently and/or previously conducted in compliance with all applicable Laws and regulations (including Environmental Laws).

(e) Seller has fulfilled and performed its obligations under each of the Permits, and, to Seller's Knowledge, no event has occurred or condition or state of facts exists which constitutes or, after notice or lapse of time or both, would constitute a breach or default under any such Permit or which permits or, after notice or lapse of time or both, would permit revocation or termination of any such Permit, or which might adversely affect the rights of Seller under any such Permit, except in each case as would not reasonably be expected to have a Material Adverse Effect

(f) Except as set forth on Schedule 5.6(f), no notice of violation, cancellation, default or any dispute concerning any Permit currently held by Seller, or of any event, condition or state of facts described in the preceding clause is known to exist by Seller within the last three (3) years. Except as set forth on Schedule 5.6(f), each of the Permits is valid, existing and in full force and effect.

Section 5.7 Employee Matters.

(a) Neither Seller nor any of its Affiliates (including Seller Parent) have made any commitments or representations to any Person regarding (i) potential employment or engagement by Purchaser or any other Affiliate of Purchaser at the Facility or otherwise after the Closing Date, or (ii) any terms and conditions of such potential employment by Purchaser or any Affiliate thereof following the Closing Date. Neither Seller nor any of its Affiliates (including Seller Parent) is party to or bound by any collective bargaining agreement or other Contract with any labor organization or similar employee representative body with respect to the Facility Employees.

(b) There does not now exist, nor, to Seller's Knowledge, do any circumstances exist that could be expected to result in, any Liability under or with respect to (i) Title IV of ERISA, (ii) Sections 302 and 502 of ERISA, (iii) Sections 412 and 4971 of the Code, (iv) any Employee Benefit Plan, or (v) any "multiemployer plan" (as defined in Section 3(37) of ERISA) or any voluntary employees' beneficiary association (as described in Section 501(c)(9) of the Code), in each case, that could be a Liability of Purchaser or of the Facility following the Closing Date. In addition, there does not now exist, nor, to Seller's Knowledge, do any circumstances exist that could be expected to result in, any Liability for failure to comply with the provisions of Section 601, et seq. of ERISA and Section 4980B of the Code and Section 701, et seq. of ERISA and Subtitle K of the Code that could be a Liability of Purchaser or of the Facility following the Closing Date.

Section 5.8 Tax Matters. All material non-income Tax Returns that were required to have been filed by Seller in respect of or in relation to the Purchased Assets have been duly and timely filed (taking into account any extensions of time in which to file). Seller has timely paid or withheld and remitted all material Taxes shown as due on such Tax Returns or has established an adequate accrual for all material Taxes through the end of the last period for which Seller ordinarily records items on its books. There are no Encumbrances for Taxes (other than Permitted Encumbrances) upon any of the Purchased Assets. Any other representation or warranty contained in this Article V notwithstanding, the representations and warranties contained in this Section 5.8 constitute the sole representations and warranties of Seller relating to Tax matters.

Section 5.9 Intellectual Property. Seller does not have any Intellectual Property rights of any kind necessary for the use of the Facility. Seller owns or has licenses or rights to use for the current operation of, all Intellectual Property currently used in respect of the Facility. Seller, with respect to the Facility has not (i) infringed upon or misappropriated any Intellectual Property rights of any Person or (ii) received any written charge, complaint, claim, demand, or notice alleging any such interference, infringement, misappropriation, or violation (including any claim that a Person must license or refrain from using any Intellectual Property rights of any such Person in connection with the Facility).

Section 5.10 Environmental Matters.

(a) Seller is currently and has been for the past ten (10) years in material compliance with all Environmental Laws, and Seller has not received from any Person any Environmental Notice or any Environmental claim, which, in each case, either remains pending or unresolved, or is the source of ongoing obligations or requirements as of the Closing Date.

(b) To Seller's Knowledge there are no past or present events, conditions, circumstances, activities, practices, incidents, actions, omissions or plans that may reasonably be expected to (A) interfere with or prevent material compliance or continued material compliance by the Purchased Assets with all Environmental Laws or (B) give rise to any material Liability, including Liability under any Environmental Laws, or otherwise form the basis of any Action, notice of violation, study or investigation, based on or related to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling, or the emission, discharge, release or threatened release into the environment, of any Hazardous Materials on or about the Site.

(c) Except as set forth on Schedule 5.10(c), neither Seller nor any party on behalf of Seller has caused a Release of Hazardous Materials, including any Releases, transportation, or disposals off-site, in contravention of any Environmental Laws with respect to the business or assets of the Facility or the Real Property. Except as set forth on Schedule 5.10(c), Seller has not received any written warning notice, notice of violation, administrative complaint, judicial complaint or other written notice or request for information by any federal, state or local environmental agency or other public agency with respect to the presence or alleged presence of Hazardous Materials at the Real Property (including soils, groundwater, surface water, buildings and other structure located on any such Real Property) or with respect to Seller's violation of any Environmental Laws.

(d) There are no underground storage tanks located on the Real Property. None of the Real Property is listed on, or has been proposed for listing on, the National Priorities List (or CERCLIS) under CERCLA, or any similar state list.

(e) Schedule 5.10(e) contains a complete and accurate list of all off-site Hazardous Materials treatment, storage, or disposal facilities or locations used by Seller in the past five (5) years as to which Seller may retain liability, and, to Seller's Knowledge, none of these facilities or locations has been placed or proposed for placement on the National Priorities List (or CERCLIS) under CERCLA, or any similar state list, and the neither the Seller nor Seller has received any Environmental Notice regarding potential liabilities with respect to such off-site Hazardous Materials treatment, storage, or disposal facilities or locations used by Seller.

(f) Seller has not retained or assumed, by contract or operation of Law, any material liabilities or obligations of third parties under any Environmental Laws.

(g) Seller has provided or otherwise made available to Purchaser (to the extent available and in Seller's possession): (i) any and all environmental reports, studies, audits, records, sampling data, site assessments, risk assessments, economic models and other similar documents with respect to the Facility related to compliance with Environmental Laws or the Release of Hazardous Materials; and (ii) any and all material documents concerning planned or anticipated capital expenditures required to reduce, offset, limit or otherwise control pollution and/or emissions, manage waste or otherwise ensure compliance with current or future Environmental Laws (including, without limitation, costs of remediation, pollution control equipment and operational changes).

Section 5.11 Assigned Contracts.

(a) Schedule 2.1(c) contains a true, correct and complete list of all Assigned Contracts including a description of those Assigned Contracts that can only be assigned to Purchaser in part. Seller has provided Purchaser true, correct and complete copies of all Assigned Contracts (including any amendments, addendum or modifications thereto).

(b) Neither Seller or any Affiliate of Seller is in default in any material respect under any Assigned Contract, nor has any event or omission occurred that, through the passage of time or the giving of notice, or both, would constitute a default thereunder or cause the acceleration of any of the obligations thereunder of Seller or an Affiliate of Seller or result in the creation of any Encumbrance on the Purchased Assets, other than Permitted Encumbrances. To Seller's Knowledge, no third party is in default under any Assigned Contract, nor has any event or omission occurred that, through the passage of time or the giving of notice, or both, would constitute a default by such a third party in any material respect thereunder, or give rise to an automatic termination, or the right of discretionary termination thereof. Each Assigned Contract is in full force and effect and is a valid and binding agreement enforceable against Seller and/or an Affiliate of Seller and, to Seller's Knowledge, the other party or parties thereto in accordance with its terms, in each case, subject to the effect of any applicable bankruptcy, reorganization, insolvency, moratorium, rehabilitation, liquidation, fraudulent conveyance, preferential transfer or similar Laws now or hereafter in effect relating to or affecting creditors' rights and remedies generally and subject, as to enforceability, to the effect of general equitable principles (regardless of whether enforcement is sought in a proceeding in equity or at law). Neither Seller nor any Affiliate of Seller, as applicable, has waived any of their respective rights under any Assigned Contract. Neither Seller nor any Affiliate of Seller, as applicable, owes any accrued indemnity to any counterparty to any Assigned Contract.

Section 5.12 Brokers. None of Seller or any of its members, officers, employees, partners, or agents have retained, employed or used any broker or finder in connection with the transactions provided for herein or the negotiation thereof, nor are any of them responsible for the payment of any broker's or finder's fees. In the event any claim is made for a broker's or finder's fee based upon any statement, representation, or agreement by Seller, Seller will indemnify, hold harmless, protect, and defend Purchaser from

and against such claim pursuant to Section 11.3.

Section 5.13 Disclaimer. EXCEPT AS AND TO THE EXTENT SET FORTH IN ARTICLE V OR IN ANY ANCILLARY AGREEMENTS, PURCHASER ACKNOWLEDGES AND AGREES THAT THE PURCHASED ASSETS ARE BEING SOLD BY SELLER ON AN "AS IS, WHERE IS" BASIS. NONE OF SELLER, SELLER PARENT OR ANY OF THEIR AFFILIATES, MEMBERS, OFFICERS, MANAGERS, EMPLOYEES, DIRECTORS OR AGENTS MAKE OR HAVE MADE ANY OTHER REPRESENTATION, WARRANTY OR STATEMENTS OF ANY KIND, EXPRESS OR IMPLIED, AT LAW OR IN EQUITY, IN RESPECT OF SELLER OR SELLER PARENT, THE PURCHASED ASSETS, THE REAL PROPERTY, THE FACILITY, THE ASSIGNED CONTRACTS, THE ASSUMED LIABILITIES, THE AVAILABILITY OF CARB'S APPROVED FUEL PATHWAY CODES TO PURCHASER OR THE SITE, THEIR FINANCIAL CONDITION, RESULTS OF OPERATIONS, FUTURE OPERATING OR FINANCIAL RESULTS, ESTIMATES, PROJECTIONS, FORECASTS, PLANS OR PROSPECTS (INCLUDING THE REASONABLENESS OF THE ASSUMPTIONS UNDERLYING SUCH ESTIMATES, PROJECTIONS, FORECASTS, PLANS OR PROSPECTS) OR THE ACCURACY OR COMPLETENESS OF ANY INFORMATION REGARDING SELLER, SELLER PARENT, THE PURCHASED ASSETS, THE REAL PROPERTY, THE FACILITY, THE ASSIGNED CONTRACTS, THE ASSUMED LIABILITIES, THE AVAILABILITY OF CARB'S APPROVED FUEL PATHWAY CODES TO PURCHASER OR THE SITE, AND SELLER AND SELLER PARENT EXPRESSLY DISCLAIM ANY SUCH REPRESENTATION, WARRANTY OR STATEMENTS OF ANY KIND (OR ERRORS THEREIN OR OMISSIONS THEREFROM). NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS AGREEMENT, EXCEPT AS SET FORTH IN ARTICLE V, NONE OF SELLER, SELLER PARENT OR ANY OF THEIR AFFILIATES, MEMBERS, OFFICERS, MANAGERS, EMPLOYEES, DIRECTORS OR AGENTS MAKE OR HAVE MADE ANY OTHER REPRESENTATION, WARRANTY OR STATEMENTS OF ANY KIND, EXPRESS OR IMPLIED, AT LAW OR IN EQUITY, IN RESPECT OF THE EXCLUDED LIABILITIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

ARTICLE VI

REPRESENTATIONS AND WARRANTIES OF PURCHASER

Purchaser hereby represents and warrants to Seller as follows:

Section 6.1 Organization and Qualification; Authority and Enforceability.

(a) Purchaser is a limited liability company duly organized, validly existing and in good standing under the Laws of the State of California and has all necessary organizational power and authority to enter into, execute and deliver this Agreement and the Ancillary Agreements, to carry out its obligations hereunder and thereunder and to consummate the transactions contemplated hereby and thereby.

(b) The execution and delivery of this Agreement and the Ancillary Agreements by Purchaser, the performance by Purchaser of its obligations hereunder and thereunder and the consummation by Purchaser of the transactions contemplated hereby and thereby have been duly authorized by all requisite organizational or similar action on the part of Purchaser. This Agreement has been, and the Ancillary Agreements when executed and delivered by Purchaser will be, duly executed and delivered by Purchaser, and, assuming due authorization, execution and delivery by Seller and any other parties thereto, this Agreement is, and the Ancillary Agreements when executed and delivered by Purchaser will be, legal, valid and binding obligations of Purchaser enforceable against it in accordance with their respective terms, subject in each case to the effect of any applicable bankruptcy, reorganization, insolvency, moratorium, rehabilitation, liquidation, fraudulent conveyance, preferential transfer or similar Laws now or hereafter in effect relating to or affecting creditors' rights and remedies generally and subject, as to enforceability, to the effect of general equitable principles (regardless of whether enforcement is sought in a proceeding in equity or at law).

Section 6.2 No Conflict. Except as may result from any facts or circumstances relating solely to Seller, the execution, delivery and performance by Purchaser of this Agreement and the Ancillary Agreements do not, and the consummation of the transactions contemplated hereby and compliance by Purchaser with the terms hereof will not, (a) conflict with or violate of any provision of the certificate of incorporation or bylaws (or similar organizational documents) of Purchaser, (b) conflict with or violate any Law or Governmental Order applicable to Purchaser or its assets, properties or businesses or (c) conflict with, result in any breach of, constitute a default (or event which with the giving of notice or lapse of time, or both, would become a default) under, require any Consent under, or give to others any rights of termination, acceleration or cancellation of, any Contract to which Purchaser is a party.

Section 6.3 Purchaser Approvals. No approval of a Governmental Authority or other Person is required for Purchaser's execution, delivery or performance of this Agreement and the Ancillary Agreements.

Section 6.4 Actions . There is no Action pending or threatened against Purchaser or Purchaser's managers, members, or officers (in such capacity) or their respective business, assets or Liabilities. To Purchaser's Knowledge, no event has occurred and no action has been taken that is reasonably likely to result in such Action. Purchaser is not subject to any Governmental Order.

Section 6.5 Compliance with Laws. Purchaser is not in violation of any Law applicable to Purchaser.

Section 6.6 Sufficiency of Funds. Purchaser has, and will have as of the Closing, sufficient cash in immediately available funds required for the consummation of the transactions contemplated by this Agreement and the Ancillary Agreements and are sufficient in amount to provide Purchaser with the funds necessary for Purchaser to consummate the transactions contemplated hereby and thereby and to satisfy its obligations under this Agreement, including for Purchaser to pay the Purchase Price and its expenses in connection with the transactions contemplated by this Agreement.

Section 6.7 Brokers. Neither Purchaser nor any of its members, officers, employees or agents have retained, employed or used any broker or finder in connection with the transactions provided for herein or in connection with the negotiation thereof, nor are any of them responsible for the payment of any broker's or finder's fees. In the event any claim is made for a broker's or finder's fee based upon any statement, representation, or agreement by Purchaser, Purchaser will indemnify, hold harmless, protect, and defend Seller from and against such claim pursuant to Section 11.2.

Section 6.8 Investigation by Purchaser; No Other Representations and Warranties and Non-Reliance.

(a) Purchaser has conducted to its satisfaction its own independent review and analysis of the Facility, the Purchased Assets and Assumed Liabilities and agrees and acknowledges that Purchaser has been provided access to the Purchased Assets and Assumed Liabilities for this purpose. Purchaser acknowledges that, should the Closing occur, Purchaser shall acquire the Purchased Assets, Assumed Liabilities and Facility without any representation or warranty as to merchantability or fitness thereof for any particular purpose, in an "as is" condition and on a "where is" basis, except as otherwise expressly set forth in this Agreement or in any Ancillary Agreement.

(b) Purchaser expressly agrees and acknowledges, on behalf of itself and its Affiliates, that (i) none of Seller nor any of its Affiliates, stockholders, directors, partners, officers, employees, representatives, advisors or any other Person has made any representation or warranty, expressed or implied, as to the Facility, the Purchased Assets and Assumed Liabilities, their financial condition, results of operations, future operating or financial results, estimates, projections, forecasts, plans or prospects (including the reasonableness of the assumptions underlying such estimates, projections, forecasts, plans or prospects) or the accuracy or completeness of any information regarding Seller, Seller Parent, the Purchased Assets, the Assumed Liabilities or the Facility furnished or made available to Purchaser and its Affiliates and representatives, except as expressly set forth in Article V or in any Ancillary Agreement, (ii) Purchaser has not relied and is not relying, and expressly disclaims reliance, on any representation, warranty or other statement of any kind from Seller or any of its Affiliates, stockholders, directors, partners, officers, employees, representatives, advisors or any other Person in determining to enter into this Agreement, except as expressly set forth in Article V or in any Ancillary Agreement, and (iii) none of Seller nor any of its Affiliates, stockholders, directors, partners, officers, employees, representatives, advisors or any other Person shall have or be subject to any Liability to Purchaser or any of its Affiliates or representatives resulting from the distribution (or non-distribution) to Purchaser or its Affiliates or representatives, or Purchaser's or its Affiliates' or representatives' use of, any such information, including any information, documents or material made available to Purchaser or its Affiliates, advisors or representatives in any data rooms, management presentations or in any other form (including in each case errors therein or omission therefrom) in expectation of or negotiation of this Agreement and the transactions contemplated hereby.

ARTICLE VII

ADDITIONAL COVENANTS AND AGREEMENTS

Section 7.1 Conduct of the Facility.

(a) From the date hereof and continuing until the earlier of the termination of this Agreement or the Closing Date, except (i) as required by applicable Law, (ii) as required by this Agreement or any Ancillary Agreement or (iii) as otherwise waived or consented to by Purchaser (which consent shall not be unreasonably withheld, conditioned or delayed), Seller shall:

(i) use commercially reasonable efforts to (1) maintain the current state of the Purchased Assets (normal wear and tear excepted) and (2) comply in all material respects with all Laws applicable to the operation of the Facility, the Site and the Purchased Assets;

(ii) except as may be agreed between Purchaser and Seller, maintain and preserve all Assumed Permits set forth on Schedule 5.6(c), and Seller agrees to cooperate with Purchaser to obtain or transfer to Purchaser all requisite Assumed Permits, and to obtain all consents and approvals from any Governmental Authority or other third party required for the effective transfer or assignment of the Assumed Permits;

(iii) preserve in full force and effect, and perform in a timely manner all of Seller's obligations under, all Assigned Contracts, including, without limitation, the Site Leases and Airgas Sublease; and

(iv) maintain, obtain or keep, or cause to be kept, in full force and effect all existing insurance policies.

(b) From the date hereof and continuing until the earlier of the termination of this Agreement or the Closing Date, except (i) as required by applicable Law, (ii) as contemplated by or required to implement this Agreement or any Ancillary Agreement or (iii) as otherwise waived or consented to by Purchaser (which consent shall not be unreasonably withheld, conditioned or delayed), Seller shall not do any of the following with respect to the Purchased Assets:

(i) permit, allow or suffer any of the Purchased Assets to be subjected to any Encumbrance, other than Permitted Encumbrances;

(ii) amend, assign, terminate, cancel, abandon or modify any Assigned Contract or Assumed Permit;

(iii) make any sale, assignment, transfer or other conveyance of any of the Purchased Assets or interest therein; or

(iv) initiate or settle any Action involving any of the Purchased Assets

Section 7.2 Access to Information; Confidentiality.

(a) From the date hereof until the Closing, upon reasonable prior notice from Purchaser, Seller shall use commercially reasonable efforts to: (i) afford Purchaser and its authorized representatives reasonable access to the properties and Books, Records and Files of the Facility, and (ii) furnish to the officers, directors, employees, and authorized representatives of Purchaser such additional financial and operating data and other information regarding the Facility (or copies thereof) as Purchaser may from time to time reasonably request; provided, however, that any such access or furnishing of information shall be scheduled and coordinated through a designated representative of Seller and shall be conducted at Purchaser's expense, during normal business hours, under the supervision of Seller's personnel and in such a manner as not to interfere with the normal operations of the Facility; provided, further, that Purchaser shall not have the right to undertake a Phase II environmental investigation, including sampling of any environmental media or building materials. Notwithstanding anything to the contrary contained in this Agreement, Seller shall not be required to (i) disclose any information to Purchaser if such disclosure would be reasonably likely to (x) cause significant competitive harm to the Facility if the transactions contemplated hereby are not consummated, and Purchaser's use of the material is not otherwise restricted under the terms of the Confidentiality Agreement, (y) jeopardize any attorney-client or other legal privilege or (z) contravene any applicable Laws, fiduciary duty or binding agreement entered into prior to the date hereof, (ii) provide access to or copies of any income Tax Returns of Seller or its Affiliates or (iii) prepare or provide any reports or other financial statements for the Facility, Seller or any of its Affiliates, change any fiscal period, or prepare or provide any reports or any other financial or other information regarding the Facility, Seller or any of its Affiliates that is not in the possession of Seller or is otherwise not in a form that is customarily prepared by Seller.

(b) The terms of the Confidentiality Agreement, dated as of March 22, 2021 between Purchaser and Seller (as amended, the "**Confidentiality Agreement**"), shall continue in full force and effect until the Closing, at which time the Confidentiality Agreement shall terminate; provided, however, that, from and after the Closing, except as would have been permitted under the terms of the Confidentiality Agreement, Purchaser shall, and shall cause its officers, directors, managers, partners, employees, representatives and Affiliates to, treat and hold as confidential, and not disclose to any Person any Confidential Information relating to Seller or the Excluded Liabilities. If this Agreement is, for any reason, terminated prior to the Closing, the Confidentiality Agreement shall continue in full force and effect.

(c) Nothing provided to Purchaser or any other Person pursuant to Section 7.2(a) shall in any way lessen or diminish Purchaser's obligations under the Confidentiality Agreement. Purchaser acknowledges and agrees that any Confidential Information provided to Purchaser or any other Person pursuant to Section 7.2(a) or otherwise by or on behalf of Seller or any Representative (as defined in the Confidentiality Agreement) of Seller shall be subject to the terms and conditions of the

Confidentiality Agreement.

Section 7.3 Schedules. From time to time prior to the Closing, Seller may supplement and amend the Schedules with respect to any matter arising after the delivery thereof that, if existing at, or occurring on, the date hereof, could have been set forth on, or described in, the Schedules. Any such supplement or amendment of the Schedules shall (i) be deemed to have cured any breach of representation or warranty that otherwise might have existed hereunder but for the supplement or amendment, and Purchaser Indemnified Parties will not have any claim (for indemnification or otherwise) against Seller or any other Person with respect thereto, and (ii) not give rise to any right of Purchaser to terminate this Agreement; provided, however, that such supplement or amendment shall not impair Purchaser's right to terminate this Agreement pursuant to Section 10.1(e) in the event the facts, events or occurrences disclosed on such supplement or amendment relate to breaches of the representations and warranties of Seller contained in this Agreement which constitute a Material Adverse Effect. Any such supplement or amendment hereunder shall be provided to Purchaser not less than two (2) Business Days prior to the Closing Date; provided, however, that a new supplement or amendment may be provided prior to the Closing for any fact, event or occurrence Seller did not have Knowledge of prior to the second Business Day prior to the Closing but has Knowledge of prior to the Closing.

Section 7.4 Further Action; Permits.

(a) From time to time after the date of this Agreement, upon request of any Party and without further consideration, each Party shall execute and deliver to the requesting Party such documents and take such action as may be reasonably requested by the requesting Party to consummate more effectively the intent and purpose of the Parties under this Agreement and the transactions contemplated by this Agreement.

(b) Purchaser and Seller shall use commercially reasonable efforts to cooperate with one another with respect to the transfer or reissuance of the Assumed Permits, including executing any necessary forms as required. In addition, following the Closing, upon Purchaser's request, Seller shall use its commercially reasonable efforts to assist Purchaser in connection with applying for and obtaining any Permits relating to the Facility and/or necessary for the operation of the Facility that are not Assumed Permits.

Section 7.5 Payments. Seller shall, or shall cause its applicable Affiliate to, promptly pay or deliver to Purchaser (or its designated Affiliates) any monies or checks exclusively related to the Facility that have been sent to Seller or any of its Affiliates on or after the Closing Date by customers, suppliers or other contracting parties of the Facility to the extent that they are in respect of any Purchased Assets or Assumed Liabilities hereunder. Purchaser shall, or shall cause its applicable Affiliate to, promptly pay or deliver to Seller (or its designated Affiliates) any monies or checks that have been sent to Purchaser (including the Facility) on or after the Closing Date to the extent that they are not due to the Facility or are in respect of an Excluded Asset or Excluded Liability hereunder.

Section 7.6 Misallocated Assets. In the event that the Parties determine that certain assets, rights or properties which properly constitute Purchased Assets were not transferred to Purchaser at Closing, subject to Section 7.4, Seller shall promptly take all steps reasonably necessary to transfer and deliver any and all of such assets (and any related Liability) to Purchaser without the payment by Purchaser of any further consideration therefor. In the event that the Parties determine that certain assets were transferred to Purchaser at Closing that were not intended to be conveyed pursuant to this Agreement, then Purchaser shall promptly take all steps reasonably necessary to transfer and deliver any and all of such assets (and any related Liability) to Seller without the payment by Seller of any further consideration therefor.

Section 7.7 Books, Records and Files. Purchaser and Seller agree that Seller may maintain copies of any Books, Records and Files that are included in the Purchased Assets and that are delivered to Purchaser hereunder and Seller may prepare a comprehensive index and file plan of such Books, Records and Files. Purchaser agrees to retain and maintain such Books, Records and Files for a period of at least seven (7) years after the Closing (plus any additional time as required by Law or during which Purchaser has been advised by Seller that (i) there is an ongoing Tax audit with respect to periods prior to the Closing or (ii) any such period is otherwise open to assessment; provided, however, that only such Books, Records and Files reasonably related to the appropriate Tax audit or period as advised by Seller shall be subject to such time extension). During such period, Purchaser agrees to give Seller and its representatives reasonable cooperation, access (including copies) and staff assistance, as needed, during normal business hours and upon reasonable notice, with respect to the Books, Records and Files delivered to Purchaser hereunder, and Seller agrees to give Purchaser and its representatives reasonable cooperation, access and staff assistance, as needed, during normal business hours and upon reasonable notice, with respect to the Books, Records and Files relating to the Facility and retained by Seller, in each case as may be necessary for general business purposes, including the defense of litigation, the preparation of Tax returns and financial statements and the management and handling of Tax audits; provided, however, that such cooperation, access and assistance does not unreasonably disrupt the normal operations of Purchaser or Seller or their respective Affiliates. Notwithstanding anything to the contrary contained in this Agreement, neither Seller nor any of its Affiliates shall be required to provide access to or copies of any income Tax Returns of Seller or any such Affiliate.

Section 7.8 Names Following Closing. Neither Purchaser nor any of its Affiliates shall use, or have the right to use the "Alto Ingredients," "Pacific Ethanol," "Kinergy" "Pacific Ethanol Stockton," "Illinois Corn Processing," "ICP," "Driven by Demand" or "Pacific Ag" names or marks, the "Alto Ingredients" logo, or any other name or mark owned or controlled by Seller or any of its Affiliates, or any name or mark that is similar to, derived from or embodies any of the foregoing. For the avoidance of doubt, the name "Pacific Ethanol" and the logo are registered trademarks of Seller Parent, and Seller Parent reserves all of its rights therein. Notwithstanding the foregoing, Seller Parent agrees to change the name of Seller promptly after Closing to a name that does not include the words "pacific" or "ethanol," and Seller Parent agrees that it shall not use its "Pacific Ethanol" trademark in connection with any carbon capture and sequestration venture within forty (40) miles of the Facility.

Section 7.9 Insurance. From and after the Closing, the Facility, the Purchased Assets, the Assumed Liabilities and the operations and assets and Liabilities in respect thereof, shall cease to be insured by Seller's or its Affiliates' insurance policies or by any of their self-insured programs, and neither Purchaser nor its Affiliates (including the Facility) shall have any access, right, title or interest to or in any such insurance policies (including to all claims and rights to make claims and all rights to proceeds) to cover the Facility, the Facility Employees, the Purchased Assets, the Assumed Liabilities, or the operations or assets or Liabilities in respect thereof. Seller or its Affiliates may amend any insurance policies in the manner it deems appropriate to give effect to this Section 7.9. From and after the Closing, Purchaser shall be responsible for securing all insurance it considers appropriate for the Facility, the Purchased Assets, the Assumed Liabilities, and the operations and assets and Liabilities in respect thereof. Purchaser further covenants and agrees not to seek to assert or to exercise any rights or claims of, or in respect of, the Facility, the Purchased Assets, the Assumed Liabilities, and the operations and assets and Liabilities in respect thereof, under or in respect of any past or current insurance policy under which any of the foregoing is a named insured.

Section 7.10 Termination of Intercompany Arrangements. Immediately prior to the Closing, except for the Ancillary Agreements, all arrangements, understandings or Contracts, including all obligations to provide goods, services or other benefits, between Seller and its Affiliates, on the one hand, and the Facility, on the other hand, shall automatically be terminated without further payment or performance and cease to have any further force and effect, such that no party thereto shall have any further obligations therefor or thereunder.

Section 7.11 CARB Compliance. CARB has advised Seller that, although the Closing will occur before the upcoming triennial compliance event, Seller will retain the obligation to comply with CARB's regulations associated with the California Cap-and-Trade Program and the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (the "**CARB Compliance Requirements**") related to the period of time Seller owned the Site. Seller shall take all necessary steps, before and/or after the Closing, to complete the CARB Compliance Requirements for the triennial period ending December 31, 2020.

Section 7.12 Seller Parent Letter of Credit. At the Closing, Seller shall, at its cost, deliver to Purchaser the Seller Parent Letter of Credit. Seller shall cause the Seller Parent Letter of Credit to remain in full force and effect in accordance with its terms and with this Section 7.12. The Seller Parent Letter of Credit shall expire, and Purchaser shall cooperate to implement such expiry, upon the date that is nineteen (19) months after the Closing Date (the "**Expiry Date**"), at which such time Purchaser shall return the Seller Parent Letter of Credit to Seller; provided, however, that (A) if there are no pending claims pursuant toSection 11.3 (each, a "**Pending Claim**") that remain outstanding as of the date that is nineteen (19) months after the Closing Date (the "**Survival Expiration Date**"), then Purchaser shall cooperate to implement expiry of the Seller Parent Letter of Credit as soon as practicable after such Survival Expiration Date; and (B) if any Pending Claims remain outstanding on the Survival Expiration Date, the Seller Parent Letter of Credit shall be renewed or replaced prior to the Survival Expiration Date with a letter of credit in an amount equal to the aggregate amount of the Pending Claims from an Acceptable Bank (the "**Replacement Letter of Credit**"). The Replacement Letter of Credit will remain in full force and effect until all such Pending Claims have been satisfied or otherwise resolved, and shall be delivered to Purchaser not later than ten (10) days prior to the Expiry Date. In the event such Replacement Letter of Credit is not delivered to Purchaser by such date, then Purchaser shall have the right to draw on the Seller Parent Letter of Credit pursuant to the terms thereof the amount of the Pending Claims, in which case Purchaser shall retain such drawn funds until the Pending Claims are resolved pursuant to the terms hereof.

Section 7.13 Employment. It is expected that prior to the Closing, Purchaser may make an offer of "at-will" employment effective as of the Closing Date to one or more Facility Employees of Seller, provided that Purchaser may elect not to make an offer to any of such Facility Employees in Purchaser's sole discretion. Any such "at-will" employment will: (i) be contingent on the Closing, (ii) be subject to and in compliance with Purchaser's standard human resources policies and procedures, including requirement for proof evidencing a legal right to work in the United States, and (iii) have terms, including the position, salary and responsibilities of such Facility Employee, which will be determined by Purchaser in its sole discretion.

Section 7.14 Vessel Inspection. At Seller's sole cost and expense, Seller shall cause the API 510 vessel inspection of Seller's molesieves to be completed, and shall complete any repairs indicated by such inspection, including the replacement of the media to the extent necessary. Seller expects that the inspections and possible repairs will not be scheduled until after the Closing. Seller and Purchaser shall cooperate to arrange for the work to be performed at times convenient to Purchaser.

Section 7.15 Consents. Notwithstanding anything contained in this Agreement:

(a) To the extent that assignment by Seller to Purchaser of any Assigned Contract or other right is not permitted or is not permitted without the consent of a third party, this Agreement shall not be deemed to constitute an undertaking to assign the same if such consent is not obtained or if such an undertaking otherwise would constitute a breach of or cause a loss of benefits thereunder. Seller shall use commercially reasonable efforts to obtain any and all such third party consents prior to the Closing Date.

(b) If and to the extent that any required third party consent is unable to be obtained, Seller shall continue to be bound by any such Assigned Contract or other right (each, a "**Non-Assigned Contract**"). In such event, to the extent Purchaser deems reasonably necessary, (i) Seller shall make the benefit of such Non-Assigned Contract available to Purchaser, and (ii) the assignment provisions of this Agreement shall operate to the extent permitted by law or the applicable Non-Assigned Contract to create a subcontract, sublease or sublicense with Purchaser to perform each relevant Non-Assigned Contract at a price equal to the monies, rights and other consideration receivable or payable by Seller with respect to the performance by or enjoyment of Purchaser under such subcontract, sublease or sublicense. To the extent such benefit is made available and/or such subcontract, sublease or sublicense is created, (1) Purchaser shall pay, perform and discharge fully all obligations of Seller under any such Non-Assigned Contract from and after the Closing Date, (2) Seller shall, without further consideration therefor, pay and remit to Purchaser promptly any monies, rights and other consideration received in respect of such Non- Assigned Contract performance, and (3) Seller shall exercise or exploit its rights and options under all such Non-Assigned Contracts only as reasonably directed by Purchaser and at Purchaser's expense.

(c) If and when any third party consent contemplated shall be obtained or any such Non-Assigned Contract shall otherwise be assignable, Seller shall promptly assign all of its rights and obligations thereunder or in connection therewith to Purchaser without payment of further consideration therefor.

Section 7.16 Exclusive Dealing. During the period from the date of this Agreement through the earlier of the Closing or the termination of this Agreement in accordance with its terms, (a) Seller shall not take any action to solicit, encourage, initiate or engage in discussions or negotiations with, or provide any information to or enter into any agreement with any Person (other than Purchaser) concerning any purchase of any of Purchased Assets, and (b) if Seller receives from any Person any inquiries, proposals or offers with respect to the Purchased Assets, Seller shall promptly notify such Person that Seller is contractually bound to forego any such discussions or negotiations. Seller shall immediately cease and cause to be terminated any existing negotiations with any Persons (other than Purchaser) conducted heretofore with respect to the Purchased Assets.

Section 7.17 RFS Engineering Review. Seller has engaged EcoEngineers to perform engineering reviews of its facilities as required by the Renewable Fuel Standard Program. Purchaser will require a valid engineering review of the Facility in order to qualify as a "RIN Owner" or a "RIN Generator" under the Renewable Fuel Standard Program. Seller shall: (i) direct EcoEngineers to complete its engineering review of the Facility by January 31, 2022 in accordance with terms of the engagement agreement between Purchaser and EcoEngineers (the "**Engineering Review**"), (ii) pay the fees associated with such Engineering Review, and (iii) take all other steps reasonably requested by Purchaser to enable Purchaser to use the results of the Engineering Review in connection with Purchaser's application with the EPA. For the avoidance of doubt, Seller's financial obligations pursuant to the foregoing sentence are limited to the payment of fees owing to EcoEngineers for the Engineering Review. All other expenses incurred after Closing in connection with Purchaser's qualification under the Renewable Fuel Standard Program shall be the responsibility of Purchaser.

ARTICLE VIII

TAXES

Section 8.1 Periodic Taxes. All personal property Taxes, real property Taxes and similar ad valorem obligations levied with respect to the Purchased Assets or the Facility for a Straddle Period ("**Periodic Taxes**") shall be apportioned between the Pre-Closing Tax Period and the Post-Closing Tax Period based on the number of days of such Straddle Period prior to and including the Closing Date, and the number of days of such Straddle Period beginning with the day after the Closing Date, respectively. Seller shall be liable for the Periodic Taxes attributable to any Pre-Closing Tax Period, and Purchaser shall be liable for all other Periodic Taxes. Purchaser shall be responsible for preparing and filing all Tax Returns for Periodic Taxes required to be filed after the Closing; provided, however, that to the extent such Tax Returns relate to any Pre-Closing Tax Period or Straddle Period, such Tax Returns shall be subject to the approval of Seller. Seller and Purchaser agree to consult and resolve in good faith any issue arising as a result of the review of such Tax Returns and to mutually consent to the filing of such returns. Seller shall remit its share of such Periodic Taxes to Purchaser no later than ten

(10) days before the due date for such Taxes.

Section 8.2 Refunds. Seller shall be entitled to retain or, to the extent actually received by or otherwise available to Purchaser or its Affiliates, receive prompt (and in all events within ten (10) Business Days) payment from Purchaser or any of its Affiliates of, any refund or credit (including refunds arising by reason of amended Tax Returns filed after the Closing or otherwise) with respect to Taxes paid or borne by Seller with respect to any Pre-Closing Tax Period relating to the Purchased Assets, the Assumed Liabilities or the Facility. Purchaser shall be entitled to retain or, to the extent actually received by Seller, receive prompt (and in all events within ten (10) Business Days) payment from Seller of, any refund or credit (including refunds arising by reason of amended Tax Returns filed after the Closing or otherwise) with respect to Taxes paid or borne by Purchaser with respect to any Post-Closing Tax Period relating to the Purchased Assets, the Assumed Liabilities or the Facility.

Section 8.3 Resolution of Tax Controversies. If a claim shall be made by any Governmental Authority or taxing authority that might result in an indemnity payment to Purchaser or any of its Affiliates pursuant to Section 8.1, Purchaser shall promptly (and in all events within ten (10) Business Days) notify Seller of such claim. In the event that a Governmental Authority or a taxing authority determines a deficiency in any Tax, the Party ultimately responsible for such Tax under this Agreement, whether by indemnity or otherwise, shall have authority to determine whether to dispute such deficiency determination and to control the prosecution or settlement of such dispute; provided, however, with respect to Straddle Periods, Seller shall control the dispute. The Party that is not ultimately responsible for such Tax under this Agreement shall have the right to participate at its own expense in the conduct of any such proceeding involving a Tax claim that would adversely affect such Party.

Section 8.4 Tax Cooperation. Seller and Purchaser agree to furnish or cause to be furnished to the other Party, upon request, as promptly as practical, such information and records and assistance (including making such of their respective officers, directors, employees and agents available as may reasonably be requested by such other Party) in connection with the preparation of any Tax Return, audit or other proceeding that relates to the Purchased Assets or the Facility, provided, however, in no event shall any Party or any of its respective Affiliates be required to provide access to or copies of any income Tax Returns of such Party or any such Affiliate. Any expense incurred in providing such information or assistance shall be borne by the Party requesting it.

Section 8.5 Conveyance Taxes. Notwithstanding any other provision of this Agreement to the contrary, all transfer, documentary, recording, sales, use, registration, stamp and other similar Taxes (including all applicable real estate transfer Taxes, but excluding any Taxes based on or attributable to income or capital gains) together with any conveyance fees, notarial and registry fees and recording costs (including any penalties and interest thereon) imposed by any taxing authority or other Governmental Authority in connection with the transfer of the Purchased Assets or the Facility to Purchaser or its Affiliates by this Agreement (collectively, the "**Conveyance Taxes**") shall be borne 50% by Seller and 50% by Purchaser, and shall be paid when due. At its own expense Purchaser shall, with the cooperation of Seller, file all necessary Tax Returns and other documentation with respect to all the Conveyances Taxes and, if required by applicable Law, the Parties shall, and shall cause their Affiliates to, join in the execution of any such Tax Returns and other documentation.

Section 8.6 Amended Tax Returns. Purchaser shall not amend any Tax Return related to the Facility, Assumed Liabilities or the Purchased Assets for a Pre-Closing Tax Period or a Straddle Period without the consent of Seller, which shall not be unreasonably withheld, conditioned or delayed.

ARTICLE IX

CONDITIONS

Section 9.1 Conditions to Obligations of Each Party. The respective obligations of each Party to this Agreement to consummate the transactions contemplated by this Agreement are subject to the requirement (or to the extent permitted by Law, written waiver by each of Seller and Purchaser) on or prior to the Closing Date, that there shall not be in effect any Governmental Order or any Law preventing, enjoining, restraining, making illegal or otherwise prohibiting the consummation of the transactions contemplated by this Agreement or the Ancillary Agreements.

Section 9.2 Conditions to Obligations of Seller. The obligations of Seller to effect the Closing shall be subject to satisfaction (or, to the extent permitted by applicable Law, waiver by Seller, in whole or in part) at or prior to the Closing of the following conditions:

(a) Each of the representations and warranties of Purchaser contained in Article VI shall be true and correct as of the Closing as if made at the Closing (other than such representations and warranties as are made as of another date, which shall be true and correct as of such date);

(b) Each of the covenants and agreements contained in this Agreement to be complied with by Purchaser on or before the Closing shall have been complied with in all material respects; and

(c) Seller shall have received a certificate, dated as of the Closing Date, signed on behalf of Purchaser by an officer of Purchaser to the effect that the conditions set forth in Section 9.2(a) and Section 9.2(b) have been satisfied by Purchaser.

Section 9.3 Conditions to Obligations of Purchaser. The obligations of Purchaser to effect the Closing shall be subject to satisfaction (or, to the extent permitted by applicable Law, waiver by Purchaser, in whole or in part) at or prior to the Closing of the following conditions:

(a) Each of the representations and warranties of Seller contained in Article V shall be true and correct as of the Closing as if made at the Closing (other than such representations and warranties as are made as of another date, which shall be true and correct as of such date), except in either case where any failure of such representations and warranties to be so true and correct has not had a Material Adverse Effect;

(b) Each of the covenants and agreements contained in this Agreement to be complied with by Seller on or before the Closing shall have been complied with in all material respects; and

(c) Purchaser shall have received a certificate, dated as of the Closing Date, signed on behalf of Seller by an officer of Seller to the effect that the conditions set forth in Section 9.3(a) and Section 9.3(b) have been satisfied by Seller.

ARTICLE X

TERMINATION

Section 10.1 Termination. This Agreement may be terminated and the transactions contemplated by this Agreement abandoned at any time prior to the Closing:

(a) by the mutual written consent of Seller and Purchaser;

(b) by either Seller or Purchaser, if the Closing shall not have occurred by November 5, 2021 (the "**End Date**"), unless any Party whose failure to fulfill any obligation under this Agreement shall have been the cause of, or shall have resulted in, the failure of the Closing to occur on or prior to such date; provided, however, that the End Date may be extended by the mutual written consent of Seller and Purchaser.

(c) by either Seller or Purchaser, in the event that any Law or Governmental Order of any Governmental Authority in the United States permanently restraining, enjoining or otherwise prohibiting the transactions contemplated by this Agreement shall have become final and non-appealable; provided, however, that the right to terminate this Agreement under this Section 10.1(c) shall not be available to any Party whose failure to fulfill any obligation under this Agreement shall have been the cause of, or shall have resulted in such Law or Governmental Order in the United States permanently restraining, enjoining or otherwise prohibiting the transactions contemplated by this Agreement;

(d) by Seller (but only so long as Seller is not in material breach of its obligations under this Agreement) if there has been a breach of any representation, warranty, covenant or agreement of Purchaser contained in this Agreement which cannot be or is not cured prior to the End Date;

(e) by Purchaser (but only so long as Purchaser is not in material breach of its obligations under this Agreement) if there has been a breach of any representation, warranty, covenant or agreement of Seller contained in this Agreement cannot be or is not cured prior to the End Date; or

(f) by Seller in the event (i) all of the conditions set forth in Section 9.3 have been and continue to be satisfied (other than conditions with respect to actions the Parties shall take at the Closing itself or which, by their nature, cannot be satisfied until the Closing, but in each case are capable of being satisfied at or prior to the Closing), (ii) Seller has notified Purchaser in writing that it is ready, willing and able to consummate the transactions contemplated by this Agreement, (iii) Purchaser has failed to complete the Closing when required pursuant to Section 4.1, and (iv) Purchaser fails to complete the Closing within three (3) Business Days after the date of receipt of the notice contemplated by clause (ii) and Seller stood ready, willing and able to consummate the transactions contemplated by this Agreement through the end of such three (3) Business Day period.

Section 10.2 Effect of Termination. If this Agreement is terminated and the transactions contemplated by this Agreement are abandoned as described in Section 10.1, this Agreement shall become null and void and of no further force and effect, except for the provisions of Section 7.2(b), this Section 10.2 and Article XII. Nothing in this Section 10.2 shall be deemed to release any Party from any liability for willful breach by such Party of the terms and provisions of this Agreement, including Purchaser's failure to close pursuant to Section 10.1(f).

Section 10.3 Notice of Termination. In the event of termination by Seller or Purchaser pursuant to Section 10.1, written notice of such termination and the basis thereof shall be given by the terminating Party to the other Party to this Agreement.

ARTICLE XI

SURVIVAL AND INDEMNIFICATION

Section 11.1 Survival.

(a) The representations and warranties of the Parties contained in this Agreement shall survive the Closing for a period of eighteen (18) months from the Closing Date and shall expire thereafter; provided, however, that (i) such representations and warranties shall survive for such period with respect to (but only with respect to) any inaccuracy therein or breach thereof, written notice of which shall have been duly and in good faith given within such period in accordance with Section 11.5(a) and Section 11.5(b), (ii) the representations and warranties in Section 5.10 with respect to environmental matters shall survive for a period of five (5) years after the Closing, and (iii) the representations and warranties in Section 5.1 and Section 6.1 as to authorization shall survive indefinitely.

(b) No covenant or agreement of the Parties contained in this Agreement that is to be performed at or prior to the Closing shall survive the Closing provided, however, that the covenants and agreements that contemplate actions to be taken or not taken or obligations in effect after the Closing shall survive in accordance with their terms.

(c) Any claim or demand under this Article XI required to be made on or prior to the expiration of the applicable survival period set forth in this Article XI and not made on or prior to such expiration as described herein shall be irrevocably and unconditionally released and waived by the party seeking indemnification with respect thereto. It is the express intent of the Parties that, if the applicable period for an item as contemplated by this Article XI is shorter than the statute of limitations that would otherwise have been applicable to such item, then, by contract the applicable statute of limitations with respect to such item shall be reduced to the shortened survival period contemplated hereby.

Section 11.2 Indemnification by Purchaser. Subject to the other provisions of this Article XI, from and after the Closing, Purchaser shall be liable to the Seller Indemnified Parties for and shall indemnify the Seller Indemnified Parties against any and all Losses which any Seller Indemnified Parties may suffer or incur to the extent arising out of or related to:

(a) any breach of or inaccuracy in any representation or warranty of Purchaser contained in Article VI of this Agreement;

(b) any breach by Purchaser of, or failure by Purchaser to perform, any of its covenants or other agreements set forth in this Agreement;

(c) the holding or use of the Purchased Assets by Purchaser or the operation of the Facility by Purchaser following the Closing; and

(d) the Assumed Liabilities.

Section 11.3 Indemnification by Seller and Seller Parent. Subject to the other provisions of this Article XI, from and after the Closing, Seller and Seller Parent shall, jointly and severally, be liable to the Purchaser Indemnified Parties for and shall indemnify the Purchaser Indemnified Parties against any and all Losses which any Purchaser Indemnified Parties may actually suffer or incur to the extent arising out of or related to:

(a) any breach of or inaccuracy in any warranty or representation of Seller or Seller Parent contained in Article V of this Agreement;

(b) any breach by Seller or Seller Parent of, or failure by Seller or Seller Parent to perform, any of their respective covenants or other agreements set forth in this Agreement;

(c) the holding or use of the Purchased Assets by Seller or Seller Parent or the operation of the Facility by Seller or Seller Parent prior to the Closing; and

(d) the Excluded Liabilities.

Section 11.4 Limitations on Indemnification.

(a) Notwithstanding anything to the contrary contained in this Agreement, no amounts shall be payable in respect of any Losses arising under Section 11.2 or Section 11.3:

(i) to the extent that the Indemnified Party had a reasonable opportunity, but failed, to mitigate any such Losses;

(ii) to the extent it arises from or was caused by actions taken or failed to be taken by the Indemnified Party or any of its Affiliates after the Closing; or

(iii) to the extent any matter forming the basis for such Losses was (A) incurred by the Indemnified Party as an obligation that accrued under any Assigned Contract during the period of the Indemnified Party's responsibility for Liabilities accruing under the Assigned Contracts or (B) otherwise disclosed to or known by the Indemnified Party prior to the Closing

(b) For purposes of this Article XI, any materiality standards or qualification and any references to the defined term Material Adverse Effect in any representation or warranty shall not be taken into account in determining the amount of any indemnifiable Losses with respect to such inaccuracy.

(c) Notwithstanding anything to the contrary contained in this Agreement, the indemnity obligations of Seller under this Article XI shall be further limited as follows:

(i) no indemnity shall be payable by Seller under Section 11.3(a) or 11.3(b) until and only to the extent that the aggregate amount of Losses exceeds $125,000 (the "**Deductible**") in which event Seller shall be responsible for only for Losses exceeding the Deductible; and

(ii) Seller shall have no further indemnity obligations under Section 11.3(a) or Section 11.3(b) once the aggregate of all Losses paid by Seller with respect to such indemnity obligations equals $2,400,000.

For the avoidance of doubt, the foregoing limitations on Seller's indemnity obligations with respect to Section 11.3(b) shall not apply to any failure by Seller to perform its agreement hereunder that Purchaser will not be responsible for any Excluded Liabilities or any failure of Seller to perform its affirmative indemnity obligations with respect to Excluded Liabilities.

Section 11.5 Claims for Indemnification. All claims for indemnification by any Indemnified Party shall be asserted and resolved as set forth in this Section 11.5.

(a) Third Party Claims.

(i) In the event that any written claim or demand for which, in the reasonable determination of the Indemnifying Party, an Indemnifying Party may be liable to any Indemnified Party hereunder is asserted against or sought to be collected from any Indemnified Party by a third party (which, for purposes of this Article XI, shall mean any party that is not a Seller Indemnified Party or Purchaser Indemnified Party), such Indemnified Party shall promptly, but in no event later than thirty (30) days following such Indemnified Party's receipt of such claim or demand (including a copy of any related written third party demand, claim or complaint) (a "**Third Party Claim**") deliver a written notification of the Third Party Claim, specifying the nature of and basis for such Third Party Claim, together with the amount or, if not then reasonably determinable, the estimated amount, determined in good faith, of the Losses arising from such Third Party Claim, and such other information as the Indemnifying Party shall reasonably request ("**Third Party Claim Notice**"). The Indemnifying Party shall be relieved of its obligations to indemnify the Indemnified Party with respect to such Third Party Claim if the Indemnified Party fails to timely deliver the Third Party Claim Notice and the Indemnifying Party is actually prejudiced thereby.

(ii) Within thirty (30) days after receipt by the Indemnifying Party of a Third Party Claim Notice, such Indemnifying Party may deliver to the Indemnified Party a written response (the "**Response Notice**") in which such Indemnifying Party: (i) agrees that the Indemnified Party is entitled to the full amount of the Third Party Claim as set forth in the Third Party Claim Notice, (ii) agrees that the Indemnified Party is entitled to part, but not all, of the full amount of the Third Party Claim as set forth in the Third Party Claim Notice (such amount agreed to under (i) or (ii), the "**Agreed Amount**"), or (iii) indicates that the Indemnifying Party disputes the entire full amount of the Third Party Claim as set forth in the Third Party Claim Notice. Any part of the full amount of the Third Party Claim as set forth in the Third Party Claim Notice that is not agreed to pursuant to the Response Notice shall be the "**Contested Amount**." If a Response Notice is not received within such thirty (30) day period, then the Indemnifying Party shall be conclusively deemed to have agreed that the Indemnified Party is entitled to the full amount of the Third Party Claim as set forth in the Third Party Claim Notice (and such amount shall be the Agreed Amount). If the Parties are unable to resolve the dispute relating to any Contested Amount within thirty (30) days after the delivery of the Response Notice, then the Parties shall be entitled to resort to any legal remedy available to such Parties, subject to the terms of this Agreement, to resolve such dispute including obtaining a final and non-appealable order of any court of competent jurisdiction directing the Indemnifying Party to pay the Indemnified Party all or a portion of the Contested Amount (the "**Final Contested Amount**"). The Indemnifying Party shall pay any Agreed Amount and/or any Final Contested Amount within five (5) Business Days after determination thereof, it being understood that the Purchaser Indemnified Party shall be entitled to draw upon the Seller Parent Letter of Credit and/or, if applicable, the Replacement Letter of Credit for any Agreed Amounts and/or Final Contested Amounts owed to the Purchaser Indemnified Party by the Indemnifying Party in connection with any claims for indemnification pursuant to this Article XI within five (5) Business Days after determination of such Agreed Amount and/or Final Contested Amount.

(iii) If a Third Party Claim is made against an Indemnified Party, the Indemnifying Party shall be entitled to participate therein and, to the extent that the Indemnifying Party shall wish, to assume the defense thereof provided, however, that the Third Party Claim involves only monetary damages and does not seek an injunction or other equitable relief or does not, in the good faith judgment of the Indemnified Party, based on the advice of counsel, involve a conflict of interest. After notice from the

Indemnifying Party to the Indemnified Party of such election to so assume the defense thereof, the Indemnifying Party shall not be liable to the Indemnified Party for any legal expenses of other counsel or any other expenses subsequently incurred by the Indemnified Party in connection with the defense thereof; provided, however, that in the event the Indemnifying Party fails to actively and diligently conduct the defense of such Third Party Claim, then in such event, upon twenty (20) days' notice during which time such failure to so conduct the defense of such Third Party Claim is not cured, the Indemnified Party may hire separate counsel, and reasonable fees and expenses of such counsel shall be borne by the Indemnifying Party. The Indemnified Party shall cooperate fully with the Indemnifying Party and its counsel in the defense against any such Third Party Claim. The Indemnified Party shall have the right to participate at its own expense in the defense of any Third Party Claim.

(iv) If the Indemnifying Party assumes the defense of any Third Party Claim, the Indemnified Party shall not settle such Third Party Claim unless the Indemnifying Party consents in writing. If the Indemnifying Party assumes the defense of any Third Party Claim, the Indemnifying Party shall not, without the prior written consent of the Indemnified Party (which may be withheld in the Indemnified Party's sole discretion), enter into any settlement or compromise or consent to the entry of any judgment with respect to such Third Party Claim if such settlement, compromise or judgment (x) does not include an unconditional release of the Indemnified Party and its Affiliates from all liability in respect of such Third Party Claim or (y) imposes equitable remedies or any obligation on the Indemnified Party or any of its Affiliates other than solely the payment of money damages for which the Indemnified Party will be indemnified hereunder. If the Indemnified Party is conducting the defense of any Third Party Claim, the Indemnified Party shall not settle such Third Party Claim without the prior written consent of the Indemnifying Party (such consent not to be unreasonably withheld or delayed).

(v) In the event that the Indemnifying Party does not elect to assume the defense of any Third Party Claim, then (a) the Indemnified Party shall (upon further notice to the Indemnifying Party) have the right to undertake the defense of such Third Party Claim; and (b) any failure of the Indemnified Party to defend or to participate in the defense of any such Third Party Claim shall not relieve the Indemnifying Party of its obligations hereunder or, notwithstanding any other provision of this Agreement, otherwise impose an obligation to defend the Indemnified Party hereunder.

(b) Direct Claims.

(i) In the event any Indemnified Party should have a claim or demand under Section 11.2 or Section 11.3 against any Indemnifying Party that does not involve a Third Party Claim (a "**Direct Claim**"), the Indemnified Party shall promptly deliver a written notification to the Indemnifying Party specifying the nature of and basis for such claim or demand, together with the amount or, if not then reasonably determinable, the estimated amount, determined in good faith, of the Losses arising from such claim or demand (a "**Direct Claim Notice**").

(ii) Within thirty (30) days after receipt by the Indemnifying Party of a Direct Claim Notice, such Indemnifying Party may deliver to the Indemnified Party a written response (the "**Direct Claim Response Notice**") in which such Indemnifying Party: (i) agrees that the Indemnified Party is entitled to the full amount of the Direct Claim as set forth in the Direct Claim Notice, (ii) agrees that the Indemnified Party is entitled to part, but not all, of the full amount of the Direct Claim as set forth in the Direct Claim Notice (such amount agreed to under (i) or (ii), the "**Direct Claim Agreed Amount**"), or (iii) indicates that the Indemnifying Party disputes the entire full amount of the Direct Claim as set forth in the Direct Claim Notice. Any part of the full amount of the Direct Claim as set forth in the Direct Claim Notice that is not agreed to pursuant to the Direct Claim Response Notice shall be the "**Direct Claim Contested Amount**." If a Direct Claim Response Notice is not received within such thirty (30) day period, then the Indemnifying Party shall be conclusively deemed to have agreed that the Indemnified Party is entitled to the full amount of the Direct Claim as set forth in the Direct Claim Notice (and such amount shall be the Direct Claim Agreed Amount). If the Parties are unable to resolve the dispute relating to any Direct Claim Contested Amount within thirty (30) days after the delivery of the Direct Claim Response Notice, then the Parties shall be entitled to resort to any legal remedy available to such Parties, subject to the terms of this Agreement, to resolve such dispute including obtaining a final and non-appealable order of any court of competent jurisdiction directing the Indemnifying Party to pay the Indemnified Party all or a portion of the Direct Claim Contested Amount (the "**Final Direct Claim Contested Amount**"). The Indemnifying Party shall pay any Direct Claim Agreed Amount within five (5) Business Days after determination thereof, it being understood that the Purchaser Indemnified Party shall be entitled to draw upon the Seller Parent Letter of Credit and/or, if applicable, the Replacement Letter of Credit for any Direct Claim Agreed Amounts and/or Final Direct Claim Contested Amounts owed to the Purchaser Indemnified Party by the Indemnifying Party in connection with any claims for indemnification pursuant to this Article XI within five (5) Business Days after determination of such Direct Claim Agreed Amount and/or Final Direct Claim Contested Amount.

(c) Access. In the event of any claim or demand for indemnity under Section 11.3, Purchaser agrees to give Seller and its representatives reasonable access to the books and records and employees of Purchaser in connection with the matters for which indemnification is sought to the extent Seller reasonably deems necessary in connection with its rights and obligations under this Article XI.

Section 11.6 Tax Effect. Any indemnification obligation of an Indemnifying Party under this Agreement shall be adjusted so as to give effect to any net reduction in federal, state, local or foreign income or franchise tax liability accrued or realized (either by decrease in Taxes paid or increase in a refund due) at any time by the Indemnified Party in connection with the satisfaction by the Indemnifying Party of any such indemnification obligation.

Section 11.7 Calculation of Indemnification Payments.

(a) If any Purchaser Indemnified Party is entitled to indemnification pursuant to this Article XI, subject to the applicable limitations contained in this Article XI, including those contained in Section 11.4, the Losses indemnifiable thereunder shall be satisfied first from the Seller Parent Letter of Credit, and, to the extent the funds available under the Seller Parent Letter of Credit are not sufficient, Seller and/or Seller Parent shall pay such amounts directly to such Purchaser Indemnified Party (or its designee) by wire transfer of immediately available funds within five (5) Business Days after the final determination hereof to an account designated by the applicable Purchaser Indemnified Party.

(b) If any Losses sustained by an Indemnified Party are covered by an insurance policy or an indemnification, contribution, warranty, refund or similar obligation of another Person (other than an Affiliate of such Indemnified Party), the Indemnified Party shall use reasonable best efforts to collect such insurance proceeds or indemnity, contribution, warranty, refund or similar payments. If the Indemnified Party receives such insurance proceeds or indemnity, contribution, warranty, refund or similar payments prior to being indemnified under Section 11.2 or Section 11.3, as applicable, with respect to such Losses, the payment by an Indemnifying Party under this Article XI with respect to such Losses shall be reduced by the net amount of such insurance proceeds or indemnity, contribution, warranty, refund or similar payments to the extent related to such Losses, less reasonable attorney's fees and other expenses incurred in connection with such recovery. If the Indemnified Party receives such insurance proceeds or indemnity, contribution, warranty or similar payments after being indemnified by an Indemnifying Party with respect to such Losses, the Indemnified Party shall pay to the Indemnifying Party the net amount of such insurance proceeds or indemnity, contribution, warranty or similar payment to the extent related to such Losses, less reasonable attorney's fees and other expenses incurred in connection with such recovery. If any Indemnified Party receives payment under this Article XI on account of a claim that an Indemnifying Party believes in good faith is covered by an insurance policy or an indemnification, contribution, warranty, refund or similar obligation of another Person (other than an Affiliate of such Indemnified Party), that Indemnified Party shall (i) on written request of the Indemnifying Party assign, to the extent assignable, its rights under such insurance policy or indemnification, contribution or similar obligation with respect to such claim to the Indemnifying Party and (ii) be relieved of any further obligation to pursue collection of such insurance or indemnification, contribution, warranty or similar obligation (except that, if requested to do so by the Indemnifying Party, the Indemnified

Party shall reasonably cooperate with the Indemnifying Party at the Indemnifying Party's sole expense, to collect any such insurance or indemnification, contribution, warranty or similar obligation).

Section 11.8 Exclusivity; Release.

(a) After the Closing, the indemnities set forth in this Article XI shall be the sole and exclusive remedy of the Parties, their successors and assigns, and their respective officers, managers or directors, employees, agents, members and Affiliates with respect to this Agreement, the events giving rise to this Agreement and the transactions contemplated hereby, except with respect to (i) claims for specific enforcement for breaches of covenants and agreements contained in this Agreement, and (ii) claims for fraud or intentional misrepresentation. Without limiting the foregoing, Purchaser, for itself and its Affiliates, does hereby irrevocably release, hold harmless and forever discharge Seller and its Affiliates from any and all Liabilities arising pursuant to Environmental Law or with respect to Hazardous Materials resulting from or arising out of or in connection with the Facility, the Assumed Liabilities and the Purchased Assets except for the remedies expressly set forth in this Agreement. In furtherance of, but subject to, the foregoing, Purchaser, for itself and on behalf of its Affiliates, hereby irrevocably waives any and all rights and benefits with respect to such Liabilities that it now has, or in the future may have conferred upon it by virtue of any Law or common law principle, in each case, which provides that a general release does not extend to claims which a party does not know or suspect to exist in its favor at the time of executing the release, if knowledge of such claims would have materially affected such party's settlement with the obligor. In connection with the foregoing, Purchaser hereby acknowledges that it is aware that factual matters now unknown to it and Seller or any of their respective Affiliates may have given, or hereafter may give, rise to Liabilities arising under Environmental Laws or with respect to Hazardous Materials, and Purchaser further agrees that the release set forth in this Section 11.8 has been negotiated and agreed upon in light of that awareness, and Purchaser, for itself and its Affiliates, nevertheless hereby intends irrevocably to release, hold harmless and forever discharge Seller and its Affiliates from all such Liabilities except for the remedies expressly set forth in this Agreement. The indemnities set forth in this Article XI apply only to matters arising out of this Agreement. Any Losses arising under or pursuant to an Ancillary Agreement shall be governed by the remedies, if any, contained in such Ancillary Agreement. The Parties shall not be entitled to a rescission of this Agreement or to any further indemnification rights or claims of any nature whatsoever in respect hereof (whether by Contract, Law or otherwise, all of which the Parties hereby waive).

(b) In connection with the release set forth in Section 11.8(a), Purchaser expressly waives any right or benefit available to Purchaser in any capacity under the provisions of Section 1542 of the Civil Code of California, which provides:

"A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY."

Purchaser acknowledges that the waiver of the section of the California Civil Code set forth above is an essential and material term of this release, and that Purchaser has read this provision, and intend these consequences even as to unknown claims which may exist at the time of this release.

Section 11.9 Treatment of Indemnification Payments. To the extent permitted by Law, any amounts payable pursuant to this Article XI shall be considered adjustments to the Purchase Price for all income Tax purposes and the Parties and their respective Affiliates agree to take no position inconsistent with such treatment in any Tax Return, in any refund claim, in any litigation, or otherwise unless required by a final determination by an applicable taxing authority.

Section 11.10 Additional Limitations on Liability. Notwithstanding anything to the contrary contained in this Agreement (including this Article XI), no Indemnifying Party shall be liable to any Indemnified Party, whether in contract, tort (including negligence and strict liability) or otherwise, at law or in equity, and Losses under this Article XI shall not include, (A) consequential, indirect, exemplary, special or punitive damages, (B) losses or damages based upon a multiple of profits or earnings, (C) losses or damages caused by diminution of value or loss of use, profits, revenue, opportunity or reputation or (D) interest charges or cost of capital, except, in each case, to the extent any such damages are awarded against or otherwise payable or incurred by an Indemnified Party in connection with a Third Party Claim.

ARTICLE XII

MISCELLANEOUS

Section 12.1 Assignment. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted successors and assigns; provided, however, that no assignment shall be made by either Party without the prior written consent of the other Party. Any attempted assignment in violation of this Section 12.1 shall be void.

Section 12.2 Public Announcements. The initial press release with respect to this Agreement and the Ancillary Agreements and the transactions contemplated hereby and thereby shall be agreed upon by Seller and Purchaser. Other than this initial press release, no Party shall issue or cause the publication of any press release or public announcement in respect of this Agreement and the Ancillary Agreements and the transactions contemplated hereby and thereby, without the prior written consent of the other Party hereto (which consent shall not be unreasonably withheld, conditioned or delayed), except as may be required by Law or stock exchange rules; provided, however, that no consent of the other Party will be required for any disclosure contained in, or substantially similar to, the initial press release, which may be filed by any Party in connection with any filing with Governmental Authority.

Section 12.3 Expenses. Whether or not the transactions contemplated hereby are consummated, and except as otherwise specified herein, each Party shall bear its own fees and expenses (including fees and disbursements to counsel, financial advisors and accountants) with respect to the transactions contemplated by this Agreement.

Section 12.4 Severability. Each of the provisions contained in this Agreement shall be severable, and the unenforceability of one provision shall not affect the enforceability of any other provision or of the remainder of this Agreement.

Section 12.5 No Third Party Beneficiaries. This Agreement is for the sole benefit of the Parties and their permitted assigns and nothing herein, express or implied, shall give or be construed to give to any Person, other than the Parties and their permitted assigns, any legal or equitable rights hereunder.

Section 12.6 Waiver. The failure of any Party to enforce any condition or part of this Agreement at any time shall not be construed as a waiver of that condition or part,

nor shall it forfeit any rights to future enforcement thereof. Any waiver hereunder shall be effective only if delivered to the other Party in writing by the Party making such waiver.

Section 12.7 Governing Law. This Agreement shall be construed and enforced in accordance with and governed by the Laws of the State of California, without giving effect to any choice or conflict of law provision or rule (whether of the State of California or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of California.

Section 12.8 Jurisdiction. The Parties agree that any Action seeking to enforce any provision of, or based on any matter arising out of or in connection with this Agreement or the transactions contemplated hereby shall be exclusively brought in the San Joaquin County Superior Court located in Stockton, California, or, in the event (but only in the event) that such court does not have subject matter jurisdiction over such Action, the federal courts of the United States located in the Eastern District of California, and that any cause of action arising out of this Agreement shall be deemed to have arisen from a transaction of business in the State of California, and each of the Parties hereby irrevocably consents to the exclusive jurisdiction of such courts (and of the appropriate appellate courts therefrom) in any such Action and irrevocably waives, to the fullest extent permitted by Law, any objection that it may now or hereafter have to the laying of the venue of any such Action in any such court or that any such Action which is brought in any such court has been brought in an inconvenient forum, and the Parties irrevocably agree that all claims with respect to such Action shall be heard and determined exclusively in such court. Process in any such Action may be served on any Party anywhere in the world, whether within or without the jurisdiction of such court. Without limiting the foregoing, each Party agrees that delivery of notice to such Party as provided in Section 12.13 shall be deemed effective service of process on such Party.

Section 12.9 Waiver of Jury Trial. EACH OF THE PARTIES WAIVES TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY WITH RESPECT TO ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT. EACH OF THE PARTIES HEREBY (A) CERTIFIES THAT NO REPRESENTATIVE, AGENT OR ATTORNEY OF THE OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER, AND (B) ACKNOWLEDGES THAT IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, AS APPLICABLE, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 12.9.

Section 12.10 Specific Performance.

(a) The Parties acknowledge that, in view of the uniqueness of the Facility, the Purchased Assets, the Assumed Liabilities and the transactions contemplated by this Agreement, each Party would not have an adequate remedy at Law for money damages in the event that this Agreement has not been performed in accordance with its terms, and therefore agrees that the other Party shall be entitled to specific enforcement of the terms hereof in addition to any other remedy to which it may be entitled (in accordance with Section 12.8), at Law or in equity and without posting any bond or other undertaking.

(b) Without limiting the generality of the foregoing, Purchaser expressly agrees and acknowledges that, in consideration of the uniqueness of Seller's circumstances, Seller shall be entitled to injunctive relief and specific performance, and to such further and other relief as may be necessary and proper, to ensure compliance by Purchaser with its obligation to cause the Closing to occur, and Purchaser consents to the entry of such relief (and will not contest or appeal any such relief), without necessity of posting bond or other security (any requirements therefor being expressly waived).

(c) The Parties acknowledge that the provisions of thisSection 12.10 are reasonably necessary and commensurate with the need to protect the Parties against irreparable harm and to protect their legitimate business interests.

Section 12.11 Headings. The headings of the sections and subsections of this Agreement are inserted for convenience only and shall not be deemed to constitute a part hereof.

Section 12.12 Counterparts. The Parties may execute this Agreement (including by electronic transmission) in one or more counterparts, and each fully executed counterpart shall be deemed an original.

Section 12.13 Notices. All communications, notices and consents provided for herein shall be in writing and be given in person or by means of email (with request for assurance of receipt), by overnight courier or by mail, and shall become effective: (a) on delivery if given in person; (b) on the date of transmission if sent by email; (c) one (1) Business Day after delivery to the overnight service; or (d) four (4) Business Days after being mailed, with proper postage and documentation, for first-class registered or certified mail, prepaid.

Notices shall be addressed as follows:

If to Purchaser, to:
Pelican Acquisition LLC
PO Box 1804
Woodbridge, CA 95258
Attn: Thomas Zuckerman
Email: tmz@zuco2.com

with a copy to:

Wendel Rosen LLP
1111 Broadway, 24th Floor
Oakland, CA 94607
Attn: Timothy S. Williams
Email: TWilliams@Wendel.com

If to Seller, to:

Pacific Ethanol Stockton LLC
c/o Alto Ingredients, Inc.
1300 South Second Street

Pekin, IL 61554
Attn: Christopher W. Wright, General Counsel
Email: cwright@altoingredients.com

with a copy to:

Troutman Pepper Hamilton Sanders LLP
5 Park Plaza, 14th Floor
Irvine, CA 92614
Attn: Larry A. Cerutti
Email: larry.cerutti@troutman.com

provided, however, that if any party shall have designated a different address by notice to the others, then to the last address so designated.

Section 12.14 Performance of Obligations by Affiliates. Any obligation of Seller under or pursuant to this Agreement may be satisfied, met or fulfilled, in whole or in part, at Seller's sole and exclusive option, either by Seller directly or by any Affiliate of Seller that Seller causes to satisfy, meet or fulfill such obligation in whole or in part.

Section 12.15 Amendment. Except as otherwise specified herein, this Agreement may not be amended, supplemented or otherwise modified except by an instrument in writing signed by each of the Parties.

Section 12.16 Entire Agreement. This Agreement, the Ancillary Agreements and the Confidentiality Agreement contain the entire agreement of the Parties with respect to the transactions covered hereby, superseding all negotiations, prior discussions and preliminary agreements made prior to the date hereof.

Section 12.17 Bulk Sales Law. Each Party hereby waives compliance by the other Party or any of its Affiliates with any applicable bulk sale or bulk transfer laws of any jurisdiction in connection with the sale of the Purchased Assets to Purchaser.

* * * * *

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized officers as of the date first above written.

PURCHASER:

PELICAN ACQUISITION LLC, a
California limited liability company

By: ZUCO2 LLC, a California
limited liability company, Manager

By: /s/ Thomas Zuckerman
Thomas Zuckerman, Member

SELLER:

PACIFIC ETHANOL STOCKTON LLC,
a Delaware limited liability company

By: /s/ Bryon T. McGregor
Name: Bryon T. McGregor
Title: Chief Financial Officer

SELLER PARENT:

ALTO INGREDIENTS, INC.,
a Delaware corporation

By: /s/ Bryon T. McGregor
Name: Bryon T. McGregor
Title: Chief Financial Officer

Alto Ingredients, Inc.

EMPLOYMENT AGREEMENT
for
AUSTE M. GRAHAM

This Employment Agreement ("Agreement") by and between Auste M. Graham ("Executive") and Alto Ingredients, Inc. (the "Company") (collectively, the "Parties") is effective as of the last date signed by the Parties.

Whereas, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for her services; and

Whereas, Executive wishes to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits; and

Now, Therefore, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

Employment by the Company.

1.1 Position. Subject to terms and conditions set forth herein, the Company agrees to employ Executive in the position of Vice President, General Counsel and Executive hereby accepts such employment. During the term of Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention to the business of the Company.

1.2 Duties and Location. Executive shall perform such duties as are customarily associated with Executive's then current title. Executive's primary office location shall be a location mutually acceptable to both the Executive and the Company. The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time as agreed to by Executive, and to require reasonable business travel.

1.3 Policies and Procedures. The employment relationship between the parties shall be governed by the general employment policies and practices of the Company, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. Compensation.

2.1 Salary. For services to be rendered hereunder, Executive shall receive a bi-weekly salary of $12,500.00, approximately $325,000.00 on an annualized basis (the "Base Salary"), subject to standard payroll deductions and withholdings and payable in accordance with the Company's regular payroll schedule. Executive's Base Salary shall be reviewed annually and may be increased as approved by the Company's Board of Directors (the "Board") in its sole discretion.

2.2 Short Term Incentive. Executive shall be entitled to participate in the Company's Short Term Incentive plan ("STI") with a payout target of fifty percent (50%) of Executive's Base Salary. The structure of the STI from time to time, whether any STI payout will be awarded, and the amount of the STI awarded to Executive, shall be in the discretion of the Compensation Committee of the Board. Since the STI award is intended both to reward past Company and Executive performance and to provide an incentive for Executive to remain with the Company, Executive must remain an active employee through the date that any such STI award is paid in order to be entitled to receive any such award, except as otherwise provided in Section 5.2. Executive will not be paid any STI award (including a prorated award) if Executive's employment terminates for any reason before the STI is paid to her, except as otherwise provided in Section 5.2. Any earned STI shall be paid, if at all, not later than March 15th of the year following the calendar year as to which performance was measured.

2.3 Executive Benefits, Long Term Incentive Compensation, and Other Compensation Plans and Programs. Executive shall be entitled to participate in such of the Company's benefit and deferred compensation plans and programs as may be made available to employees of the Company, including, without limitation, the Company's Long Term Incentive Plan ("LTI"), subject in each case to: (i) the generally applicable terms and conditions of the applicable plan or program and to the determinations of the Board or other person administering such plan or program, (ii) determinations by the Board or any such person as to whether and to what extent Executive shall so participate or cease to participate, and (iii) amendment, modification or termination of any such plan or program in the sole and absolute discretion of the Board. The current target value of the Executive's annual LTI grant is $215,000. In Executive's position as Vice President, Executive does not accrue paid time off or "YTO" hours. Executive is responsible for managing her time away from work with the approval of her manager, and Executive is expected to ensure the amount of time away from work is reasonable and done in a manner that minimizes any disruption to the achievement of Executive's job duties.

2.4 Signing Incentives. Executive will receive a lump-sum signing bonus in the amount of $100,000 (gross), subject to the condition stated below. This bonus will be paid (net of standard payroll deductions and withholdings) as soon as administratively feasible following Executive's first day of employment (the "Start Date"). The signing bonus is conditioned on Executive remaining employed by the Company for a year. Consequently, Executive will be obligated to repay the bonus in full in the event Executive resigns for any reason or is terminated for Cause within twelve (12) months of the Start Date. The Company reserves the right to recoup the signing bonus by setoff against Executive's salary or other amounts otherwise owed Executive. In addition, Executive will receive a one-time grant of 20,000 shares of restricted stock, which will vest annually in three (3) equal installments beginning on April 1, 2022. Executive will receive the LTI described above in addition to this one-time grant.

3. Confidential Information Obligations.

3.1 Confidential Information Agreement. As a condition of employment, Executive agrees to execute and abide by the Employee Confidential Information and Inventions Agreement attached hereto as Exhibit A.

3.2 Third Party Agreements and Information. Executive represents and warrants that Executive's employment by the Company will not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, which would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by

Executive in the course of Executive's work for the Company.

4. Outside Activities During Employment.

4.1 Non-Company Business. Except with the prior written consent of the Chief Executive Officer, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Executive may also engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

4.2 No Adverse Interests. Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known by her to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise, except as a passive investor in mutual or exchange traded funds.

5. Termination Of Employment.

5.1 At-Will Relationship. Executive's employment relationship is at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause or advance notice.

5.2 Termination without Cause; Resignation for Good Reason. If, at any time, the Company terminates Executive's employment without Cause (as defined herein), or Executive resigns with Good Reason (as defined herein), and, within sixty (60) days after the Executive's Separation Date (as defined below), Executive executes and delivers the Separation Date Release of all claims set forth as Exhibit B hereto and allows such release to become effective without revoking same, then the Company will provide Executive with the following severance benefits (notwithstanding the foregoing, if any of the following severance benefits are subject to Section 409A (as defined below) and the sixty (60)-day period for executing the release and it becoming effective spans more than one calendar year, none of such severance benefits may be paid or delivered until the subsequent calendar year):

(a) Cash Severance.

(i) Qualifying Termination. Except as otherwise set forth in Section 5.2(a)(ii), in the event the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, other than in anticipation of, or on or within twenty-four (24) months after, a Change in Control (as defined below), the Company shall pay Executive severance in an amount equal to the sum of (A) twelve (12) months of Executive's Base Salary in effect on Executive's last day of employment (the "Separation Date"); and (B) 100% of the total target STI award contemplated by the Company's STI in effect on the Separation Date.

(ii) Change in Control. Notwithstanding Section 5.2(a)(i), in the event the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, in anticipation of, or on or within twenty-four (24) months after, a Change in Control, then the Company shall pay Executive severance in an amount equal to the sum of (C) twenty-four (24) months of Executive's Base Salary in effect on the Separation Date; and (D) 200% of the total target STI award contemplated by the Company's STI in effect on the Separation Date. For purposes of this Agreement, the Company will be deemed to have terminated Executive's employment without Cause, and Executive will be deemed to have resigned for Good Reason, in each case "in anticipation of" a Change in Control if Executive's employment terminates (i) prior to the Change in Control and (ii) during any period in which the Company has (A) initiated a transaction process or is engaged in substantive discussions with a third party about a specific transaction that, if consummated, would result in a Change in Control (and before the complete abandonment of such discussions without the transaction being consummated), or (B) become a party to a definitive agreement to consummate a transaction that would result in a Change in Control (and before the complete termination of such agreement without the transaction being consummated).

(iii) Payment. The cash severance shall be paid in a single lump sum (subject to standard deductions and witholdings) as soon as administratively practicable after the effective date of the release of claims described in Section 5.2 (except as otherwise set forth above) but in no event later than the 15th day of the third month immediately following the end of the calendar year in which Executive's Separation Date occurs (subject to standard deductions and withholdings).

(b) Continued Health Insurance Coverage. To the extent provided by the federal COBRA law or, if applicable, state insurance laws, and by the Company's then-current group health insurance policies, Executive may be eligible to continue Executive's then-current group health insurance benefits after termination of Employment. If eligible and if Executive timely elects continued health insurance coverage, in the event the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, other than in anticipation of, or on or within twenty-four (24) months after, a Change in Control then the Company shall pay, on a monthly basis, the Company's portion of any premiums necessary to provide such coverage for a period of twelve (12) months after the Executive's Separation Date; **provided, however,** that no such premium payments shall be made following the effective date of Executive's coverage by a medical, dental or vision insurance plan of a subsequent employer. Executive shall notify the Company immediately if he becomes covered by a medical, dental or vision insurance plan of a subsequent employer. Notwithstanding the foregoing, in the event the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, in anticipation of, or within twenty-four (24) months on or after, a Change in Control, then (if eligible and coverage elected) the Company shall pay, on a monthly basis, the Company's portion of any premiums necessary to provide such coverage for a period of twenty-four (24) months after the Executive's Separation Date or, if earlier, until the termination of Executive's eligibility for such COBRA or, if applicable, state insurance laws, coverage; **provided, however,** that no such premium payments shall be made following the effective date of Executive's coverage by a medical, dental or vision insurance plan of a subsequent employer and Executive agrees to immediately notify the Company of any such coverage. In the event Executive is entitled to receive such coverage for a period of twenty-four (24) months after the Executive's Separation Date but Executive's right to such COBRA or, if applicable, state insurance laws, coverage expires in the ordinary course (and other than in connection with Executive's coverage by a medical, dental or vision insurance plan of a subsequent employer or as the result of any action or inaction of Executive, such as but not limited to Executive's failure to pay Executive's portion of the premiums), then the Company shall pay, on a monthly basis, to Executive a cash payment (subject to standard deductions and withholdings) equal to the portion of the premiums the Company was paying prior to expiration of such coverage for each month after such coverage expires through twenty-four (24) months after the Executive's Separation Date; **provided, however,** that no such cash payments shall be made following the effective date of Executive's coverage by a medical, dental or vision insurance plan of a subsequent employer and Executive agrees to immediately notify the Company of any such coverage. Notwithstanding the foregoing, Executive's receipt of any amounts under this subsection are contingent upon the release of claims described in Section 5.2, so Executive may pay such amounts during this period and the Company will reimburse such amounts as soon as administratively practicable after the effective date of the release of claims described in Section 5.2 (except as otherwise set forth above) but in no event later than the 15th day of the third month immediately following the end of the calendar year in which Executive's Separation Date occurs.

(c) Accelerated Vesting. If Executive has been employed by the Company as of the Separation Date for one full year or longer, and the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, other than in anticipation of, or on or within twenty-four (24) months after, a Change in Control, then the Company will accelerate the vesting of any equity awards granted to Executive prior to Executive's Separation Date such that twenty-five percent (25%) of all shares or options subject to such awards which are unvested as of the Executive's Separation Date shall be accelerated and deemed fully vested as of the effective date of the release of claims described in Section 5.2 (except as otherwise set forth above); **provided, however**, that without the requirement that Executive be employed for one full year or longer, in the event the Company terminates Executive's employment without Cause, or Executive resigns with Good Reason, in anticipation of, or within

twenty-four (24) months after, a Change in Control, then the Company will accelerate the vesting of any equity awards granted to Executive prior to Executive's employment termination such that one hundred percent (100%) of all shares or options subject to such awards which are unvested as of the Executive's Separation Date shall be accelerated and deemed fully vested as of the effective date of the release of claims described in Section 5.2 (except as otherwise set forth above).

5.3 Termination for Cause; Resignation Without Good Reason. If the Company terminates Executive's employment with the Company for Cause, or Executive resigns without Good Reason, then Executive will not be entitled to any further compensation from the Company (other than accrued salary through Executive's last day of employment which will be paid in the ordinary course and any vested benefits under the Company's benefit plans in which Executive participated prior to the Separation Date in accordance with the terms of such plans), including severance pay, pay in lieu of notice or any other such compensation.

5.4 Termination Due to Death or Disability.

(a) Death. Employee's employment shall terminate immediately upon Employee's death and Employee's estate shall not be entitled to any further compensation from the Company (other than accrued salary through Employee's last day of employment which will be paid in the ordinary course and any vested benefits under the Company's benefit plans in which Employee participated prior to the Separation Date in accordance with the terms of such), including severance pay, pay in lieu of notice or any other such compensation; **provided, however**, that upon Employee's death, the Company will accelerate the vesting of any equity awards granted to Employee prior to the Separation Date such that one hundred percent (100%) of all shares or options subject to such awards which are unvested as of the Separation Date shall be accelerated and deemed fully vested as of the Separation Date.

(b) Disability. If Employee is prevented from performing her duties as described in Section 1.1 of this Agreement by reason of any physical or mental incapacity, with or without reasonable accommodation, that results in Employee's satisfaction of all requirements necessary to receive benefits under the Company's long-term disability plan due to a total disability ("Disability"), then, to the extent permitted by law, the Company may terminate the employment of Employee and this Agreement at such time. In such an event, and if Employee or someone authorized to act on her behalf executes and delivers the Separation Date Release described in Section 5.2 and allows such release to become effective, then the Company shall pay Employee severance in a single lump sum equal to twelve (12) months of Employee's Base Salary in effect on Employee's Separation Date (subject to standard deductions and withholdings). This severance shall be paid on the Company's first regular payroll schedule (subject to standard deductions and withholdings) after the effective date of the release of claims (or as otherwise set forth above in connection with such release as described above) but in no event later than the 15th day of the third month immediately following the end of the calendar year in which Employee's Separation Date occurs. The severance benefits provided for in this Section 5.4 shall be reduced by any amounts expected to be paid to Employee in connection with any federal or state disability insurance payments or benefits, and any private insurance disability payments or benefits, to be provided to Employee within the twelve (12) months following Employee's Separation Date. In the event of Employee's Disability and if Employee or someone authorized to act on her behalf executes and delivers the Separation Date Release described in Section 5.2 and allows such release to become effective, , the Company will accelerate the vesting of any equity awards granted to Employee prior to the Separation Date such that one hundred percent (100%) of all shares or options subject to such awards which are unvested as of the Separation Date shall be accelerated and deemed fully vested as of the effectiveness of the Separation Date Release described in Section 5.2.

5.5 Deferred Compensation. Notwithstanding anything to the contrary set forth herein, any payments and benefits provided under this Agreement (the "Severance Benefits") that constitute "deferred compensation" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and the regulations and other guidance thereunder and any state law of similar effect (collectively "Section 409A") shall not commence in connection with Executive's termination of employment unless and until Executive has also incurred a "separation from service" (as such term is defined in Treasury Regulation Section 1.409A-1(h) ("Separation From Service"), unless the Company reasonably determines that such amounts may be provided to Executive without causing Executive to incur the additional 20% tax under Section 409A.

It is intended that each installment of the Severance Benefits payments provided for in this Agreement is a separate "payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2)(i). For the avoidance of doubt, it is intended that payments of the Severance Benefits set forth in this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulation Sections 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9).

If Employee is a "specified employee" within the meaning of 409A(a)(2)(B)(i) of the Code, no Severance Benefit payments that are nonqualified deferred compensation subject to Section 409A and are triggered by a separation from service shall be paid until the later of six (6) months after Employee's Separation Date or Employee's death. All such payments will be accumulated and paid within thirty (30) days after the expiration of such delay period. However, it is intended that payments to Employee will be exempt from Section 409A under the "short-term deferral" rule set forth in Section 1.409A-1(b)(4) of the Treasury Regulations and not likely to be delayed pursuant to this provision.

Notwithstanding any other payment schedule set forth in this Agreement, none of the Severance Benefits will be paid or otherwise delivered prior to the effective date of the Separation Date Release of all claims set forth as Exhibit B hereto. All amounts payable under the Agreement will be subject to standard payroll taxes and deductions. Notwithstanding any other provision of this Agreement, the Company shall not be liable to Employee or any other person if payments under this Agreement fail to be exempt from, or compliant with, Section 409A. Employee is solely responsible for the tax consequences of any payments hereunder.

5.6 Limitation on Payments. In the event that the payments or other benefits provided for in this Agreement or otherwise payable to Executive (i) constitute "parachute payments" within the meaning of Section 280G of the Code, and (ii) would be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then Executive's benefits under this Agreement shall be either (a) delivered in full, or (b) delivered to such lesser extent which would result in no portion of such benefits being subject to the Excise Tax, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax, results in the receipt by Executive on an after-tax basis, of the greatest amount of benefits, notwithstanding that all or some portion of such benefits may be taxable under Section 4999 of the Code. If a reduction in payments or benefits constituting "parachute payments" is necessary pursuant to the foregoing provision, reduction shall occur pro rata in the following order: reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. If acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of the Executive's stock awards.

5.7 No Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided for under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as the result of employment by another employer after the date of termination, or otherwise, except for health insurance benefits as set forth herein.

5.8 Definitions.

(a) For purposes of this Agreement, "**Cause**" shall mean any one or more of the following:

(i) Executive's indictment or conviction of any felony or of any crime involving dishonesty;

(ii) Executive's participation in any fraud or other act of willful misconduct against the Company (including any material breach of Company policy that causes or reasonably could cause harm to the Company);

(iii) Executive's refusal to comply with any lawful directive of the Company;

(iv) Executive's material breach of Executive's fiduciary, statutory, contractual, or common law duties to the Company (including any material breach of this Agreement or the Confidential Information and Inventions Agreement); or

(v) Conduct by Executive which in the good faith and reasonable determination of the Board demonstrates gross unfitness to serve.

Provided, however, that in the event that any of the foregoing events is reasonably capable of being cured, the Company shall, within twenty (20) days after the discovery of such event, provide written notice to the Executive describing the nature of such event and Executive shall thereafter have ten (10) business days to cure such event.

(b) For purposes of this Agreement, Executive shall have "**Good Reason**" for Executive's resignation if: (w) any of the following occurs without Executive's consent; (x) Executive notifies the Company in writing, within twenty (20) days after the occurrence of one of the following events that Executive intends to terminate her employment no earlier than thirty (30) days after providing such notice; (y) the Company does not cure such condition within thirty (30) days following its receipt of such notice or states unequivocally in writing that it does not intend to attempt to cure such condition, and (z) the Executive resigns from employment within thirty (30) days following the end of the period within which the Company was entitled to remedy the condition constituting Good Reason but failed to do so:

(i) the assignment to Executive of any duties or responsibilities which result in the material diminution of Executive's authority, duties or responsibility; **provided, however,** that the acquisition of the Company and subsequent conversion of the Company to a division or unit of the acquiring corporation will not by itself result in a material diminution of Executive's authority, duties or responsibility;

(ii) a material reduction by the Company in Executive's annual base salary, except to the extent the base salaries of all other executive officers of the Company are accordingly reduced;

(iii) a relocation of Executive's place of work, or the Company's principal executive offices if Executive's principal office is at such offices, to a location that increases Executive's daily one-way commute by more than thirty-five (35) miles; or

(iv) any material breach by the Company of any material provision of this Agreement, including but not limited to Section 7.7.

(c) For purposes of this Agreement, "Change in Control" shall be deemed to have occurred if, in a single transaction or series of related transactions: (i) any person (as such term is used in Section 13(d) and 14(d) of the Securities Exchange Act of 1934 ("Exchange Act")), or persons acting as a group, other than a trustee or fiduciary holding securities under an employment benefit program, is or becomes a "beneficial owner" (as defined in Rule 13-3 under the Exchange Act), directly or indirectly of securities of the Company representing a majority (e.g., 50% plus one share) of the combined voting power of the Company, (ii) there is a merger, consolidation or other business combination transaction of the Company with or into another corporation, entity or person, other than a transaction in which the holders of at least a majority of the shares of voting capital stock of the Company outstanding immediately prior to such transaction continue to hold (either by such shares remaining outstanding or by their being converted into shares of voting capital stock of the surviving entity) a majority of the total voting power represented by the shares of voting capital stock of the Company (or the surviving entity) outstanding immediately after such transaction, or (iii) all or substantially all of the Company's assets are sold.

6. Arbitration.

To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in Peoria, Illinois, conducted by JAMS under the then applicable JAMS rules. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding.** The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of court fees that would be required if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration.

7. General Provisions.

7.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by fax) or the next day after sending by overnight carrier, to the Company at its primary office location and to Executive at her address as listed on the Company payroll.

7.2 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties.

7.3 Waiver. Any waiver of any breach of any provisions of this Agreement must be in writing to be effective, and it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

7.4 Complete Agreement. This Agreement, including Exhibits A, and B constitutes the entire agreement between Executive and the Company and it is the complete, final, and exclusive embodiment of their agreement with regard to this subject matter. It is entered into without reliance on any promise or representation other than those expressly contained herein, and it cannot be modified or amended except in a writing signed by the Executive and a duly authorized officer of the Company.

7.5 Counterparts. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

7.6 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

7.7 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of her duties hereunder and she may not assign any of her rights hereunder without the written consent of the Company, which shall not be withheld unreasonably. The Company shall obtain the assumption of this Agreement by any successor or assign of the Company.

7.8 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of Illinois.

In Witness Whereof, the parties have executed this Agreement.

Alto Ingredients, Inc.

By: /s/ Michael D. Kandris
Michael D. Kandris
Chief Executive Officer

Date: February 1, 2022

Understood and Agreed:

Executive

/s/ Auste M. Graham
Auste M. Graham

Date: February 1, 2022

Exhibit A

CONFIDENTIAL INFORMATION AND INVENTIONS AGREEMENT

Exhibit B

Separation Date Release

(To be signed and become effective on or within 60 days after the employment termination date.)

In exchange for the severance benefits to be provided to me by Alto Ingredients, Inc. (the "Company") pursuant to the terms of my Employment Agreement (the "Agreement"), I hereby provide the following General Release of Claims (the "Release"). I understand that, on the last date of my employment with the Company, the Company will pay me any accrued salary to which I am entitled by law, regardless of whether I sign this Release, but I am not entitled to any severance benefits unless I sign and return this Release to the Company and I allow it to become effective.

I, for myself and my heirs, executors, representatives, administrators, agents and assigns (collectively, "Releasors" or "I") irrevocably and unconditionally fully and forever waive, release and discharge the Company and its directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, parent and subsidiary entities, insurers, affiliates and assigns (collectively the "Released Parties") of and from any and all claims, liabilities and obligations, both known and unknown, arising out of or in any way related to events, acts, conduct or omissions occurring at any time prior to or at the time that I sign this Release.

This general release includes, but is not limited to: Any and all claims, demands, actions, causes of actions, judgments, rights, fees, damages, debts, obligations, liabilities and expenses (inclusive of attorneys' fees) of any kind whatsoever, whether known or unknown (collectively, "Claims"), that Releasors may have or have ever had against the Released Parties, or any of them, by reason of any actual or alleged act, omission, transaction, practice, conduct, occurrence or other matter from the beginning of time up to and including the date of the my execution of this Agreement, including, but not limited to:

Any and all existing but not prospective claims under Title VII of the Civil Rights Act of 1964 (Title VII), the Americans with Disabilities Act (ADA), the Family and Medical Leave Act (FMLA) (regarding existing but not prospective claims), the Fair Labor Standards Act (FLSA), the Equal Pay Act, the Employee Retirement Income Security Act (ERISA) (regarding unvested benefits), the Civil Rights Act of 1991, Section 1981 of U.S.C. Title 42, the Worker Adjustment and Retraining Notification (WARN) Act, the National Labor Relations Act (NLRA), the Age Discrimination in Employment Act (ADEA), the Uniform Services Employment and Reemployment Rights Act (USERRA), the Genetic Information Nondiscrimination Act (GINA), the Immigration Reform and Control Act (IRCA), the Illinois Human Rights Act (IHRA), the Right to Privacy in the Workplace Act, the Illinois Occupational Safety and Health Act, the Illinois Worker Adjustment and Retraining Notification Act, the Illinois One Day Rest in Seven Act, the Illinois Union Employee Health and Benefits Protection Act, the Illinois Employment Contract Act, the Illinois Labor Dispute Act, the Victims' Economic Security and Safety Act, the Illinois Whistleblower Act, the Illinois Equal Pay Act, the Illinois Constitution, as well as any claims under local statutes and ordinances that may be legally waived and released, including the Cook County Human Rights Ordinance, the Chicago Human Rights Ordinance, all including any amendments and their respective implementing regulations, and any other federal, state, local or foreign law (statutory, regulatory or otherwise) that may be legally waived and released; however, the identification of specific statutes is for purposes of example only, and the omission of any specific statute or law shall not limit the scope of this general release in any manner;

Any and all claims for compensation of any type whatsoever, including but not limited to claims for salary, wages, bonuses, commissions, incentive compensation, vacation and severance that may be legally waived and released;

Any and all claims arising under tort, contract and quasi-contract law, including but not limited to claims of breach of an express or implied contract, tortious interference with contract or prospective business advantage, breach of the covenant of good faith and fair dealing, promissory estoppel, detrimental reliance, invasion of privacy, nonphysical injury, personal injury or sickness or any other harm, wrongful or retaliatory discharge, fraud, defamation, slander, libel, false imprisonment, and negligent or intentional infliction of emotional distress; and

Any and all claims for monetary or equitable relief, including but not limited to attorneys' fees, back pay, front pay, reinstatement, experts' fees, medical fees or expenses, costs and disbursements, punitive damages, liquidated damages and penalties.

However, this general release and waiver of claims excludes, and I do not waive, release or discharge: (A) any right to file an administrative charge or complaint with, or testify, assist or participate in an investigation, hearing or proceeding conducted by, the Equal Employment Opportunity Commission, or other similar federal or state administrative agencies, although I waive any right to monetary relief related to any filed charge or administrative complaint; (B) any right to make claims under the Illinois Workers' Compensation Act, the Illinois Workers' Occupational Disease Act, the Employee Credit Privacy Act, the Illinois Wage Payment and Collection Act, the Illinois Unemployment Insurance Act, and any claims that cannot be waived by law, such as claims for unemployment benefit rights and workers' compensation; and (C) any rights to vested benefits, such as pension or retirement benefits, the rights to which are governed by the terms of the applicable plan documents and award agreements.

I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the ADEA, and that the consideration given for the waiver and release in the preceding paragraph is in addition to anything of value to which I am already entitled. I further acknowledge that I have been advised by this writing that: (1) my waiver and release do not apply to any rights or claims that may arise after the date I sign this Release; (2) I should consult with an attorney prior to signing this Release (although I may choose voluntarily not to do so); (3) I have twenty-one (21) days to consider this Release (although I may choose voluntarily to sign it earlier); (4) I have seven (7) days following the date I sign this Release to revoke it by providing written notice of revocation to the Company's Chief Financial Officer; and (5) this Release will not be effective until the date upon which the revocation period has expired, which will be the eighth calendar day after the date I sign it provided that I do not revoke it (the "Effective Date").

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. I hereby expressly waive and relinquish all rights and benefits under that section and any law or legal principle of similar effect in any jurisdiction with respect to my release of claims herein, including but not limited to the release of unknown and unsuspected claims.

I hereby represent that I have been paid all compensation owed for all hours worked, I have received all the leave and leave benefits and protections for which I am eligible, including, but not limited to, the Family and Medical Leave Act, the Illinois Human Rights Act, or otherwise, and I have not suffered any on-the-job injury for which I have not already filed a workers' compensation claim.

I further agree and covenant: (1) not at any time to make, publish or communicate to any person or entity or in any public forum any defamatory, maliciously false or disparaging remarks, comments or statements concerning the Company, its parent, or its or their officers, directors, employees, shareholders, affiliates and agents, in any manner likely to be harmful to its or their business, business reputation, or personal reputation (although I may respond accurately and fully to any question, inquiry or request for information as required by legal process); (2) not to voluntarily (except in response to legal compulsion) assist any third party in bringing or pursuing any proposed or pending litigation, arbitration, administrative claim or other formal proceeding against the Company, its parent or subsidiary entities, affiliates, officers, directors, employees or agents; and (3) to reasonably cooperate with the Company, by voluntarily (without legal compulsion) providing accurate and complete information, in connection with the Company's actual or contemplated defense, prosecution or investigation of any claims or demands by or against third parties, or other matters, arising from events, acts or failures to act that occurred during the period of my employment by the Company.

By: _____ _____

Auste M. Graham **Date**

WAIVER, CONSENT, AND AMENDMENT NO. 4
TO
SECOND AMENDED AND RESTATED CREDIT AGREEMENT AND
AMENDMENT TO OTHER AGREEMENTS

This WAIVER, CONSENT, AND AMENDMENT NO. 4 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT AND AMENDMENT TO OTHER AGREEMENTS (this **"Amendment")** is entered into as of March 8, 2021, by and among WELLS FARGO BANK, NATIONAL ASSOCIATION, in its capacity as administrative agent (in such capacity, **"Agent")** for each member of the Lender Group and the Bank Product Provider (as each such term is defined in the Credit Agreement referred to below), KINERGY MARKETING LLC **("Kinergy"),** and ALTO NUTRIENTS, LLC, formerly known as Pacific AG. Products, LLC **("Alto"** and together with Kinergy, each individually, a **"Borrower"** and collectively, the **"Borrowers").**

WHEREAS, Borrowers, Agent and Lenders (as defined below) have entered into certain financing arrangements as set forth in (a) the Second Amended and Restated Credit Agreement, dated as of August 2, 2017, by and among Agent, the financial institutions from time to time party thereto as lenders (collectively, the **"Lenders")** and Borrowers (as amended, restated, renewed, extended, supplemented, substituted and otherwise modified from time to time, the **"Credit Agreement")** and (b) the Loan Documents (as defined in the Credit Agreement);

WHEREAS, Borrowers have advised Agent that "Pacific Ag. Products, LLC" has changed its name to "Alto Nutrients, LLC" (the "Name Change"), and have requested that Agent and Lenders have consent to the Name Change, subject to the terms and conditions of this Amendment; and

WHEREAS, Borrowers have advised Agent that Parent has changed its name to "Alto Ingredients, Inc.", and Agent and Lenders have agreed to amend the terms and provisions of the Credit Agreement to reflect such name change of Parent.

NOW, THEREFORE, upon the mutual agreements and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment shall have the respective meanings given them in the Credit Agreement.

2. Waiver and Consent to Name Change. Notwithstanding anything to the contrary set forth in the Loan Documents, and subject to the terms and conditions set forth herein, Agent and the Lenders hereby:

(a) Waive the application of each covenant or restriction set forth in the Loan Documents (including, without limitation, Section 7(1) of the Guaranty and Security Agreement) that would prohibit, restrict, or be violated by the Name Change; and

(b) Consent to the Name Change.

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3. Amendments to Credit Agreement and other Loan Documents. Effective as of the date hereof:

(a) All references to "Pacific Ag. Products, LLC" in the Credit Agreement and each other Loan Document, as a "Borrower", "Grantor", or otherwise, shall be deemed, and each such reference is hereby amended, to mean "Alto Nutrients, LLC".

(b) The definition of "Parent" appearing in Section I . I of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

""Parent" means Alto Ingredients, Inc., a Delaware corporation."

4. Additional Representation. In addition to the continuing representations, warranties and covenants at any time made by Borrowers to Agent and Lenders pursuant to the Credit Agreement, and the other Loan Documents, Borrowers hereby jointly and severally represent, warrant and covenant with and to Agent and Lenders that, as of the date of this Amendment and after giving effect hereto, no known Default or Event of Default exists or has occurred and is continuing.

5. Release. In consideration of the agreements of Agent and Lenders contained herein and the making of loans by or on behalf of Agent and Lenders to Borrowers pursuant to the Credit Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, each Borrower on behalf of itself and its successors, assigns, and other legal representatives (the **"Releasing Parties"),** hereby, jointly and severally, absolutely, unconditionally and irrevocably releases, remises and forever discharges Agent and each Lender, and their present and former shareholders, affiliates, subsidiaries, divisions, predecessors, directors, officers, attorneys, employees, agents and other representatives and their respective successors and assigns (Agent, each Lender and all such other parties being hereinafter referred to collectively as the **"Releasees"** and individually as a **"Releasee"),** of and from all demands, actions, causes of action, suits, covenants, contracts, controversies, agreements, promises, sums of money, accounts, bills, reckonings, damages and any and all other claims, counterclaims, defenses, rights of set-off, demands and liabilities whatsoever (individually, a **"Claim"** and collectively, **"Claims")** of every name and nature, known or unknown, suspected or unsuspected, both at law and in equity, whether liquidated or unliquidated, matured or unmatured, asserted or unasserted, fixed or contingent, foreseen or unforeseen and anticipated or unanticipated, which any Releasing Party may now or hereafter own, hold, have or claim to have against the Releasees or any of them for, upon, or by reason of any nature, cause or thing whatsoever which arises at any time on or prior to the day and date of this Amendment, in relation to, or in any way in connection with the Credit Agreement, as amended and supplemented through the date hereof, this Amendment and the other Loan Documents. Each Releasing Party understands, acknowledges and agrees that the release set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such release.

It is the intention of the Releasing Parties that the above release shall be effective as a full and final release of each and every matter specifically and generally referred to above clause (a). Each Releasing Party acknowledges and represents that it has been advised by independent legal counsel with respect to the agreements contained herein and with respect to the provisions of California Civil Code Section 1542, which provides as follows: "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, AND THAT IF KNOWN BY HIM OR HER WOULD HAVE MATERIALLY AFFECTED THE SETTLEMENT WITH THE DEBTOR OR RELEASEE." Each Releasing Party, being aware of said code section, expressly waives on its own behalf and on behalf of those for which such Releasing Party is giving the release, any and all rights either may have thereunder, as well as under any other statute or common law principle of similar effect, with respect to any of the matters released herein. This release shall act as a release of all included claims, rights and causes of action, whether such claims are currently known, unknown, foreseen or unforeseen and regardless of any present lack of knowledge as to such claims. Each Releasing Party understands and acknowledges the significance and consequence of this waiver of California Civil Code Section 1542, and hereby assumes full responsibility for any injuries, damages, losses or liabilities released herein.

6. Conditions to Effectiveness. The effectiveness of this Amendment shall be subject to the receipt by Agent of an original (or electronic copy) of this Amendment (and all exhibits hereto) duly authorized, executed and delivered by Borrowers and Lenders.

7. Effect of this Amendment. Except as modified pursuant hereto, no other changes or modifications to the Credit Agreement are intended or implied and in all other respects the Credit Agreement is hereby specifically ratified, restated and confirmed by all parties hereto as of the date hereof. To the extent of conflict between the terms of this Amendment, on the one hand, and Credit Agreement, on the other hand, the terms of this Amendment shall control.

8. Further Assurances. Borrowers shall execute and deliver such additional documents and take such additional action as may be reasonably requested by Agent to effectuate the provisions and purposes of this Amendment.

9. Binding Effect. This Amendment shall be binding upon and inure to the benefit of each of the parties hereto and their respective successors and assigns.

10. Governing Law. The rights and obligations hereunder of each of the parties hereto shall be governed by and interpreted and determined in accordance with the internal laws of the State of California (without giving effect to principles of conflict oflaws).

11. Counterparts. This Amendment and any notices delivered under this Amendment, may be executed by means of (a) an electronic signature that complies with the federal Electronic Signatures in Global and National Commerce Act, state enactments of the Uniform Electronic Transactions Act, or any other relevant and applicable electronic signatures law; (b) an original manual signature; or (c) a faxed, scanned, or photocopied manual signature. Each electronic signature or faxed, scanned, or photocopied manual signature shall for all purposes have the same validity, legal effect, and admissibility in evidence as an original manual signature. Agent reserves the right, in its sole discretion, to accept, deny, or condition acceptance of any electronic signature on this Amendment or on any notice delivered to Agent under this Amendment. This Amendment and any notices delivered under this Amendment may be executed in any number of counterparts, each of which shall be deemed to be an original, but such counterparts shall, together, constitute only one instrument. Delivery of an executed counterpart of a signature page of this Amendment and any notices as set forth herein will be as effective as delivery of a manually executed counterpart of this Amendment or notice.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered by their authorized officers as of the day and year first above written.

BORROWERS:

KINERGY MARKETING LLC,
as a Borrower

By: /s/ Bryon McGregor
Name: Bryon McGregor
Title: Chief Financial Officer

ALTO NUTRIENTS, LLC,
as a Borrower

By: /s/ Bryon McGregor
Name: Bryon McGregor
Title: Chief Financial Officer

ACKNOWLEDGED:

ALTO INGREDIENTS, INC.
as a Guarantor

By: /s/ Bryon McGregor
Name: Bryon McGregor
Title: Chief Financial Officer

AGENT AND LENDER:

WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Agent and sole Lender

By: /s/ Carlos Valles
Name: Carlos Valles
Title: Vice President

Exhibit 10.21

WAIVER, CONSENT, AND AMENDMENT NO. 5
TO
SECOND AMENDED AND RESTATED CREDIT AGREEMENT

This WAIVER, CONSENT, AND AMENDMENT NO. 5 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT (this "**Amendment**") is entered into as of June 10, 2021, by and among WELLS FARGO BANK, NATIONAL ASSOCIATION, in its capacity as administrative agent (in such capacity, "**Agent**") for each member of the Lender Group and the Bank Product Provider (as each such term is defined in the Credit Agreement referred to below), KINERGY MARKETING LLC ("**Kinergy**"), and ALTO NUTRIENTS, LLC, formerly known as Pacific AG. Products, LLC ("**Alto**" and together with Kinergy, each individually, a "**Borrower**" and collectively, the "**Borrowers**").

WHEREAS, Borrowers, Agent and Lenders (as defined below) have entered into certain financing arrangements as set forth in (a) the Second Amended and Restated Credit Agreement, dated as of August 2, 2017, by and among Agent, the financial institutions from time to time party thereto as lenders (collectively, the "**Lenders**") and Borrowers (as amended, restated, renewed, extended, supplemented, substituted and otherwise modified from time to time, the "**Credit Agreement**") and (b) the Loan Documents (as defined in the Credit Agreement);

WHEREAS, Borrowers have advised Agent that they have formed Alto Specialty Products, LLC ("**Alto Specialty Products**"), a wholly-owned subsidiary of Kinergy (the "**Alto Specialty Formation**"), and have requested that Agent and Lenders consent to the Alto Specialty Formation, subject to the terms and conditions of this Amendment; and

WHEREAS, Borrowers, Agent and Lenders have agreed to amend and modify certain provisions of Credit Agreement, subject to the terms and conditions of this Amendment.

NOW, THEREFORE, upon the mutual agreements and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Definitions.

(a) Deleted Definitions. The definition of "Daily Three Month LIBOR Rate" appearing in Section 1.1 of the Credit Agreement is hereby deleted in its entirety.

(b) Additional Definitions. The following new defined terms are hereby added to Section 1.1 of the Credit Agreement in the appropriate alphabetical order:

""Amendment No. 5 Effective Date" means June 10, 2021."

""Daily Simple SOFR" means, with respect to any day (a "Reference Day"), a rate per annum equal to SOFR for the date that is (a "SOFR Rate Date") two (2) U.S. Government Securities Business Days prior to (i) if such Reference Day is a U.S. Government Securities Business Day, such Reference Day or (ii) if such Reference Day is not a U.S. Government Securities Business Day, the U.S. Government Securities Business Day immediately preceding such Reference Day, in each case, as such rate appears on the SOFR Administrator's Website at approximately 3:00 p.m. (New York City time) on the U.S. Government Securities Business Day immediately following such SOFR Rate Date; *provided*, *however*, that if Daily Simple SOFR determined as provided above would be less than zero, then Daily Simple SOFR shall be deemed to be zero."

""SOFR" means a rate per annum equal to the secured overnight financing rate published by the SOFR Administrator on the SOFR Administrator's Website."

""SOFR Administrator" means the Federal Reserve Bank of New York (or a successor administrator of the secured overnight financing rate)."

""SOFR Administrator's Website" means the website of the Federal Reserve Bank of New York, currently at http://www.newyorkfed.org, or any successor source for the secured overnight financing rate identified as such by the SOFR Administrator from time to time."

""SOFR Loans" means each portion of a Revolving Loan that bears interest at a rate determined by reference to Daily Simple SOFR."

""U.S. Government Securities Business Day" means any day except for (a) a Saturday, (b) a Sunday or (c) a day on which the Securities Industry and Financial Markets Association, or any successor thereto, recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in United States government securities."

(c) Interpretation. Capitalized terms used and not defined in this Amendment shall have the respective meanings given them in the Credit Agreement.

2. Waiver and Consent to Alto Specialty Formation. Notwithstanding anything to the contrary set forth in the Loan Documents, and subject to the terms and conditions set forth herein, Agent and the Lenders hereby:

(a) Waive the application of each covenant or restriction set forth in the Loan Documents (including, without limitation, Section 5.11 of the Credit Agreement) that would prohibit, restrict, or be violated by the Alto Specialty Formation; and

(b) Consent to the Alto Specialty Formation.

3. Amendments. Effective as of the date hereof:

(a) The definition of "Applicable Margin" set forth in Section 1.1 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

""Applicable Margin" means, as of any date of determination, the applicable margin set forth in the following table that corresponds to the Average Excess Availability of Borrowers for the most recently completed quarter:

Level	Average Excess Availability	Applicable Margin
I	≥ 50% of the Maximum Revolver Amount	1.75 percentage points
II	< 50% of the Maximum Revolver Amount and ≥ 25% of the Maximum Revolver Amount	2.00 percentage points

III	< 25% of the Maximum Revolver Amount	2.25 percentage points

The Applicable Margin shall be re-determined as of the first day of each quarter. Notwithstanding anything to the contrary herein, the Applicable Margin shall be the highest percentage set forth above plus two (2%) percent per annum, at Agent's option, without notice, (i) either (A) for the period on and after the date of termination or non-renewal hereof until such time as all Obligations are indefeasibly paid and satisfied in full in immediately available funds, or (B) for the period from and after the date of the occurrence of any Event of Default, and for so long as such Event of Default is continuing as determined by Agent and (ii) on the Revolving Loans to Borrowers at any time outstanding in excess of the Borrowing Base (whether or not such excess(es) arise or are made with or without Agent's or any Lender's knowledge or consent and whether made before or after an Event of Default). The Applicable Margin as of the Amendment No. 5 Effective Date shall be the Applicable Margin shall be set at the margin in the row styled "Level III""

(b) The definition of "Business Day" set forth in Section 1.1 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

""Business Day" means any day that is not a Saturday, Sunday, or other day on which banks are authorized or required to close in the state of California or North Carolina."

(c) Subsection (m) of the definition of "Eligible Accounts" set forth in Section 1.1 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

"(m) (i) the aggregate amount of such Accounts of the Borrowers owing by a single account debtor (other than Chevron Corporation, Valero Energy Corporation, Royal Dutch Shell plc, Tesoro Corporation, Procter and Gamble, MGP Ingredients, Vi-Jon LLC, and BP Products) do not constitute more than twenty (20%) percent of the aggregate amount of all otherwise Eligible Accounts, and (ii) the aggregate amount of such Accounts owing by any of Chevron Corporation, Valero Energy Corporation, Royal Dutch Shell plc, Tesoro Corporation, Procter and Gamble, MGP Ingredients, Vi-Jon LLC, and BP Products do not, in each case, constitute more than thirty (30%) percent of the aggregate amount of all otherwise Eligible Accounts (but the portion of the Accounts not in excess of the applicable percentages set forth above may be deemed Eligible Accounts and such applicable percentages may from time to time be increased by Agent in the exercise of its Permitted Discretion at the request of Borrower, and may from time to time be reduced by Agent in the exercise of its sole discretion (and, with respect to any such reduction below such initial percentages, in accordance with and subject to the terms hereof);"

(d) The definition of "Increased Reporting Event" set forth in Section 1.1 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

""Increased Reporting Event" means if at any time (a) Excess Availability is less than fifteen percent (15%) of the Maximum Revolver Amount or (b) a Default or Event of Default shall have occurred and be continuing."

(e) The definition of "Maturity Date" set forth in Section 1.1 of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

""Maturity Date" means August 8, 2023."

(f) Section 2.6(a) of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

"(a) Interest Rates. Except as provided in Section 2.6(c), all Obligations (except for undrawn Letters of Credit) that have been charged to the Loan Account pursuant to the terms hereof shall bear interest at a per annum rate equal to the Daily Simple SOFR plus the Applicable Margin."

(g) Section 2.12 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

"Special Provisions Applicable to Daily Simple SOFR.

(a) The Daily Simple SOFR may be adjusted by Agent with respect to any Lender on a prospective basis to take into account any additional or increased costs to such Lender of maintaining or increased costs (other than Taxes which shall be governed by Section 16), in each case, due to changes in applicable law, including any Changes in Law and changes in the reserve requirements imposed by the Board of Governors, or similar requirements imposed by any domestic or foreign governmental authority or resulting from compliance by Lender with any request or directive (whether or not having the force of law) from any central bank or other Governmental Authority and related in any manner to SOFR or Daily Simple SOFR, which additional or increased costs would increase the cost of funding or maintaining loans bearing interest at the Daily Simple SOFR. In any such event, the affected Lender shall give Borrowers and Agent notice of such a determination and adjustment and Agent promptly shall transmit the notice to each other Lender and, upon its receipt of the notice from the affected Lender, Borrowers may, by notice to such affected Lender, require such Lender to furnish to Borrowers a statement setting forth in reasonable detail the basis for adjusting such Daily Simple SOFR and the method for determining the amount of such adjustment.

(b) Notwithstanding anything to the contrary contained herein, subject to the occurrence of a Benchmark Transition Event or an Early Opt-in Election, as such terms are defined in Schedule 2.12, in the event that (i) any change in market conditions or any Change in Law shall at any time after the date hereof, in the reasonable opinion of any Lender, make it unlawful or impractical for such Lender to fund or maintain Loans at the Daily Simple SOFR, or to continue such funding or maintaining, or to determine or charge interest rates at the Daily Simple SOFR, or (ii) any Lender determines that the interest rate hereunder based on the Daily Simple SOFR will not adequately and fairly reflect the cost to such Lender of maintaining or funding any Loans based upon Daily Simple SOFR, then, in either case, (x) such Lender shall give notice of such changed circumstances to Agent and Borrower, and Agent promptly shall transmit the notice to each other Lender, (y) such Loans of such Lender shall

thereafter bear interest at a per annum rate equal to the Base Rate plus the Applicable Margin and (z) interest based on the Daily Simple SOFR shall not be available for Loans of such Lender until such Lender determines that interest based on such rate is again available.

(c) Anything to the contrary contained herein notwithstanding, neither Agent, nor any Lender, nor any of their Participants, is required actually to match fund any Obligation as to which interest accrues at the Daily Simple SOFR."

(h) Section 2.13(b) of the Credit Agreement is hereby amended to delete each reference to "Daily Three Month LIBOR Rate" appearing therein and substitute "Daily Simple SOFR" therefor.

(i) Section 14.2 of the Credit Agreement is hereby amended and restated to read as follows:

"14.2 Replacement of Lenders

(a) If (i) any action to be taken by the Lender Group or Agent hereunder requires the consent, authorization, or agreement of all Lenders or all Lenders affected thereby and if such action has received the consent, authorization, or agreement of the Required Lenders but not of all Lenders or all Lenders affected thereby, or (ii) Daily Simple SOFR is adjusted with respect to any Lender pursuant to Section 2.12(a), or (iii) any Lender makes a claim for compensation under Section 16, then Borrowers or Agent, upon at least five Business Days prior irrevocable notice, may permanently replace any Lender that failed to give its consent, authorization, or agreement (a "Non-Consenting Lender"), any Lender in respect of which Daily Simple SOFR is increased (an "Increased Costs Lender") or any Lender that made a claim for compensation (a "Tax Lender") with one or more Replacement Lenders, and the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall have no right to refuse to be replaced hereunder. Such notice to replace the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall specify an effective date for such replacement, which date shall not be later than 15 Business Days after the date such notice is given.

(b) Prior to the effective date of such replacement, the Non- Consenting Lender or Tax Lender, as applicable, and each Replacement Lender shall execute and deliver an Assignment and Acceptance, subject only to the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, being repaid in full its share of the outstanding Obligations (without any premium or penalty of any kind whatsoever, but including (i) all interest, fees and other amounts that may be due in payable in respect thereof, and (ii) an assumption of its Pro Rata Share of participations in the Letters of Credit. If the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall refuse or fail to execute and deliver any such Assignment and Acceptance prior to the effective date of such replacement, Agent may, but shall not be required to, execute and deliver such Assignment and Acceptance in the name or and on behalf of the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, and irrespective of whether Agent executes and delivers such Assignment and Acceptance, the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall be deemed to have executed and delivered such Assignment and Acceptance. The replacement of any Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall be made in accordance with the terms of Section 13.1. Until such time as one or more Replacement Lenders shall have acquired all of the Obligations, the Commitments, and the other rights and obligations of the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, hereunder and under the other Loan Documents, the Non-Consenting Lender, Increased Costs Lender or Tax Lender, as applicable, shall remain obligated to make the Non-Consenting Lender's, Increased Costs Lender's or Tax Lender's, as applicable, Pro Rata Share of Revolving Loans and to purchase a participation in each Letter of Credit, in an amount equal to its Pro Rata Share of participations in such Letters of Credit."

(j) The Credit Agreement is hereby amended to insert a new Schedule 2.12 (SOFR Replacement) in the form of Schedule 2.12 attached hereto.

4. Joinder of Alto Specialty Products. Borrowers agree that they shall, within thirty (30) days of the date hereof (as such date may be extended by Agent in its discretion, which extension may be granted by electronic mail), cause Alto Specialty Products to be joined as a Borrower under the Credit Agreement, the Guaranty and Security Agreement, and the other Loan Documents, in accordance with Section 5.11 of the Credit Agreement.

5. Amendment Fee. In addition to all other fees, costs and expenses payable by Borrowers to Agent and Lenders under the Loan Documents Borrowers shall pay to Agent an amendment fee in the amount of $100,000 (the "**Amendment Fee**"). Such Amendment Fee shall be fully earned on the date hereof, and payable as follows: (i) $50,000 of the Amendment Fee shall be payable on the date hereof, and shall not be subject to refund or rebate for any reason and (ii) the remaining $50,000 shall be payable on the earlier of (x) the first anniversary of the date of this Amendment or (y) the date that the Credit Agreement and the Commitments thereunder are terminated, *provided*, *that*, notwithstanding the foregoing, if at any time prior to the first anniversary of the date of this Amendment, the credit facility provided under the Credit Agreement is refinanced by a cash flow facility provided by Wells Fargo or one of its affiliates, the remaining $50,000 portion of the Amendment Fee shall not be due or payable.

6. Additional Representation. In addition to the continuing representations, warranties and covenants at any time made by Borrowers to Agent and Lenders pursuant to the Credit Agreement, and the other Loan Documents, Borrowers hereby jointly and severally represent, warrant and covenant with and to Agent and Lenders that, as of the date of this Amendment and after giving effect hereto, no known Default or Event of Default exists or has occurred and is continuing.

7. Release. In consideration of the agreements of Agent and Lenders contained herein and the making of loans by or on behalf of Agent and Lenders to Borrowers pursuant to the Credit Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, each Borrower on behalf of itself and its successors, assigns, and other legal representatives (the "**Releasing Parties**"), hereby, jointly and severally, absolutely, unconditionally and irrevocably releases, remises and forever discharges Agent and each Lender, and their present and former shareholders, affiliates, subsidiaries, divisions, predecessors, directors, officers, attorneys, employees, agents and other representatives and their respective successors and assigns (Agent, each Lender and all such other parties being hereinafter referred to collectively as the "**Releasees**" and individually as a "**Releasee**"), of and from all demands, actions, causes of action, suits, covenants, contracts, controversies, agreements, promises, sums of money, accounts, bills, reckonings, damages and any and all other claims, counterclaims, defenses, rights of set-off, demands and liabilities whatsoever (individually, a "**Claim**" and collectively, "**Claims**") of every name and nature, known or unknown, suspected or unsuspected, both at law and in equity, whether liquidated or unliquidated, matured or unmatured, asserted or unasserted, fixed or contingent, foreseen or unforeseen and anticipated or unanticipated, which any Releasing Party may now or hereafter own, hold, have or claim to have against the Releasees or any of them for, upon, or by reason of any nature, cause or thing whatsoever which arises at any time on or prior to the day and date of this Amendment, in relation to, or in any way in connection with the Credit Agreement, as amended and supplemented through the date hereof, this Amendment and the other Loan Documents. Each Releasing Party understands, acknowledges and agrees that the release set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such release.

It is the intention of the Releasing Parties that the above release shall be effective as a full and final release of each and every matter specifically and generally referred to above clause (a). Each Releasing Party acknowledges and represents that it has been advised by independent legal counsel with respect to the agreements contained herein and with respect to the provisions of California Civil Code Section 1542, which provides as follows: "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT

THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, AND THAT IF KNOWN BY HIM OR HER WOULD HAVE MATERIALLY AFFECTED THE SETTLEMENT WITH THE DEBTOR OR RELEASEE." Each Releasing Party, being aware of said code section, expressly waives on its own behalf and on behalf of those for which such Releasing Party is giving the release, any and all rights either may have thereunder, as well as under any other statute or common law principle of similar effect, with respect to any of the matters released herein. This release shall act as a release of all included claims, rights and causes of action, whether such claims are currently known, unknown, foreseen or unforeseen and regardless of any present lack of knowledge as to such claims. Each Releasing Party understands and acknowledges the significance and consequence of this waiver of California Civil Code Section 1542, and hereby assumes full responsibility for any injuries, damages, losses or liabilities released herein.

8. Conditions to Effectiveness. The effectiveness of this Amendment shall be subject to the receipt by Agent of an original (or electronic copy) of this Amendment (and all exhibits hereto) duly authorized, executed and delivered by Borrowers and Lenders.

9. Effect of this Amendment. Except as modified pursuant hereto, no other changes or modifications to the Credit Agreement are intended or implied and in all other respects the Credit Agreement is hereby specifically ratified, restated and confirmed by all parties hereto as of the date hereof. To the extent of conflict between the terms of this Amendment, on the one hand, and Credit Agreement, on the other hand, the terms of this Amendment shall control.

10. Further Assurances. Borrowers shall execute and deliver such additional documents and take such additional action as may be reasonably requested by Agent to effectuate the provisions and purposes of this Amendment.

11. Binding Effect. This Amendment shall be binding upon and inure to the benefit of each of the parties hereto and their respective successors and assigns.

12. Governing Law. The rights and obligations hereunder of each of the parties hereto shall be governed by and interpreted and determined in accordance with the internal laws of the State of California (without giving effect to principles of conflict of laws).

13. Counterparts. This Amendment and any notices delivered under this Amendment, may be executed by means of (a) an electronic signature that complies with the federal Electronic Signatures in Global and National Commerce Act, state enactments of the Uniform Electronic Transactions Act, or any other relevant and applicable electronic signatures law; (b) an original manual signature; or (c) a faxed, scanned, or photocopied manual signature. Each electronic signature or faxed, scanned, or photocopied manual signature shall for all purposes have the same validity, legal effect, and admissibility in evidence as an original manual signature. Agent reserves the right, in its sole discretion, to accept, deny, or condition acceptance of any electronic signature on this Amendment or on any notice delivered to Agent under this Amendment. This Amendment and any notices delivered under this Amendment may be executed in any number of counterparts, each of which shall be deemed to be an original, but such counterparts shall, together, constitute only one instrument. Delivery of an executed counterpart of a signature page of this Amendment and any notices as set forth herein will be as effective as delivery of a manually executed counterpart of this Amendment or notice.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered by their authorized officers as of the day and year first above written.

BORROWERS:

KINERGY MARKETING LLC,
as a Borrower

By: /s/ Bryon T. McGregor
Name: Bryon T. McGregor
Title: Chief Financial Officer

ALTO NUTRIENTS, LLC,
as a Borrower

By: /s/ Bryon T. McGregor
Name: Bryon T. McGregor
Title: Chief Financial Officer

ACKNOWLEDGED:

ALTO INGREDIENTS, INC.
as a Guarantor

By: /s/ Bryon T. McGregor
Name: Bryon T. McGregor
Title: Chief Financial Officer

AGENT AND LENDER:

WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Agent and sole Lender

By: /s/ Carlos Valles
Name: Carlos Valles
Title: Vice President

SCHEDULE 2.12
TO
CREDIT AGREEMENT

SOFR Replacement

Defined terms used in this Schedule 2.7 that are not otherwise defined in this Agreement are set forth at the end of this Schedule 2.7.

1. Benchmark Replacement. Notwithstanding anything to the contrary herein or in any other Loan Document, upon the occurrence of a Benchmark Transition Event or an Early Opt-in Election, as applicable, Agent and Administrative Borrower may amend this Agreement to replace the then current Benchmark with a Benchmark Replacement. Any such amendment will become effective at 5:00 p.m. on the fifth (5th) Business Day after Agent has posted such amendment to all Lenders and Administrative Borrower so long as Agent has not received, by such time, written notice of objection to such amendment from Lenders comprising the Required Lenders. Any such amendment with respect to an Early Opt-in Election will become effective on the date that Lenders comprising the Required Lenders have delivered to Agent written notice that such Required Lenders accept such amendment. No replacement of the Benchmark with a Benchmark Replacement pursuant to this Schedule 2.12 will occur prior to the applicable Benchmark Transition Start Date.

2. Benchmark Replacement Conforming Changes. In connection with a Benchmark Replacement, Agent will have the right to make Benchmark Replacement Conforming Changes from time to time and, notwithstanding anything to the contrary herein or in any other Loan Document, any amendments implementing such Benchmark Replacement Conforming Changes will become effective without any further action or consent of any other party to this Agreement.

3. Notices; Standards for Decisions and Determinations. Agent will promptly notify Administrative Borrower and the Lenders of (a) any occurrence of a Benchmark Transition Event or an Early Opt-in Election, as applicable, and its related Benchmark Replacement Date and Benchmark Transition Start Date, (b) the implementation of any Benchmark Replacement, (c) the effectiveness of any Benchmark Replacement Conforming Changes and (d) the commencement or conclusion of any Benchmark Unavailability Period. Any determination, decision or election that may be made by Agent or Lenders pursuant to this Schedule 2.12 including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection, will be conclusive and binding absent manifest error and may be made in its or their sole discretion and without consent from any other party hereto, except, in each case, as expressly required pursuant to this Schedule 2.12.

4. Benchmark Unavailability Period. Upon Administrative Borrower's receipt of notice of the commencement of a Benchmark Unavailability Period, Agent may (a) declare that SOFR Loans will not thereafter be made by Agent and the Lenders, such that any request for a SOFR Loan from Borrowers shall be deemed to be a request for a Loan that bears interest at the Base Rate and (b) require that all outstanding SOFR Loans made by Lender be converted to Loans that bear interest at the Base Rate immediately, in which event all outstanding SOFR Loans shall be so converted and shall bear interest at the Base Rate in effect from time to time, plus the Applicable Margin. The Base Rate in effect from time to time plus the Applicable Margin shall replace the then-current Benchmark for any determination of interest hereunder or under any other Loan Document during a Benchmark Unavailability Period.

5. Certain Defined Terms. As used in this Schedule 2.12:

"Benchmark" means, initially, Daily Simple SOFR; provided, however, that, if a Benchmark Transition Event or an Early Opt-in Election, as applicable, has occurred with respect to Daily Simple SOFR or the then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement to the extent that such Benchmark Replacement has become effective pursuant to the provisions of this Schedule 2.12.

"Benchmark Administrator" means, initially, the SOFR Administrator, or any successor administrator of the then-current Benchmark or any insolvency or resolution official with authority over such administrator.

"Benchmark Replacement" means the sum of: (a) the alternate rate of interest that has been selected by Agent and Administrative Borrower for the then-current Benchmark and (b) the spread adjustment or method for calculating or determining such spread adjustment, (which may be a positive or negative value or zero) that has been selected by Agent and Administrative Borrower, in each case, giving due consideration to (i) any selection or recommendation by the Relevant Governmental Body at such time for a replacement rate, the mechanism for determining such a rate, the methodology or conventions applicable to such rate, or the spread adjustment, or method for calculating or determining such spread adjustment, for such rate, or (ii) any evolving or then-prevailing market convention for determining a rate of interest as a replacement to the then-current Benchmark, the methodology or conventions applicable to such rate, or the spread adjustment, or method for calculating or determining such spread adjustment, for such alternate rate for U.S. dollar-denominated syndicated or bilateral credit facilities at such time; provided, however, that, if the Benchmark Replacement as determined as provided above would be less than zero, then the Benchmark Replacement shall be deemed to be zero.

"Benchmark Replacement Conforming Changes" means any technical, administrative or operational changes (including changes to the timing and frequency of determining rates and making payments of interest, prepayment provisions and other technical, administrative or operational matters) that Agent decides may be appropriate to reflect the adoption and implementation of such Benchmark Replacement and to permit the administration thereof by Agent in a manner substantially consistent with market practice (or, if Agent decides that adoption of any portion of such market practice is not administratively feasible or if Agent determines that no market practice for the administration of the Benchmark Replacement exists, in such other manner of administration as Agent decides is reasonably necessary in connection with the administration of this Agreement).

"Benchmark Replacement Date" means the earlier to occur of the following events with respect to the then-current Benchmark:

(a) in the case of clause (a) of the definition of "Benchmark Transition Event," the later of (i) the date of the public statement or publication of information referenced therein and (ii) the date on which the Benchmark Administrator permanently or indefinitely ceases to provide the Benchmark; or

(b) in the case of clause (b) of the definition of "Benchmark Transition Event," the date of the public statement or publication of information referenced therein.

"Benchmark Transition Event" means the occurrence of one or more of the following events with respect to the then-current Benchmark: a public statement or publication of information by or on behalf of the Benchmark Administrator or a regulatory supervisor for the Benchmark Administrator announcing that (a) the Benchmark Administrator has ceased or will cease to provide the Benchmark permanently or indefinitely or (b) the Benchmark is no longer, or as of a specified future date will no longer be, representative of underlying markets.

"Benchmark Transition Start Date" means (a) in the case of a Benchmark Transition Event, the earlier of (i) the applicable Benchmark Replacement Date and (ii) if such Benchmark Transition Event is a public statement or publication of information of a prospective event, the 90th day prior to the expected date of such event as of such public statement or publication of information (or if the expected date of such prospective event is fewer than 90 days after such statement or publication, the date of such statement or publication) and (b) in the case of an Early Opt-in Election, the date specified by Agent or the Required Lenders, as applicable, by notice to Administrative Borrower, Agent (in the case of such notice by the Required Lenders) and the Lenders.

"Benchmark Unavailability Period" means, if a Benchmark Transition Event and its related Benchmark Replacement Date have occurred with respect to the then-current Benchmark and solely to the extent that the Benchmark has not been replaced with a Benchmark Replacement, the period (a) beginning at the time that such Benchmark Replacement Date has occurred if, at such time, no Benchmark Replacement has replaced the Benchmark for all purposes hereunder in accordance with this Schedule 2.12 and (b) ending at the time that a Benchmark Replacement has replaced the Benchmark for all purposes hereunder pursuant to Schedule 2.12.

"Early Opt-in Election" means the occurrence of:

(a) (i) a determination by Agent or (ii) a notification by the Required Lenders to Agent (with a copy to Administrative Borrower) that the Required Lenders have determined that United States dollar-denominated syndicated or bilateral credit facilities at such time (as a result of amendment or as originally executed) a new benchmark interest rate to replace the then-current Benchmark, and

(b) (i) the election by Agent or (ii) the election by the Required Lenders to declare that an Early Opt-in Election has occurred and the provision, as applicable, by Agent of written notice of such election to Administrative Borrower and the Lenders or by the Required Lenders of written notice of such election to Agent.

"Relevant Governmental Body" means the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York, or any successor thereto.

EXHIBIT 21.1

SUBSIDIARIES OF THE REGISTRANT

Subsidiary Name	State or Jurisdiction of Incorporation or Organization
Kinergy Marketing LLC	Oregon
Alto Nutrients, LLC	California
Alto Specialty Products, LLC	Delaware
Alto Op Co.	Delaware
Alto West, LLC	Delaware
Alto Columbia, LLC	Delaware
Alto Magic Valley, LLC	Delaware
Alto Central, LLC	Delaware
Alto Canton, LLC	Delaware
Alto Pekin, LLC	Delaware
Alto ICP, LLC	Delaware

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statements (Nos. 333-169002, 333-176540, 333-185884, 333-189478, 333-196876, 333-212070, 333-225622, 333-234613 and 333-250180) on Form S-8 and (Nos. 333-238939 and 333-250821) on Form S-3 of Alto Ingredients, Inc. of our reports dated March 14, 2022, relating to the consolidated financial statements and the effectiveness of internal control over financial reporting of Alto Ingredients, Inc., appearing in this Annual Report on Form 10-K of Alto Ingredients, Inc. for the year ended December 31, 2021.

/s/ RSM US LLP

Rochester, Minnesota
March 14, 2022

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael D. Kandris, certify that:

1. I have reviewed this Annual Report on Form 10-K of Alto Ingredients, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2022

/s/ Michael D. Kandris
Michael D. Kandris
President and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Bryon T. McGregor, certify that:

1. I have reviewed this Annual Report on Form 10-K of Alto Ingredients, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3.Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2022

/s/ Bryon T. McGregor
Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

CERTIFICATIONS OF
CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Alto Ingredients, Inc. (the "Company") for the year ended December 31, 2021 (the "Report"), the undersigned hereby certify in their capacities as Chief Executive Officer and Chief Financial Officer of the Company, respectively, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 14, 2022

By: /s/ Michael D. Kandris
Michael D. Kandris
President and Chief Executive Officer
(Principal Executive Officer)

Dated: March 14, 2022

By: /s/ Bryon T. McGregor
Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signatures that appear in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.