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

FORM 10-K

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

For The Year Ended December 31, 2019

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 001-13795

AMERICAN VANGUARD CORPORATION

Delaware **(State or other jurisdiction of Incorporation or organization)**	**95-2588080** **(I.R.S. Employer Identification Number)**
4695 MacArthur Court, Newport Beach, California **(Address of principal executive offices)**	**92660** **(Zip Code)**

(949) 260-1200
(Registrant’s telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $.10 par value	**AVD**	**New York Stock Exchange**

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 whether 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, 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 is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting stock of the registrant held by non-affiliates is $446.4 million. This figure is estimated as of June 30, 2019 at which date the closing price of the registrant’s Common Stock on the New York Stock Exchange was $15.41 per share. For purposes of this calculation, shares owned by executive officers, directors, and 5% stockholders known to the registrant have been deemed to be owned by affiliates. The number of shares of $.10 par value Common Stock outstanding as of June 30, 2019, was 30,148,629. The number of shares of $.10 par value Common Stock outstanding as of February 24, 2020 was 30,159,277.

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

ANNUAL REPORT ON FORM 10-K
December 31, 2019

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PART I

Unless otherwise indicated or the context otherwise requires, the terms "Company," "we," "us," and "our" refer to American Vanguard Corporation and its consolidated subsidiaries ("AVD").

Forward-looking statements in this report, including without limitation, statements relating to the Company's plans, strategies, objectives, expectations, intentions, and adequacy of resources, are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Investors are cautioned that such forward-looking statements involve risks and uncertainties. (Refer to Part I, Item 1A, Risk Factors and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operation, included in this Annual Report.)

All dollar amounts reflected in the consolidated financial statements are expressed in thousands, except per share data.

ITEM 1 BUSINESS

American Vanguard Corporation ("AVD") was incorporated under the laws of the State of Delaware in January 1969 and operates as a holding company. Unless the context otherwise requires, references to the "Company" or the "Registrant," in this Annual Report refer to AVD. The Company conducts its business through its subsidiaries, AMVAC Chemical Corporation ("AMVAC"), GemChem, Inc. ("GemChem"), AMVAC Mexico Sociedad de Responsabilidad Limitada ("AMVAC M"), AMVAC de Costa Rica Sociedad de Responsabilidad Limitada ("AMVAC CR Srl"), AMVAC C.V. ("AMVAC CV"), AMVAC Hong Kong Limited ("AMVAC Hong Kong"), AMVAC Netherlands BV ("AMVAC BV"), Envance Technologies, LLC ("Envance"), TyraTech Inc. ("TyraTech"), AMVAC Singapore Pte, Ltd ("AMVAC Sgpr"), Huifeng AMVAC Innovation Co. Limited ("Hong Kong JV"), OHP Inc. ("OHP"), Grupo AgriCenter (including the parent AgriCenter S.A. and its subsidiaries) ("AgriCenter"), AMVAC do Brasil Representácoes Ltda ("AMVAC do Brasil"), Agrovant Comércio de Produtos Agrícolas Ltda. ("Agrovant") and Defensive – Indústria, Comérico & Representação Comerial Ltda. ("Defensive").

Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable segment. Refer to Part II, Item 7 for selective enterprise information.

AVD operates its business through its principle operating subsidiaries including AMVAC for its domestic business and AMVAC BV for its international business.

AMVAC is a California corporation that traces its history from 1945 and is a specialty chemical manufacturer that develops and markets products for agricultural, commercial and consumer uses. It manufactures and formulates chemicals for crops, turf and ornamental plants, and human and animal health protection. These chemicals, which include insecticides, fungicides, herbicides, molluscicides, growth regulators, and soil fumigants, are marketed in liquid, powder, and granular forms. In prior years, AMVAC considered itself a distributor-formulator, but now AMVAC primarily synthesizes, formulates, and distributes its own proprietary products or custom manufactures, formulates or distributes for others. In addition, the Company has carved out a leadership position in closed delivery systems, currently offers certain of its products in SmartBox, Lock 'n Load and EZ Load systems, and is commercializing a precision application technology known as SIMPAS (see "*Intellectual Property*" below) which permits the delivery of multiple products (from AMVAC and/or other companies) at variable rates in a single pass. AMVAC has historically expanded its business through both the acquisition of established chemistries, the development and commercialization of new formulations or compounds through licensing arrangements and by expanding its distribution network to gain broader market access.

AMVAC BV is a Netherlands Corporation that was established in 2012 and is based in Houten near Amsterdam in the Netherlands. AMVAC BV sells product through subsidiaries in various international territories.

Below is a description of the Company's acquisition/licensing activity over the past four years.

On December 20, 2019, the Company's principal operating subsidiary, AMVAC Chemical Corporation, completed the purchase of certain assets related to four herbicide products from E.I. du Pont de Nemours and Company, doing-business-as Corteva Agriscience and Dow Agrosciences, LLC., for use in the U.S.. The purchased assets include end-use registrations, registration data, trademarks (specifically, Classic®, First Rate®, Python® and Hornet®), inventory, commercial sales information, know-how and certain product supply arrangements.

On July 1, 2019, the Company completed the acquisition of three crop protection products for the U.S. market from Raymat Crop Science, Inc. and its affiliate, Esstar Crop Science, Inc. The acquired products are the miticide etoxazole, the insect growth regulator Diflubenzuron, and a rice herbicide bispyribac sodium. The acquired assets included product registrations, trademarks and trade names, customer lists and associated inventory.

On January 10, 2019, the Company's international subsidiary AMVAC BV completed the purchase of Defensive and Agrovant, two distribution companies based in Brazil. Defensive and Agrovant market and distribute crop protection products and micronutrients with focus on the fruit and vegetable market segments throughout Brazil. The acquired assets included all of the outstanding stock of those companies, which hold assets that consist, in part, of product registration, trade names and trademarks, customer lists, workforce, fixed assets, and working capital.

On December 28, 2018, the Company's international subsidiary AMVAC BV completed the purchase of certain assets related to the Quizalofop product family from E.I. du Pont de Nemours and Company. Quizalofop is an herbicide marketed under the name Assure II for use on canola, soybeans and pulse (among other things) in Canada and the U.S.. The acquired assets include product rights, registration data, trademarks, and inventory. Subsequently, AMVAC BV transferred the acquired assets related to the U.S. market to AMVAC.

On December 14, 2018, AMVAC completed the purchase of certain assets related to the trichlorfon product family from Bayer AG and Bayer CropScience AG ("Bayer"). Trichlorfon is an insecticide marketed under the name Dylox in turf, ornamental and other markets. This transaction includes product registrations, trademarks and manufacturing know-how. AMVAC will manufacture and supply formulated end use products to Bayer for the latter's distribution.

On November 9, 2018, AMVAC completed the purchase of all of the outstanding shares of TyraTech, Inc. and, in the process, delisted TyraTech from the AIM market of the London Stock Exchange. TyraTech develops non-toxic insecticides and green solutions for pest control. Their patented technology platform leverages synergistic essential oil combinations to target invertebrate pest receptors that are not active in humans and other mammals.

On June 20, 2018, AMVAC completed the purchase of certain intangible assets related to the bromacil product family including end use registrations in the U.S.. The assets were purchased from Bayer AG. Bromacil is a broad-spectrum residual herbicide used for non-agricultural industrial vegetation control and on many crops such as pineapples, citrus, agave and asparagus. Marketed under the Hyvar® and Krovar® brands, bromacil herbicides are valued and long-established weed control tools. AMVAC previously purchased these brands from DuPont Crop Protection in 2015 for markets outside of US and Canada including Japan, Thailand, Mexico, Costa Rica and Brazil.

On October 27, 2017, the Company's international subsidiary, AMVAC BV, completed the purchase of several affiliated companies operating under AgriCenter S.A., a distribution company based in Costa Rica. AgriCenter markets and distributes end-use chemical and biological products throughout Central America, primarily for crop applications. The acquired assets included product registration, trade names and trademarks, customer lists, personnel, fixed assets, goodwill and working capital.

On October 2, 2017, AMVAC acquired substantially all of the assets of OHP, a US-based distribution company specializing in the greenhouse and nursery production markets. The acquired assets included product rights, trade names, customer relationships, personnel, goodwill, fixed assets and working capital.

On August 22, 2017, AMVAC BV, completed the acquisition of certain selective herbicides and contact fungicides including chlorothanonil, ametryn, and isopyrazam, sold in the Mexican agricultural market. The assets were purchased from Syngenta AG and are used on various crops such as sugarcane, tomatoes, potatoes and hot peppers. The acquired assets included product registrations, trademarks and trade names, customer lists, and associated inventory.

On June 6, 2017, AMVAC, completed an acquisition of certain herbicides, fungicides and insecticides assets relating to the abamectin, chlorothalonil and paraquat product lines from a group of companies, including Adama Agricultural Solutions, Ltd. These products are used on a wide range of crops such as citrus, cotton, nuts, fruits and vegetables. The acquired assets included product registrations, trademarks and trade names, customer lists, and associated inventory.

On January 13, 2017, AMVAC acquired from The Andersons, Inc. certain assets relating to proprietary formulations containing PCNB, chlorothalonil and propiconazole which are marketed under the name FFII and FFIII. The acquired assets included end use registrations.

On June 27, 2017, both AMVAC BV and Huifeng made individual capital contributions of $950 to the Hong Kong JV. On July 7, 2017, the Hong Kong JV purchased 100% of the shares of Profeng Australia Pty Ltd. ("Profeng"), for a total consideration of $1,900.

On February 29, 2016, AMVAC BV purchased shares constituting a 15% interest in BiPA NV/SA, a Belgian company specializing in the development and early commercialization of biological products for use in agriculture. Through this investment, AMVAC BV obtained possible future access to a pipeline of new biological products for potential commercialization either individually in certain territories or in combination with the Company's existing product portfolio.

Seasonality

The agricultural chemical industry, in general, is cyclical in nature. The demand for AVD's products tends to be seasonal. Seasonal usage, however, does not necessarily follow calendar dates, but more closely follows growing patterns, weather conditions, geography, weather related pressure from pests and customer marketing programs. With the expansion of the Company's global footprint, seasonal effects have become more attenuated on a full-year basis.

Backlog

AVD primarily sells its products on the basis of purchase orders. The purchase orders are typically fulfilled within a short time frame. As a result, backlog is not considered a significant factor of AVD's business.

Customers

The Company's largest three customers accounted for 18%, 14% and 7% of the Company's sales in 2019; 12%, 9% and 8% in 2018; and 13%, 10% and 10% in 2017.

Distribution

AVD manages its U.S. business through its principal operating subsidiary, AMVAC. AMVAC predominantly distributes its products domestically through national distribution companies and buying groups or co-operatives, which purchase AMVAC's goods on a purchase order basis and, in turn, sell them to retailers/growers/end-users. AVD manages its international sales through AMVAC BV, which has sales offices or wholly owned distributors in Mexico, Costa Rica, several other countries in Central America, Brazil, Australia, and sales force executives or sales agents in other territories. The Company's domestic and international distributors, agents and customers typically have long-established relationships with retailers/end-users, far-reaching logistics, transportation capabilities and/or customer service expertise. The markets for AVD products vary by region, target crop, use and type of distribution channel. AVD's customers are experts at addressing these various markets.

Competition

In its many marketplaces, AVD faces competition from both domestic and foreign manufacturers. Many of our competitors are larger and have substantially greater financial and technical resources than AVD. AVD's capacity to compete depends on its ability to develop additional applications for its current products and/or expand its product lines and customer base. AVD competes principally on the basis of quality, product efficacy, price, technical service and customer support. In some cases, AVD has positioned itself in smaller niche markets, which are no longer addressed by larger companies. In other cases, for example in the Midwest corn market, the Company competes directly with larger competitors.

Manufacturing

Through its four manufacturing facilities (see Item 2, Properties), AVD synthesizes many of the technical grade active ingredients that are in its end-use products. Further, the Company formulates and packages its end use products at its own facilities or at the facilities of third-party formulators in the U.S. and at various international locations.

Raw Materials

AVD utilizes numerous companies to supply the various raw materials and components used in manufacturing its products. Many of these materials are readily available from domestic sources. In those instances where there is a single source of supply or where the source is not domestic, AVD seeks to secure its supply by either long-term (multi-year) arrangements or purchasing on long lead times from its suppliers. Further, where the availability or cost of certain raw materials may be subject to the effect of tariffs, the Company may order goods at times or in volumes out of the ordinary course in order to optimize pricing and to ensure supply.

Intellectual Property

AVD's proprietary product formulations are protected, to the extent possible, as trade secrets and, to a lesser extent, by patents. Certain of the Company's closed delivery systems are patented, and the Company has made applications for related inventions to expand its equipment portfolio, particularly with respect to its SIMPAS technology. Further, AVD's trademarks bring value to its products in both domestic and foreign markets. AVD considers that, in the aggregate, its product registrations, trademarks, licenses, customer lists and patents constitute valuable assets. While it does not regard its current business as being materially dependent upon any single product registration, trademark, license, or patent, it believes that patents will play an increasingly important role in its developmental equipment technology in future years.

EPA Registrations

In the U.S., AVD's products also receive protection afforded by the terms of the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), pursuant to which it is unlawful to sell any pesticide in the U.S., unless such pesticide has first been registered by the U.S. Environmental Protection Agency ("USEPA"). Substantially all of the Company's products that are sold in U.S. are subject to USEPA registration and periodic re-registration requirements and are registered in accordance with FIFRA. This registration by USEPA is based, among other things, on data demonstrating that the product will not cause unreasonable adverse effects on human health or the environment, when used according to approved label directions. In addition, each state requires a specific registration before any of AVD's products can be marketed or used in that state. State registrations are predominantly renewed annually with a smaller number of registrations that are renewed on a multiple year basis. Foreign jurisdictions typically have similar registration requirements by statute.

The USEPA, state, and foreign agencies have required, and may require in the future, that certain scientific data requirements be performed on registered products sold by AVD. AVD, on its own behalf and in joint efforts with other registrants, has furnished, and is currently furnishing, required data relative to specific products. Under FIFRA, the federal government requires registrants to submit a wide range of scientific data to support U.S. registrations. This requirement results in operating expenses in such areas as regulatory compliance, with USEPA and other such bodies in the markets in which the Company sells its products. In addition, the Company is required to generate new formulations of existing products or to produce new products in order to remain compliant. The Company expensed $13,989, $16,047 and $14,232, during 2019, 2018 and 2017, respectively, on these activities.

	2019	2018	2017
Registration	$ 9,046	$ 10,749	$ 9,450
Product development	4,943	5,298	4,782
	$ 13,989	$ 16,047	$ 14,232

Environmental

<u>Commerce Site</u>

During 2019, AMVAC continued activities to address environmental issues associated with its facility in Commerce, CA. (the "Facility"). An outline of the history of those activities follows.

In 1995, the California Department of Toxic Substances Control ("DTSC") conducted a Resource Conservation and Recovery Act ("RCRA") Facility Assessment ("RFA") of those facilities having hazardous waste storage permits. In March 1997, the RFA culminated in DTSC accepting the Facility into its Expedited Remedial Action Program. Under this program, the Facility was required to conduct an environmental investigation and health risk assessment. This activity then took two paths: first, the RCRA permit closure and second, the larger site characterization.

With respect to the RCRA permit closure, in 1998, AMVAC began the formal process to close its hazardous waste permit at the Facility (which had allowed AMVAC to store hazardous waste longer than 90 days) as required by federal regulations. Formal regulatory closure actions began in 2005 and were completed in 2008, as evidenced by DTSC's October 1, 2008 acknowledgement of AMVAC's Closure Certification Report.

With respect to the larger site characterization, soil and groundwater characterization activities began in December 2002 in accordance with the Site Investigation Plan that was approved by DTSC. Additional activities were conducted from 2003 to 2014, with oversight provided by DTSC. In 2014, the Company submitted a remedial action plan (“RAP”) to DTSC, under the provisions of which, the Company proposed not to disturb sub-surface contaminants, but to continue monitoring, maintain the cover above affected soil, enter into restrictive covenants regarding the potential use of the property in the future, and to continue to provide financial assurances relating to the requirements of the RAP. In January 2017, the RAP was circulated for public comment. DTSC responded to those comments and, on September 29, 2017, approved the RAP as submitted by the Company. The Company continues to conduct groundwater monitoring and maintain the cover above affected soil and is working with DTSC to prepare an operation and maintenance plan, to record covenants on certain affected parcels and to obtain further clarification on financial assurance obligations relating to the RAP. At this stage, the Company does not believe that costs likely to be incurred in connection with the RAP will be material and has not recorded a loss contingency for these activities.

Brazil

AMVAC do Brasil leases a facility, located in the municipality Jaboticabal, in the state of São Paulo, Brazil, that was used for storage of packaged pesticide and fertilizer products in warehouses and storage of mineral oil in above ground storage tanks. As lessee of the facility, AMVAC do Brasil is required to assess the environmental condition of the site and conduct remediation, if necessary and therefore contracted an environmental consultant to perform a preliminary environmental site assessment in December 2019. The assessment indicated possible subsurface contamination in limited areas and recommends a Phase II confirmatory investigation, which may or may not indicate the need for additional investigation and/or remediation.

Other Environmental

AMVAC is subject to numerous federal and state laws and governmental regulations concerning environmental matters and employee health and safety at its four manufacturing facilities in the U.S.. The Company continually adapts its manufacturing process to the environmental control standards of the various regulatory agencies. The USEPA and other federal and state agencies have the authority to promulgate regulations that could have an impact on the Company’s operations.

AMVAC expends substantial funds to minimize the risk of discharge of materials in the environment and to comply with the governmental regulations relating to protection of the environment. Wherever feasible, AMVAC recovers and recycles raw materials and increases product yield in order to partially offset increasing pollution abatement costs.

The Company is committed to a long-term environmental protection program that reduces emissions of hazardous materials into the environment, as well as to the remediation of identified existing environmental concerns.

Employees

As of December 31, 2019, the Company employed 671 employees. The Company employed 624 employees as of December 31, 2018 and 605 employees as of December 31, 2017. From time to time, due to the seasonality of its business, AVD uses temporary contract personnel to perform certain duties primarily related to packaging of its products. None of the Company’s employees are subject to a collective bargaining agreement. The Company believes it maintains positive relations with its employees.

Domestic operations

AMVAC is a California corporation that was incorporated under the name of Durham Chemical in August 1945. The name of the corporation was subsequently changed to AMVAC in January 1971. As the Company’s main operating subsidiary, AMVAC owns and/or operates the Company’s domestic manufacturing facilities. AMVAC manufactures, formulates, packages and sells its products in the U.S. and is a wholly owned subsidiary of AVD.

GemChem is a California corporation that was incorporated in 1991 and was subsequently purchased by the Company in 1994. GemChem sells into the pharmaceutical, cosmetic and nutritional markets and, in addition purchases of key raw materials for the Company. GemChem is a wholly owned subsidiary of AVD.

DAVIE owns real estate for corporate use only. See also Part I, Item 2 of this Annual Report on Form 10-K. DAVIE is a wholly owned subsidiary of AVD.

Envance is a Delaware Limited Liability Company and is a wholly owned subsidiary of the Company. It was formed in 2012 with joint venture partner, TyraTech. AMVAC's initial shareholding was 60% which increased to 87% in 2015. Prior to November 8, 2018 the Company also owned 34.38% of TyraTech. On November 8, the Company acquired the remaining 65.62% of the shares of TyraTech Inc. and, as a result, TyraTech became a wholly owned subsidiary of the Company on November 9, 2018. Also, as a result of acquiring 100% of TyraTech, Envance became a wholly owned subsidiary of the Company. Envance has the rights to develop and commercialize pesticide products and technologies made from natural oils in global consumer, commercial, professional, crop protection and seed treatment markets and has begun bringing products to market and license its intellectual property to third parties.

On October 2, 2017, AMVAC purchased substantially all of the assets of OHP, a domestic distribution company specializing in products for the turf and ornamental market. OHP markets and sells end use products for third parties, either under third-party brands or else as own label products.

International operations

In July 2012, the Company formed AMVAC CV, which is incorporated in the Netherlands, for the purpose of managing foreign sales on behalf of the Company. AMVAC CV is owned jointly by AMVAC as the general partner, and AVD International, LLC (also formed in July 2012 as a wholly owned subsidiary of AMVAC), as the limited partner, and is therefore a wholly owned subsidiary of AMVAC.

AMVAC BV is a registered Dutch private limited liability company that was formed in July 2012. AMVAC BV is located in the Netherlands and is wholly owned by AMVAC CV. During 2019, the international business sold the Company's products in 55 countries, as compared to 54 countries in 2018.

AMVAC Hong Kong was formed in November 2019 and is wholly owned by AMVAC. AMVAC Hong Kong took over the role of AMVAC CV as of January 1, 2020.

AMVAC M is a wholly owned subsidiary of AMVAC BV and was originally formed in 1998 (as Quimica Amvac de Mexico S.A. de C.V and subsequently changed to AMVAC Mexico Sociedad de Responsabilidad Limitada "AMVAC M") to conduct the Company's business in Mexico.

AMVAC Sgpr is a wholly owned subsidiary of AMVAC BV and was formed on April 12, 2016. This new entity was formed to conduct the Company's business in the Asia Pacific and China region.

Hong Kong JV is a 50% owned joint venture with Huifeng (Hong Kong) Limited, a wholly owned subsidiary of Huifeng Agrochemical Company, Ltd, ("Huifeng") a China based, basic chemical manufacturer. The Hong Kong JV was formed on August 2, 2016. The purpose of the joint venture is to be a technology transfer platform between the co-owners, including the development of proprietary agrochemical formulations and precision application systems for crop protection. Furthermore, it is intended to be used to develop both partners' business in the region. This included, in 2017, the acquisition of 100% of the shares of Profeng.

On October 27, 2017, AMVAC BV purchased 100% of the stock of AgriCenter, which owned shares in subsidiaries located in Costa Rica, Panama, Nicaragua, Honduras, the Dominican Republic, Mexico, Guatemala, and El Salvador. These affiliated entities, collectively known as AgriCenter, market, sell and distribute end-use chemical and biological products throughout Central America primarily for crop applications.

On January 10, 2019, AMVAC BV acquired 100% of the stock of Defensive and Agrovant, two distribution companies based in Brazil. Defensive and Agrovant market and distribute crop protection products and micronutrients with focus on the fruit and vegetable market segments throughout Brazil.

The Company classifies as international sales all products bearing foreign labeling shipped to a foreign destination.

	2019	2018	2017
International sales	$ 185,961	$ 153,958	$ 98,905
Percentage of net sales	39.7%	33.9%	27.9%

Risk Management

The Company regularly monitors matters, whether insurable or not, that could pose material risk to its operations, the safety of its employees and neighbors, and its financial performance. The Risk Committee of the Board of Directors ("Board") was formed in 2010, consists of four members of the Board and meets regularly. However, all members of the Board are invited to and regularly attend Risk Committee meetings. Working with senior management, the committee continuously evaluates the Company's risk profile, identifies mitigation measures and ensures that the Company is prudently managing these risks.

Further, in support of the Risk Committee, senior management has appointed a risk manager and designated several senior executives to lead teams focused on addressing each of the most material risks facing the Company; these groups perform analysis with the benefit of operational knowledge. The top risks identified by management and being addressed by risk teams (in no particular order) include: adverse political and regulatory climate; managing inventory and optimizing manufacturing efficiency; succession planning and bench strength; maintaining a competitive edge in the marketplace; the possibility of an environmental event; undervaluation of the Company; availability of acquisition and licensing targets and cyber-terrorism. In addition, the Company continually evaluates insurance levels for product liability, property damage and other potential areas of risk. Management believes its facilities and equipment are adequately insured against loss from usual business risks including cyber-terrorism.

Environmental, Social and Governance ("ESG")

As outlined in its Corporate Sustainability Reports ("CSR") (from 2012 and 2017/2018), the Company believes that sustainability is an essential corporate value. We have a responsibility to multiple stakeholders, including investors, employees, neighbors, governments and even future generations, to use resources wisely, to contribute to the improvement of the environment, to foster human rights and to operate our business in a manner that is responsible. We also believe that it is important to investors and other stakeholders that we make this commitment clear and transparent and that we inculturate these values into our workforce.

Accordingly, director Émer Gunter, has been appointed as ESG (Environmental, Social and Governance) liaison between the Nominating and Corporate Governance Committee and management. In that capacity, Ms. Gunter will lend a more focused oversight of ESG-related matters to the Board, including with respect to identification, measurement and mitigation of risks as well as disclosure of sustainability and related initiatives. Under her direction, senior management will continue to build out and refine its ESG program. Our progress in this endeavor will be documented for the public through CSRs and public financial disclosures during coming reporting periods.

Available Information

The Company makes available free of charge (through its website, www.american-vanguard.com), its Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with the Securities and Exchange Commission ("SEC"). All reports filed with the SEC are available free of charge on the SEC website, www.sec.gov. Also available free of charge on the Company's website are the Company's Audit Committee, Compensation Committee, Finance Committee and Nominating and Corporate Governance Committee Charters, the Company's Corporate Governance Guidelines, the Company's Code of Conduct and Ethics, the Company's Employee Complaint Procedures for Accounting and Auditing Matters and the Company's Corporate Sustainability Reports. The Company's Internet website and the information contained therein or incorporated therein are not intended to be incorporated into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

The regulatory climate remains challenging to the Company's interests both domestically and internationally—Various agencies within the U.S. (both federal and state) and foreign governments continue to exercise increased scrutiny in permitting continued uses (or the expansion of such uses) of many chemistries, including several of the Company's products and, in some cases, have initiated or entertained challenges to these uses. The challenge of the regulatory climate is more pronounced in certain geographical regions (outside the U.S.) where the Company faces resistance to the continued use of certain of its products. For example, the European Union ("EU") employs a hazard-based analysis when considering whether product registrations can be maintained; under this approach, EU regulatory authorities typically do not weigh benefit against risk in their assessments and routinely cancel products for which a safer alternative is available, notwithstanding the benefit of the cancelled product. There is no guarantee that this regulatory climate will change in the near term or that the Company will be able to maintain or expand the uses of many of its products in the face of such regulatory challenges.

Product liability judgments on glyphosate by domestic courts present a litigation risk to companies in this industry—Over the past several months, multiple judgments have been rendered by domestic courts in product liability cases against Bayer/Monsanto in connection with injuries allegedly arising from exposure to the herbicide product, glyphosate. The basis was purported carcinogenicity based largely upon the findings of a certain international organization, in spite of significant scientific evidence to the contrary. While the Company has not sold glyphosate domestically, the theory of these results could put one or more of the Company's products at risk. There is no guarantee that one or more product liability actions would not be brought against the Company on a similar basis. Further, adverse rulings in such actions could have a material adverse effect upon the Company's financial performance in future reporting periods.

***The trend of passing pesticide "ban-bills" in various states could put one or more of the Company's products at risk*—**In certain states, including Maryland and New York, state and/or local legislatures have passed legislation banning the use of chlorpyrifos, in spite of valid registrations at USEPA and/or the equivalent state agency. While the Company does not sell chlorpyrifos products, there is no guarantee that one or more of its registered products would not be targeted in state or local legislation of this nature. Further, such legislation could have a material adverse effect upon the Company's financial performance in future reporting periods.

Climate Change may adversely affect the Company's business—Over the course of the past several years, global climate conditions have become increasingly inconsistent, volatile and unpredictable. Many of the regions in which the Company does business have experienced excessive moisture, cold, drought and/or heat of an unprecedented nature at various times of the year. In some cases, these conditions have either reduced, or obviated the need for, the Company's products whether pre-plant, at-plant, post-emergent or at harvest. Due to the unpredictable nature of these conditions, growers and distributors have become increasingly conservative in procurement practices and the accumulation of inventory. Further, the random nature of climactic change has made it increasingly difficult to forecast market demand and, consequently, financial performance, from year-to-year. There is no guarantee that climate change will abate in the near future, and it is possible that such change will continue to hinder the Company's ability to forecast its sales performance with accuracy and otherwise adversely affect the Company's financial performance.

Tariff Activity—Over the course of the past two years, the U.S. and China have imposed a series of retaliatory tariffs against one another in respect of various products, ranging from metals to grains to chemicals. During that period, the Company was not materially adversely affected by these tariffs. While the two countries have apparently reached a détente on the issue, it is possible that either the U.S. or China could recommence the imposition of tariffs on one or more products that would cause either a disruption in the markets of the Company's customers or an increase in the Company's cost of goods which, either individually or in the aggregate, could have a material adverse effect upon the Company's financial performance.

***The COVID-19 outbreak may interfere with the Company's business*—**As reported over the past several weeks, an outbreak of coronavirus cases originating from Wuhan Province in China has spread into many regions of that country as well as into other parts of the world, including the U.S.. While governments, including that of China, are taking measures to contain further spread of the virus, the epidemic has led to quarantines within that country and has begun to affect scheduling of certain manufacturing facilities in China as well as the travel schedules of persons traveling to or from China. It is not clear at this point whether and to what extent this virus, which can be deadly, will spread further. Also, while the supply of goods and services from China to the Company has not been materially affected by the spread of this virus to date, it is possible that further spread of the COVID-19 could delay or interrupt such supply, in which case, the Company's financial performance could be adversely affected.

The Company's business may be adversely affected by weather effects—Demand for the Company's products tends to vary with weather conditions and weather-related pressure from pests. This was true, for example, in the domestic market during planting season in 2019, when excessive rains and cold delayed and/or prevented planting and the use of many at-plant products. Adverse weather conditions, then, may reduce the Company's revenues and profitability. In light of the possibility of adverse seasonal effects, there can be no assurance that the Company will maintain sales performance at historical levels in any particular region.

USEPA has proposed further limitations on the continued registration of organophosphates— In September 2015, the USEPA published in the Federal Register a memorandum entitled, "Literature Review on Neurodevelopmental Effects & FQPA Safety Factor Determination for the Organophosphate Pesticides," in which it adopted a position recommending the application of a 10X safety factor under the FQPA (Food Quality Protection Act) in light of the alleged possibility of neurodevelopmental harm to women and children based on epidemiological data. Since that time, in the face of objection from industry, the agency has applied this safety factor to all registered Organophosphate Pesticides ("Ops" or "OP"), including those owned by the Company, as they have come up for review or renewal. The Company, like many in our industry, believes that applying this safety factor is not based upon sound science and that the limited studies upon which the agency is relying (for which raw data is not available even to the agency) do not establish a causal link between the perceived harm and the use of its products. Accordingly, the Company intends to take all action necessary to defend its registrations. We have been joined in this effort by other companies that are similarly concerned about the potential impact of USEPA's action. Nevertheless, there is no guarantee that the Company's actions will alter the course that USEPA has proposed; if the agency's position becomes final, some uses of the Company's OP products could be limited or cancelled. Such action could have a material adverse effect upon the Company's financial performance in future reporting periods.

Use of the Company's products is subject to continuing challenges from activist groups—Use of agrochemical products, including the Company's products, is regularly challenged by activist groups in many jurisdictions under a multitude of federal, state and foreign statutes, including FIFRA, the Food Quality Protection Act, Endangered Species Act ("ESA") and the Clean Water Act, to name a few. These challenges typically take the form of lawsuits or administrative proceedings against the USEPA and/or other federal, state or foreign agencies, the filing of amicus briefs in pending actions, the introduction of legislation that is inimical to the Company's interests, and/or adverse comments made in response to public comment invited by regulatory agencies in the course of registration, re-registration or label expansion. The most prominent of these actions include a line of cases under which environmental groups have sought to suspend, cancel or otherwise restrict the use of pesticides that have been approved by USEPA on the ground that that agency failed to confer with the National Marine Fishery Service and/or the Fish and Wildlife Service under the ESA with respect to biological opinions relating to the use of such products. While industry has been active in defending registrations and proposing administrative and legislative approaches to address serious resource issues at the affected agencies, these cases continue to be brought. It is possible that one or more of these challenges could succeed, resulting in a material adverse effect upon one or more of the Company's products.

The distribution and sale of the Company's products are subject to prior governmental approvals and thereafter ongoing governmental regulation—The Company's products are subject to laws administered by federal, state and foreign governments, including regulations requiring registration, approval and labeling of its products. The labeling requirements restrict the use of, and type of, application for our products. More stringent restrictions could make our products less available, which would adversely affect our revenues and profitability. Substantially all of the Company's products are subject to the USEPA (and/or similar agencies in the various territories or jurisdictions in which we do business) registration and re-registration requirements and are registered in accordance with FIFRA or similar laws. Such registration requirements are based, among other things, on data demonstrating that the product will not cause unreasonable adverse effects on human health or the environment when used according to approved label directions. All states, where any of the Company's products are used, also require registration before products, such as the Company sells, can be marketed or used in that state. Governmental regulatory authorities have required, and may require in the future, that certain scientific data requirements be fulfilled on the Company's products. The Company, on its behalf and also in joint efforts with other registrants, has furnished, and is currently furnishing certain required data relative to its products. There can be no assurance, however, that the USEPA or similar agencies will not request that certain tests or studies be repeated or that more stringent legislation or requirements will not be imposed in the future. The Company can provide no assurance that any testing approvals or registrations will be granted on a timely basis, if at all, or that its resources will be adequate to meet the costs of regulatory compliance.

The manufacturing of the Company's products is subject to governmental regulations—The Company currently owns and operates three manufacturing facilities which are located in Los Angeles, California; Axis, Alabama; and Marsing, Idaho and owns and has manufacturing services provided in a fourth facility in Hannibal, Missouri (the "Facilities"). The Facilities operate under the laws and regulations imposed by relevant state and local authorities. The manufacturing of key ingredients for certain of the Company's products occurs at the Facilities. An inability to renew or maintain a license or permit, or a significant increase in the fees for such licenses or permits, could impede the Company's manufacture of one or more of its products and/or increase the cost of production; this, in turn, would materially and adversely affect the Company's ability to provide customers with its products in a timely and affordable manner.

The Company may be subject to environmental liabilities—The Company is fully committed toward minimizing the risk of discharge of materials into the environment and to complying with governmental regulations relating to protection of the environment, its neighbors and its workforce. Nevertheless, federal and state authorities may seek fines and penalties for any violation of the various laws and governmental regulations. In addition, while the Company continually adapts its manufacturing processes to the environmental control standards of regulatory authorities, it cannot entirely eliminate the risk of accidental contamination or injury from hazardous or regulated materials. Further, these various governmental agencies could, among other things, impose potential civil and criminal liability arising under RCRA for the Company's importation (transportation, handling, and storage) of depleted Thimet containers (see, "Legal Proceedings" below). In short, the Company may be held liable for significant damages or fines relating to any environmental contamination, injury, or compliance violation which could have a material adverse effect on the Company's consolidated financial condition, statements of operations and cash flows.

The Company is dependent upon sole source suppliers for certain of its raw materials and active ingredients— There are a limited number of suppliers of certain important raw materials used by the Company in a number of its products. Certain of these raw materials are available solely from single sources either domestically or overseas. There is no guarantee that any of our suppliers will be willing or able to supply these products to the Company reliably, continuously and at the levels anticipated by the Company or required by the market. If these sources prove to be unreliable and the Company is not able to supplant or otherwise second source these products, it is possible that the Company will not achieve its projected sales which, in turn, could adversely affect the Company's consolidated financial statements.

Newly acquired businesses or product lines may not generate forecasted results—While the Company conducts due diligence on acquisitions and employs rigorous investment criteria before making acquisitions, there is no guarantee that a business or product line acquired by the Company will generate results that meet or exceed results that were forecasted by the Company in evaluating the acquisition. There are many factors that could affect the performance of a newly acquired business or product line. While the Company uses conservative assumptions in valuing a business or product line prior to concluding an acquisition, actual results generated post-closing could vary widely from the Company's forecast and, as such, could have a material effect upon the Company's overall financial performance.

The Company's investment in foreign businesses may pose additional risks—With the expansion of its footprint internationally and, in particular, with the businesses acquired in Central America in 2017 and Brazil in 2019, the Company now carries on business at a material level in some jurisdictions that have a history of political or economic instability and customers with a potentially higher risk profile regarding collectivity compared to the Company's legacy business. While such instability may not be present at the current time, there is no guarantee that conditions will not change in one or more jurisdictions quickly and without notice, nor is there any guarantee that the Company would be able to recoup its investment in such territories in light of such changes and potential losses due to the collectability risk from customers. Adverse changes of this nature could have a material effect upon the Company's overall financial performance.

The Company's investment in technology may not generate forecasted returns—The Company has had a history of investing in technological innovation, including with respect to product delivery systems, essential oil technology and biologicals, as one of its core strategies. These investments are based upon the premise that new technology will allow for safer handling or lower overall toxicity profile of the Company's product portfolio, appeal to regulatory agencies and the market we serve, gain commercial acceptance and command a return that is sufficiently in excess of the investment. However, there is no guarantee that a new technology will be successfully commercialized, generate a material return or maintain market appeal for a substantial period of time. Further, many types of development costs must be expensed in the period in which they are incurred. This, in turn, tends to put downward pressure on period profitability. There can be no assurance that these expenses will be recovered through successful commercialization of a new technology.

To the extent that capacity utilization is not fully realized at its manufacturing facilities, the Company may experience lower profitability—While the Company endeavors continuously to maximize utilization of it manufacturing facilities, our success in these endeavors is dependent upon many factors, including fluctuating market conditions, product life cycles, weather conditions, availability of raw materials, equipment failures, and regulatory constraints, among other things. There can be no assurance that the Company will be able to maximize the utilization of capacity at its manufacturing facilities. Underutilization of such manufacturing resources could have a material adverse effect upon the Company's financial performance.

The Company's continued success depends, in part, upon a limited number of key employees—Within certain functions, the Company relies heavily on a small number of key employees to manage ongoing operations and to perform strategic planning. In some cases, there are no internal candidates who are qualified to succeed these key personnel in the short term. In the event that the Company were to lose one or more key employees, there is no guarantee that Company could replace them with people having comparable skills. Further, the loss of key personnel could adversely affect the operation of our business.

The Company faces competition in certain markets from new technologies and demand for organically produced food— The Company faces competition from larger companies that market new chemistries, genetically modified ("GMO") seeds and other similar technologies (e.g., RNA interference) in certain of the crop protection sectors in which the Company competes. There is no guarantee that the Company will maintain its market share or pricing levels in sectors that are subject to competition from companies that market new technologies. Further, it is possible that increased demand for organic crops may, over time, reduce the demand for the Company's products.

The Company faces competition from generic competitors that source product from countries having lower cost structures—The Company continues to face competition from competitors around the globe that may enter the market through either offers to pay data compensation, or similar means in foreign jurisdictions, and then subsequently source material from countries having lower cost structures (typically India and China). These competitors typically tend to operate at thinner gross margins and, with low costs of goods, tend to drive pricing and profitability of subject product lines downward. There is no guarantee that the Company will maintain market share and pricing when facing such generic competitors, or that such competitors will not offer generic versions of the Company's products in the future.

The Company's key customers typically carry competing product lines and may be influenced by the Company's larger competitors—A significant portion of the Company's products are sold to national distributors in the U.S., which also carry product lines of competitors that are much larger than the Company. Typically, revenues from the sales of these competing product lines and related program incentives constitute a greater part of our distributors' income than do revenues from sales and program incentives arising from the Company's product lines. With the recent consolidation among domestic distribution companies, these considerations have become more pronounced. In light of these facts, there is no assurance that such customers will continue to market our products aggressively or successfully, or that the Company will be able to influence such customers to continue to purchase our products instead of those of our competitors.

Industry consolidation may threaten the Company's position in various markets—The global agricultural chemical industry continues to undergo significant consolidation. Many of the Company's competitors have grown or are expected to grow through mergers and acquisitions. As a result, these competitors will tend to be in position to realize greater economies of scale, offer more diverse portfolios and thereby exert greater influence throughout the distribution channels. Consequently, the Company may find it more difficult to compete in various markets. While such merger activity may generate acquisition opportunities for the Company, there is no guarantee that the Company will benefit from such opportunities. Further, there is a risk that the Company's future performance may be hindered by the growth of its competitors through consolidation.

The Company is dependent on a limited number of customers, which makes it vulnerable to the continued relationship with and financial health of those customers—In 2019, 2018 and 2017, top three customers accounted for 39%, 29% and 33%, respectively, of the Company's sales. The Company's future prospects may depend on the continued business of such customers and on our continued status as a qualified supplier to such customers. The Company cannot guarantee that these key customers will continue to buy products from us at current levels. The loss of a key customer could have a material adverse effect on the Company's consolidated financial statements.

The carrying value of certain assets on the Company's consolidated balance sheets may be subject to impairment depending upon market trends and other factors—The Company regularly reviews the carrying value of certain assets, including long-lived assets, inventory, fixed assets and intangibles. Depending upon the class of assets in question, the Company takes into account various factors including, among others, sales, trends, market conditions, cash flows, profit margins and the like. Based upon this analysis, where circumstances warrant the Company may leave such carrying values unchanged or adjust them as appropriate. There is no guarantee that these carrying values can be maintained indefinitely, and it is possible that one or more such assets could be subject to impairment which, in turn, could have an adverse impact upon the Company's consolidated financial statements.

The Company's computing systems are subject to cyber security risks—In the course of its operations the Company relies on its computing systems, including access to the internet, the use of third-party applications and the storage and transmission of data through such systems. While the Company has implemented security measures to protect these systems, there is no guarantee that a third party will not penetrate these defenses and either compromise, corrupt or shut down these systems. Further, in the event of such incursion it is possible that confidential business information and private personal data could be taken. Such an event could adversely affect both the Company's ability to operate, its reputation with key stakeholders and its overall financial performance

Reduced financial performance may limit the Company's ability to borrow under its credit facility—The Company has historically grown net sales and net income through both expansion of current product lines, the acquisition of product lines from third parties and the acquisition of both domestic and international distributors with strong niche market positions. In order to finance such acquisitions, the Company has drawn upon its senior credit facility. However, the Company's borrowing capacity under the senior credit facility depends, in part, upon its satisfaction of a negative covenant that sets a maximum ratio of borrowed debt to earnings (as measured over the trailing 12-month period). There is no guarantee that the Company will continue to generate earnings necessary to ensure that it has sufficient borrowing capacity to support future acquisitions or that, when necessary, the lender group will amend the senior credit facility to provide for such borrowing capacity. Further, despite the Company's long-standing relationship with its lenders, in light of the uncertainties in global financial markets there is no guarantee that the Company's lenders will be either willing or able to continue lending to the Company at such rates and in such amounts as may be necessary to meet the Company's working capital needs.

The Company's growth has been fueled in part by acquisitions—Over the past few decades, the Company's growth has been driven by acquisitions and licensing of both established and developmental products from third parties. There is no guarantee that acquisition targets or licensing opportunities meeting the Company's investment criteria will remain available or will be affordable. If such opportunities do not present themselves, then the Company may be unable to record consistent growth in future years.

The Company is subject to taxation related risks in multiple jurisdictions—The Company is a U.S. based multinational company subject to tax in multiple U.S. and foreign tax jurisdictions. Significant judgment is required in determining our global provision for income taxes, deferred tax assets or liabilities and in evaluating our tax positions on a worldwide basis. While we believe our tax positions are consistent with the tax laws in the jurisdictions in which we conduct our business, it is possible that these positions may be contested or overturned by jurisdictional tax authorities, which may have a significant impact on our global provision for income taxes. Tax laws are dynamic and subject to change as new laws are passed and new interpretations of the law are issued or applied. In 2017, the U.S. enacted significant tax reform, and in the long-term certain provisions of the new law may adversely affect us. In addition, governmental tax authorities are increasingly scrutinizing the tax positions of companies. Many countries in the EU, as well as a number of other countries and organizations such as the Organization for Economic Cooperation and Development (“OECD”), are actively considering changes to existing tax laws that, if enacted, could increase our tax obligations in countries where we do business. If U.S. or other foreign tax authorities change applicable tax laws, our overall taxes could increase, and our business, financial condition or results of operations may be adversely impacted.

The Company is subject to possible adverse impacts from the United Kingdom’s decision to end its membership in the EU— In June 2016, a majority of voters in the United Kingdom (“UK”) elected to withdraw from the European Union (“EU”) in a national referendum (“BREXIT”). Following a great deal of political activity, the government’s BREXIT bill passed both the House of Commons and the House of Lords and has obtained royal assent. The results of the UK’s BREXIT may cause volatility in global stock markets, currency exchange rate fluctuations and global economic uncertainty. Although it is unknown what the terms of the UK’s future relationship with the EU will be, it is possible that there will be higher tariffs or greater restrictions on imports and exports between the UK and the EU and increased regulatory complexities. The effects of BREXIT could potentially impact the Company’s operations primarily in mainland Europe, including financial, legal, tax, and trade.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None

ITEM 2 PROPERTIES

AMVAC owns in fee the Facility constituting approximately 152,000 square feet of improved land in Commerce, California (“Commerce”) on which its West Coast manufacturing, some of its warehouse facilities and some of its manufacturing administrative offices are located.

DAVIE owns in fee approximately 72,000 square feet of warehouse, office and laboratory space on approximately 118,000 square feet of land in Commerce, California, which is leased to AMVAC. In 2013, the Company made a significant investment in the Glenn A. Wintemute Research Center, which houses the Company’s primary research laboratory supporting synthesis, formulation and other new product endeavors.

On December 28, 2007, AMVAC purchased certain manufacturing assets relating to the production of Thimet and Counter and located at BASF’s multi-plant facility situated in Hannibal, Missouri (the “Hannibal Site”). Subject to the terms and conditions of the Agreement, AMVAC purchased certain buildings, manufacturing equipment, office equipment, fixtures, supplies, records, raw materials, intermediates and packaging constituting the “T/C Unit” of the Hannibal Site. The parties entered into a ground lease and a manufacturing and shared services agreement, under which BASF continues to supply various shared services to AMVAC for the Hannibal Site.

On March 7, 2008, AMVAC acquired from Bayer CropScience Limited Partnership, (“BCS LP”), a U.S. business of Bayer CropScience GmbH, a facility (the “Marsing Facility”) located in Marsing, ID, which consists of approximately 17 acres of improved real property. The Marsing Facility is engaged in the blending of liquid and powder raw materials and the packaging of some of the Company’s finished goods inventory in liquid, powder and pelletized formulations which are sold both in the U.S. and internationally. In addition, during 2019, the Company purchased approximately three acres of unimproved real estate immediately adjacent to the Marsing Facility for potential storage and operational use in the future.

In 2001, AMVAC completed the acquisition of a manufacturing facility (the “Axis Facility”) from E.I. DuPont de Nemours and Company (“DuPont”). The Axis Facility is one of three such units located on DuPont’s 510 acre complex in Axis, Alabama. The acquisition consisted of a long-term ground lease of 25 acres and the purchase of all improvements thereon. The facility is a multi-purpose plant designed for synthesis of active ingredients and formulation and packaging of finished products. In 2018, FMC Corporation acquired from DuPont a business unit which held, among other things, the Axis Facility. Prior to expiration of the lease, AMVAC and FMC negotiated the terms of a new lease, which has a term of 15 years and the option to renew for two, 5-year periods.

AVD regularly adds chemical processing equipment to enhance or expand its production capabilities. The Company believes its facilities are in good operating condition, are suitable and adequate for current needs, have flexibility to change products, and can produce at greater rates as required. Facilities and equipment are insured against losses from fire as well as other usual business risks. The Company knows of no material defects in title to, or encumbrances on, any of its properties except that substantially all of the Company's assets are pledged as collateral under the Company's credit facility agreements with its primary lender group. For further information, refer to note 2 of the Notes to the Consolidated Financial Statements in Part IV, Item 15 of this Annual Report on Form 10-K.

AVD owns approximately 42 acres of unimproved land in Texas for possible future expansion.

The Company leases approximately 19,953 square feet of office space located at 4695 MacArthur Court in Newport Beach, California. In September 2015 the lease was amended and was extended to expire on June 30, 2021. The premises have served as the Company's corporate headquarters since 1994.

AMVAC BV's, GemChem's, AMVAC M's, AMVAC CR Srl's, AMVAC Sgpr's, OHP's and AgriCenter's facilities consist of administration and/or sales offices which are leased. In addition, Defensive and Agrovant (the Company's indirect, wholly-owned subsidiaries in Brazil) own and/or lease administration and sales offices and warehouse space in Jaboticabal, Brazil.

ITEM 3 LEGAL PROCEEDINGS

Please refer to Notes of Consolidated Financial Statements – Description of Business, Basis of Consolidation, Basis of Presentation and Significant Accounting Policies in the accompanying Notes to the Consolidated Financial Statements for legal proceedings.

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

Effective March 7, 2006, the Company listed its $0.10 par value common stock ("Common Stock") on the New York Stock Exchange under the ticker symbol AVD. From January 1998 through March 6, 2006, the Common Stock was listed on the American Stock Exchange under the ticker symbol AVD. The Company's Common Stock traded on The NASDAQ Stock Market under the symbol AMGD from March 1987 through January 1998.

Holders

As of February 14, 2020, the number of stockholders of the Company's Common Stock was approximately 4,496, which includes beneficial owners with shares held in brokerage accounts under street name and nominees.

Dividends

The Company has issued a cash dividend in each of the last twenty-four years dating back to 1996. Cash dividends declared during the past three years are summarized in the table below.

Declaration Date	Distribution Date	Record Date	Dividend Per Share	Total Paid
December 9, 2019	January 9, 2020	December 26, 2019	$ 0.020	$ 582
September 16, 2019	October 17, 2019	October 3, 2019	0.020	582
June 10, 2019	July 12, 2019	June 28, 2019	0.020	580
March 6, 2019	April 10, 2019	March 27, 2019	0.020	580
Total 2019			**$ 0.080**	**$ 2,324**
December 10, 2018	January 10, 2019	December 27, 2018	$ 0.020	$ 581
September 18, 2018	October 17, 2018	October 3, 2018	0.020	588
June 11, 2018	July 12, 2018	June 28, 2018	0.020	587
March 8, 2018	April 13, 2018	March 30, 2018	0.020	586
Total 2018			**$ 0.080**	**$ 2,342**
December 12, 2017	January 10, 2018	December 27, 2017	$ 0.015	$ 438
September 18, 2017	October 19, 2017	October 5, 2017	0.015	439
June 15, 2017	July 14, 2017	June 30, 2017	0.015	437
March 16, 2017	April 15, 2017	March 31,2017	0.015	435
Total 2017			**$ 0.060**	**$ 1,749**

Share Repurchase Program

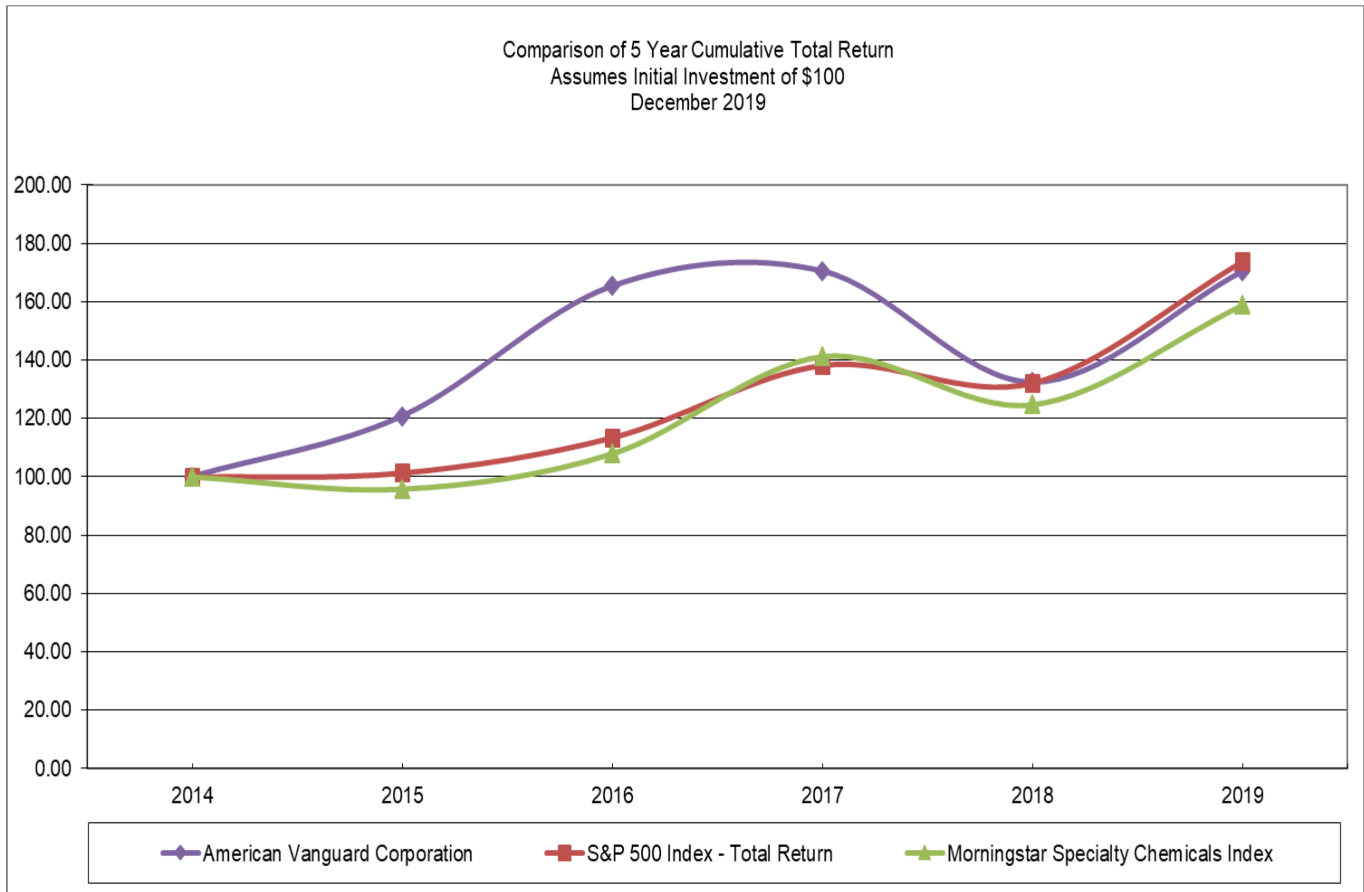
On November 5, 2018, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate amount of shares with a total purchase price not to exceed $20,000 of its common stock, par value $0.10 per share, in the open market, depending upon market conditions over the short to mid-term. The Shares Repurchase Program expired on March 8, 2019. During 2019 and 2018, the Company purchased a total of 610,406 shares for a total of $9,891 at an average price of $16.20 per share.

Securities Authorized for Issuance under Equity Compensation Plans

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants, and rights	Weighted-average exercise price of outstanding options, warrants, rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	453,605	$ 9.76	1,171,059
Total	453,605	$ 9.76	1,171,059

Stock Performance Graph

The following graph presents a comparison of the cumulative, five-year total return for the Company, the S&P 500 Stock Index, and a peer group (Specialty Chemical Industry). The graph assumes that the beginning values of the investments in the Company, the S&P 500 Stock Index, and the peer group of companies each was $100 on December 31, 2014. All calculations assume reinvestment of dividends. Returns over the indicated period should not be considered indicative of future returns.



ITEM 6 SELECTED FINANCIAL DATA

The following table set forth the Company's selected consolidated financial data as of and for each of the five years ended December 31, 2019 and should be read in conjunction with our audited consolidated financial statements and notes thereto included under Part II, Item 8 of this annual report.

	2019	2018	2017	2016	2015
Net sales	$ 468,186	$ 454,272	$ 355,047	$ 312,113	$ 289,382
Gross profit	$ 177,354	$ 182,631	$ 147,392	$ 128,288	$ 111,902
Operating income	$ 26,221	$ 39,021	$ 26,794	$ 20,540	$ 11,524
Income before provision for income taxes and loss on equity investments	$ 19,012	$ 33,596	$ 24,853	$ 18,917	$ 8,962
Net income attributable to American Vanguard	$ 13,601	$ 24,195	$ 20,274	$ 12,788	$ 6,591
Earnings per common share	$ 0.47	$ 0.83	$ 0.70	$ 0.44	$ 0.23
Earnings per common share—assuming dilution	$ 0.46	$ 0.81	$ 0.68	$ 0.44	$ 0.23
Total assets	$ 670,098	$ 593,587	$ 535,592	$ 429,956	$ 435,270
Working capital	$ 197,561	$ 164,660	$ 128,681	$ 130,001	$ 139,850
Long-term debt, excluding current installments	$ 148,766	$ 96,671	$ 77,486	$ 40,951	$ 68,321
Stockholders' equity	$ 344,156	$ 329,230	$ 305,314	$ 282,357	$ 268,326
Weighted average shares outstanding—basic	29,030	29,326	29,100	28,859	28,673
Weighted average shares outstanding—assuming dilution	29,656	30,048	29,703	29,394	29,237
Dividends per share of common stock	$ 0.08	$ 0.08	$ 0.06	$ 0.03	$ 0.02

(1) The results for reporting periods beginning after January 1, 2018 are presented under Accounting Standards Codification ("ASC") 606. Prior period results are not adjusted and continue to be reported in accordance with historic revenue recognition, ASC 605.

(2) Effective January 1, 2019, the Company adopted ASC 842, Leases. See Description of Business, Basis of Consolidation, Basis of Presentation and Significant Accounting Policies in notes to the Consolidated Financial Statements. Prior period results are not adjusted and continue to be reported in accordance with ASC 840.

ITEM 7 MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

FORWARD-LOOKING STATEMENTS/RISK FACTORS:

The Company, from time-to-time, may discuss forward-looking statements including assumptions concerning the Company’s operations, future results and prospects. Generally, “may,” “could,” “will,” “would,” “expect,” “believe,” “estimate,” “anticipate,” “intend,” “continue” and similar words identify forward-looking statements. Forward-looking statements appearing in this Report are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are based on our current expectations and are subject to risks and uncertainties that can cause actual results and events to differ materially from those set forth in or implied by the forward-looking statements and related assumptions contained in the entire Report. Such factors include, but are not limited to: product demand and market acceptance risks; the effect of economic conditions; weather conditions; changes in regulatory policy; the impact of competitive products and pricing; changes in foreign exchange rates; product development and commercialization difficulties; capacity and supply constraints or difficulties; availability of capital resources; general business regulations, including taxes and other risks as detailed from time-to-time in the Company’s reports and filings filed with the U.S. SEC. It is not possible to foresee or identify all such factors. We urge you to consider these factors carefully in evaluating the forward-looking statements contained in this Report.

The discussion and analysis of our financial condition and results of operations for 2019 compared to 2018 appears below. As permitted by SEC rules, we have omitted the discussion and analysis of our financial condition and results of operations for 2018 compared to 2017. See Item 7, “Management’s Discussions and Analysis of Financial Condition and Results of Operations”, in our Annual Report on Form 10-K for the year ended December 31, 2018, for this discussion.

MANAGEMENT OVERVIEW

The Company’s operating results in 2019 were mixed. With respect to the top line, net sales were up 3%, as compared to 2018 ($468,186 as compared to $454,272); however, gross profit declined by 3% year over year ($177,354 as compared to $182,631), and net income was down 44% ($13,601 as compared to $24,195).

Top line sales performance was driven largely by the addition of sales from newly acquired businesses, including Defensive and Agrovant in Brazil, and newly acquired product lines, such as the Assure II herbicide in Canada and several domestic products. Gross profit as a percentage of sales declined from 40% in 2018 to 38% in 2019. There were two factors driving that change. First, our factory performance in 2019 returned to the historical norm with lower utilization compared to 2018 (which was a record-setting year for factory output). Second, our mix of sales included higher volume of lower-margin products from our newly acquired Brazilian distribution businesses, and from our expanding sales in Central America through the AgriCenter group of distribution businesses.

Operating expenses rose on an absolute basis ($151,133 in 2019, as compared to $143,610 in 2018) due primarily to higher amortization costs and the addition of operating expenses (including salaries and other marketing expenses) relating to newly acquired businesses and product lines, partially offset by reduced expenses in both legal activities and global regulatory activities as a result of mix of specific studies conducted in the year. Notwithstanding this net increase, operating expenses as a percent of net sales remained flat at 32% year-over-year.

In light of lower gross profit and higher operating expenses described above, operating income for the 2019 year declined by 33%, as compared to 2018 (to $26,221 from $39,021). Due to our acquisition activities principally in the second half of 2018 and early in 2019, our average borrowings increased in 2019, as compared to 2018. As a result, net interest expense was $7,209 in 2019, as compared to $4,024 in 2018. During 2019, our effective tax rate remained flat at 27.4%, as compared to 27.2% in 2018. Net income decreased to $0.46 per diluted share ($0.47 per basic share), as compared to $0.81 per diluted share ($0.83 per basic share) in 2018.

When considering the consolidated balance sheet, long-term debt increased by $52,095 to $148,766 at December 31, 2019, as compared to $96,671 at December 31, 2018. The increased level of debt was driven by the acquisitions completed during 2019. The Company’s borrowing capacity was $26,977 as of December 31, 2019, as compared to $112,150 at December 31, 2018. Furthermore, inventory increased by $3,418 ($163,313, as compared to $159,895) at year-end. This was driven primarily by inventory associated with acquisitions, partially offset by underlying reductions in inventory related to products and businesses owned prior to the start of 2019.

Results of Operations

2019 Compared with 2018:

	2019	2018	$ Change	% Change
Net sales:				
Insecticides	$ 153,448	$ 150,595	$ 2,853	2%
Herbicides/soil fumigants/fungicides	181,686	183,350	(1,664)	-1%
Other, including plant growth regulators	67,266	58,360	8,906	15%
Total crop	402,400	392,305	10,095	3%
Non-crop	65,786	61,967	3,819	6%
Total net sales	$ 468,186	$ 454,272	$ 13,914	3%
Cost of sales:				
Insecticides	$ 99,258	$ 94,340	$ 4,918	5%
Herbicides/soil fumigants/fungicides	113,944	111,298	2,646	2%
Other, including plant growth regulators	48,392	35,681	12,711	36%
Total crop	261,594	241,319	20,275	8%
Non-crop	29,238	30,322	(1,084)	-4%
Total cost of sales	$ 290,832	$ 271,641	$ 19,191	7%
Gross profit:				
Insecticides	$ 54,190	$ 56,255	$ (2,065)	-4%
Herbicides/soil fumigants/fungicides	67,742	72,052	(4,310)	-6%
Other, including plant growth regulators	18,874	22,679	(3,805)	-17%
Gross profit crop	140,806	150,986	(10,180)	-7%
Gross profit non-crop	36,548	31,645	4,903	15%
Total gross profit	$ 177,354	$ 182,631	$ (5,277)	-3%
Gross margin crop	35%	38%		
Gross margin non-crop	56%	51%		
Total gross margin	38%	40%		
Net sales:				
U.S.	$ 282,225	$ 300,314	$ (18,089)	-6%
International	185,961	153,958	32,003	21%
Total net sales	$ 468,186	$ 454,272	$ 13,914	3%

Domestic sales for the year ended December 31, 2019 were $282,225, as compared to $300,314 in 2018, a decrease of 6%. Sales were adversely affected by several factors. Unusually hot and dry autumn weather in the Southeastern U.S. followed by an early frost in Texas resulted in much lower demand for our U.S. cotton defoliant Folex®. In addition, sales of our soil fumigant products declined in light of record-setting rainfall across multiple regions, particularly in California and the Pacific Northwest, during the first half of the year, followed by snow and rain in the upper Midwest during the second half of the year. Additionally, full-year sales of several products *(paraquat, abamectin and chlorothalonil)* acquired in 2017 declined as a result of unfavorable weather, supply chain disruptions and competitive market pressures. In addition, we experienced a slight decline in sales of our mosquito adulticide Dibrom® to more normal annual levels, following the exceptional hurricane-driven demand of 2017 and 2018. These declines were partially offset by strong demand for our cotton foliar insecticide Bidrin® and certain of our premium Midwest corn products.

International sales increased 21% ($185,961 in 2019 as compared to $153,958 in 2018). The improved sales performance was driven by our new Brazilian distribution businesses that were acquired in January 2019. In addition, the AgriCenter businesses in Central America recorded a 14% growth in sales led by increased mineral oil sales (into high-value fruit crops), fungicides (to control black sigatoka), Mocap® (for use on pineapples), nematicide sales in Panama, and herbicides (primarily for use on rice crops in Panama and Nicaragua). Further, sales of the Assure II herbicide largely into canola, pulse and soybeans in Canada also contributed to the international top-line growth. These gains were partially offset by decreased sales of granular nematicides into banana crops as part of the multi-year rotation typically employed by large plantations and by challenging market conditions and slightly declining year-over-year sales of our products Mocap (due to non-renewal of its registration in the EU), Nemacur®, Counter® and Thimet®.

The relative sales performance of our crop and non-crop businesses is as follows: Net sales of our crop business in 2019 were $402,400, which constitutes an increase of 3%, as compared to net sales of $392,305 in 2018. Net sales of our non-crop products in 2019 were $65,786, which is an increase of approximately 6%, as compared to $61,967 in 2018. A more detailed discussion of our sales performance in 2019, as compared to 2018, for each of the crop and non-crop businesses appears below.

In our crop business, net sales of **insecticides** in 2019 ended up $2,853 at $153,448, as compared to sales of $150,595 in 2018. This sales performance was driven primarily by the addition of sales of our Brazilian distribution businesses (Defensive and Agrovant) that were acquired on January 2019, the increased sales of our Central American distribution business and the strong 2019 performance of our Bidrin foliar insecticide for cotton in the U.S. due to increased cotton acres. These gains were offset by a reduction in net sales of several granular soil insecticides, most particularly Mocap and Nemacur sold primarily in our international markets, particularly in the countries of the EU. Despite lower planted corn acres in the U.S., we recorded improved year-over-year sales of Aztec® and SmartChoice®, arising largely from corn rootworm pressure in the Midwest coupled with low channel inventories at the start of the year. Sales of our nematicide Counter were down slightly year-over-year due to decreased corn acreage in the U.S.. Similarly, Thimet experienced a slight decline in sales due to lower peanut plantings in the Southeast U.S.

Within the product group of **herbicides/soil fumigants/fungicides**, our crop net sales ended at $181,686 in 2019, as compared to $183,350 in 2018 (a reduction of 1%). Our fumigant product line decreased slightly as unfavorable wet weather conditions inhibited seasonal applications in both the Pacific Northwest and North Central regions. In the herbicide portion of this group, we had stronger performance from our traditional post-emergent corn herbicide Impact® and the addition of sales from our newly acquired Assure II herbicide, which were partially offset by slightly reduced sales of Dacthal® in a variety of crops. Further, in the category of fungicides, chlorothalonil sales declined year-over-year as dry weather during late spring reduced demand in peanuts and potatoes, while supply in the channel was unusually high, following industry-wide imports in advance of tariffs on Chinese products in 2018. These changes were effectively offset by the addition of sales of our newly acquired Brazilian distribution businesses.

Within our **other product group** (which includes plant growth regulators, molluscicides, third party manufacturing activity, we experienced an increase of 15% with net sales ending at $67,266 in 2019, as compared to $58,360 in 2018. The main drivers of this performance were the inclusion of the Brazilian businesses, and increased toll manufacturing in 2019. These increases were partially offset by a 2019 decline in our Folex® cotton defoliant, as covered above.

Within our **non-crop business**, net sales in 2019 increased by 6% to $65,786, as compared to $61,967 in 2018. This improved performance benefited from growth in sales of OHP, our niche horticultural business, and from our traditional commercial and consumer pest strip product lines. Finally, sales of our Dibrom brand mosquito adulticide were reduced in comparison to sales recorded in 2018 and 2017, which experienced exceptionally heavy demand following the significant hurricanes of 2017. Notwithstanding those market pressures, sales were solid in comparison to the usual level of annual sales of this premium product range.

Our cost of sales for 2019 was $290,832 or 62% of sales. This compared to $271,641 or 60% of sales for 2018. The Company aggregates a number of key variable, semi-variable and fixed cost components within reported cost of sales. The raw materials element of our cost of sales increased slightly (up 0.4%), as compared to last year. The overall increased cost of sales was expected and relates to the change in sales mix driven by the products and distribution businesses acquired in December 2018 and in January 2019 (that recorded essentially a full year of sales in 2019), as compared to 2018. In general terms the cost of sales related to the products and businesses acquired in the last 2-3 years tends to be higher than those of our pre-existing portfolio, because those businesses are selling fully marked up, third-party products, while the Company's core portfolio benefits from the upstream manufacturing activity. Our manufacturing performance for the year was in-line with our targets; however, output was down (as expected), as compared to 2018. In 2019, factory cost amounted to 2.6% of sales, which is in line with our long-term target. This compared to the 0.4% of sales achieved in 2018.

Gross profit decreased by $5,277 or 3% to end at $177,354 for the year ended December 31, 2019 as compared to $182,631 for the prior year. Gross margin as a percent of net sales was 38% for 2019, as compared to 40% in 2018. In 2019, the Company experienced lower factory output (noted above) and the strong growth of lower margin sales in Central and South America. These negative trends were partially offset by a strong performance managing raw material purchases.

Operating expenses in 2019 increased by $7,523 to $151,133 or 32% of sales, as compared to $143,610 or 32% in 2018. The differences in operating expenses by department are as follows:

	2019	2018	Change	% Change
Selling	$ 45,121	$ 39,585	$ 5,536	14%
General and administrative	46,593	42,981	3,612	8%
Research, product development and regulatory	24,070	26,428	(2,358)	-9%
Freight, delivery and warehousing	35,349	34,616	733	2%
	$ 151,133	$ 143,610	$ 7,523	5%

- Selling expenses increased by 14% to $45,121 for the year ended December 31, 2019, as compared to $39,585 in 2018. The main drivers were an increase in activities from the products and businesses acquired in late 2018 and during 2019 including the distribution businesses in Brazil, and the Assure II business in Canada and the U.S.. Included in this increase are the costs related to the transitional service agreement on one of the acquired businesses. We are continuing to invest in the growth of our international businesses and increased advertising and marketing activities in both our domestic and international regions.
- General and administrative expenses increased by 8% to $46,593 for the year ended December 31, 2019, as compared to $42,981 in 2018. The increase was driven by the administrative expenses including amortization expenses associated with the activities of the newly acquired businesses and products, and the reassessment (reduction in expense) of the fair value related to deferred consideration for the acquired businesses in the amount of $4,120, as compared to $6,050 in prior year. These increases were partially offset by decreases in legal costs of approximately $2,418.
- Research, product development and regulatory expenses decreased by 9% to $24,070 for the year ended December 31, 2019, as compared to $26,428 in 2018. The main drivers for the decrease were timings related to third party product defense studies and lower business development expenses as we have reached the commercialization phase of a key part of our SIMPAS project.
- Freight, delivery and warehousing costs for the year ended December 31, 2019 increased by 2% to $35,349, as compared to $34,616 in 2018. This is mainly due to product mix and locations of customers. When expressed as a percentage of sales, freight costs decreased slightly year over year to 7.5% in 2019, as compared to 7.6% in 2018.

Net interest expense was $7,209 in 2019, as compared to $4,024 in 2018. Interest costs are summarized in the following table:

	2019			2018		
Average Indebtedness and Interest expense	**Average Debt**	**Interest Expense**	**Interest Rate**	**Average Debt**	**Interest Expense**	**Interest Rate**
Working capital revolver	$166,828	$ 6,857	4.1%	$93,346	$ 3,327	3.6%
Interest income	—	(182)	—	—	(174)	—
Amortization of deferred loan fees	—	534	—	—	235	—
Amortization of other deferred liabilities	—	149	—	—	395	—
Other interest expense	—	166	—	—	326	—
Subtotal	166,828	7,524	4.5%	93,346	4,109	4.4%
Capitalized interest	—	(315)	—	—	(85)	—
Total	$166,828	$ 7,209	4.3%	$93,346	$ 4,024	4.3%

The Company's average overall debt for the year ended December 31, 2019 was $166,828, as compared to $93,346 for the year ended December 31, 2018. On a gross basis, our effective interest rate increased on our working capital revolver to 4.1%, as compared to 3.6% in 2018. This increase was driven by increases in the LIBOR rate. After adjustments related to capitalized interest and expenses related to the amortization of deferred liabilities, the overall effective rate was 4.3% for 2019 and 2018.

Our provision for income taxes for 2019 was $5,202, as compared to $9,145 for 2018. The effective tax rate for 2019 was 27.4%, as compared to 27.2% in 2018.

The Company is subject to U.S. federal income tax as well as to income tax in multiple state jurisdictions. Federal income tax returns of the Company are subject to Internal Revenue Service ("IRS") examination for the 2016 through 2018 tax years. State income tax returns are subject to examination for the 2015 through 2018 tax years. The Company has other foreign income tax returns subject to examination.

For the year ended December 31, 2019, the Company recorded net losses on its equity investments of $209. For 2018, the Company recorded losses on its equity investments of $389.

Non-controlling interest represents the share of net income or loss that is attributable to the non-controlling stockholder of our majority owned subsidiary, Envance. During the period from January 1, 2018 to November 8, 2018, a loss of $133 was attributed to non-controlling interest. Envance became a wholly owned subsidiary on November 9, 2018.

Net income attributable to American Vanguard ended was $13,601 or $0.46 per diluted share in 2019 as compared to $24,195 or $0.81 per diluted share in 2018.

Liquidity and Capital Resources

The Company generated $9,403 of cash from operating activities during the year ended December 31, 2019, as compared to $11,346 in the prior year. Included in the $9,403 are net income of $13,601, plus non-cash depreciation, amortization of intangibles and other assets and discounted future liabilities, in the amount of $22,922, provision for bad debts in the amount of $1,035, less reassessment of deferred compensation of $4,120. In addition, stock-based compensation of $7,160, loss from equity method investments of $209 and change in value of deferred income taxes of $2,616, present further net adjustments to reconcile net income to net cash provided by operating activities of $43,567, as compared to $48,995 for the same period of 2018.

During 2019, the Company increased working capital by $32,901, as compared 2018. This increase excluded working capital related to the products and businesses acquired during 2019. Included in this change: accounts receivables increased by $11,383, inventories decreased by $3,817, income taxes increased by $6,855, and prepaid expenses increased by $876. Deferred revenue increased by $13,355, as compared to December 31, 2018, driven by individual customer decisions to make early payments in return for early cash incentive programs. Our accounts payable balances decreased by $7,977, program accruals were increased by $5,797 and other payables and accrued expenses decreased by $3,337.

With regard to our program accrual, the change primarily reflects acquired liabilities as part of acquisitions agreements and by our mix of sales and customers in 2019, as compared to the prior year. The Company accrues programs in line with the growing season upon which specific products are targeted. Most of our programs relate to domestic sales. Typically, domestic crops have a growing season that ends on September 30th of each year. During 2019, the Company made accruals for programs in the amount of $63,579, acquired liabilities as part of domestic acquisitions in the amount of $7,247 and made payments in the amount of $60,476. During 2018, the Company made accruals in the amount of $61,114 and made payments in the amount of $62,819.

Cash used for investing activities amounted to $54,837 for the year ended December 31, 2019, as compared to $27,697 in 2018. The Company spent $41,852 in business and product acquisitions including intangible assets, goodwill, working capital and fixed assets as well as patent application costs. In addition, $12,985 was spent on capital expenditures primarily focused on continuing to invest in manufacturing infrastructure.

During the year ended December 31, 2019, financing activities provided $46,406, principally from the borrowings on the Company's senior credit facility, as compared to providing $11,133 for the year ended December 31, 2018. This included net borrowings of $51,900 from our credit facility in 2019, as compared to net borrowings of $18,975 in 2018. During the year, we paid dividends to stockholders amounting to $2,323, as compared to $2,199 in 2018. The Company paid $850 deferred consideration relating to the acquisition made during the year. Finally, the Company repurchased common stock at market for $2,604, as compared to $7,287 in prior year.

The Company has various loans in place that together constitute the long-term loan balances shown in the consolidated balance sheets as at December 31, 2019 and 2018. These are summarized in the following table:

Indebtedness		2019		2018
Revolving line of credit	$	149,300	$	97,400
Debt issuance costs		(534)		(729)
Total indebtedness	$	148,766	$	96,671

The Company's main bank is Bank of the West, a wholly-owned subsidiary of the French bank, BNP Paribas. Bank of the West has been the Company's bank for more than 30 years and is the syndication manager for the Company's loans.

As of June 30, 2017, AMVAC Chemical Corporation ("AMVAC"), the Company's principal operating subsidiary, as borrower, and affiliates (including the Company, AMVAC CV and AMVAC BV), as guarantors and/or borrowers, entered into a Third Amendment to Second Amended and Restated Credit Agreement with a group of commercial lenders led by Bank of the West as agent, swing line lender and Letter of Credit issuer. As of November 27, 2019, AMVAC, as borrower and certain affiliates, on the one hand, entered into a Fourth Amendment to Second Amended and Restated Credit Agreement with a group of commercial lenders led by Bank of the West as agent, swing line lender and Letter of Credit under the terms of which the maximum limits for both Permitted Acquisitions and Investments in Foreign Subsidiaries were increased and new language was added with respect to Eurocurrency Rates, LIBOR Rates and ERISA. The Third and Fourth Amendments, taken together, constitute the Credit Agreement.

The Credit Agreement is a senior secured lending facility, consisting of a line of credit of up to $250,000, an accordion feature of up to $100,000 and a maturity date of June 30, 2022. The Credit Agreement contains two key financial covenants; namely, borrowers are required to maintain a Consolidated Funded Debt Ratio of no more than 3.25-to-1 and a Consolidated Fixed Charge Covenant Ratio of at least 1.25-to-1. The Company's borrowing capacity varies with its financial performance, measured in terms of EBITDA as defined in the Credit Agreement, for the trailing twelve-month period. Under the Credit Agreement, revolving loans bear interest at a variable rate based, at borrower's election with proper notice, on either (i) LIBOR plus the "Applicable Rate" which is based upon the Consolidated Funded Debt Ratio ("Eurocurrency Rate Loan") or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month LIBOR Rate plus 1.00%, plus, in the case of (x), (y) or (z) the Applicable Rate ("Alternate Base Rate Loan"). Interest payments for Eurocurrency Rate Loans are payable on the last day of each interest period (either one, two, three or six months, as selected by the borrower) and the maturity date, while interest payments for Alternate Base Rate Loans are payable on the last business day of each month and the maturity date. The interest rate on December 31, 2019 was 3.74%.

At December 31, 2019, according to the terms of the Credit Agreement and based on our performance against the most restrictive covenant listed above, the Company had the capacity to increase its borrowings by up to $26,977. This compares to an available borrowing capacity of $112,150 as of December 31, 2018. The level of borrowing capacity is driven by three factors: (1) our financial performance, as measured in EBITDA for trailing twelve-month period, (2) the inclusion of proforma EBITDA related to acquisitions completed during the preceding twelve months and (3) the leverage covenant (being the number of times EBITDA the Company may borrow under its credit facility agreement). The Company was in compliance with all the debt covenants as of December 31, 2019.

We believe that the combination of our cash flows from future operations, current cash on hand and the availability under the Company's credit facility will be sufficient to meet our working capital and capital expenditure requirements and will provide us with adequate liquidity to meet our anticipated operating needs for at least the next 12 months from the issuance of the Annual Report. Although operating activities are expected to provide cash, to the extent of growth in the future, our operating and investing activities will use cash and, consequently, this growth may require us to access some or all of the availability under the credit facility. It is also possible that additional sources of finance may be necessary to support additional growth.

Contractual Obligations and Off-Balance Sheet Arrangements

The following summarizes our contractual obligations at December 31, 2019, and the effects such obligations are expected to have on cash flows in future periods:

	Payments Due by Period				
	Total	**Less than 1 Year**	**1—3 Years**	**4—5 Years**	**After 5 Years**
Long-term debt	$ 149,300	$ —	$ 149,300	$ —	$ —
Estimated interest liability (1)	18,364	6,121	12,243	—	—
Deferred earn outs on business acquisitions	1,790	277	1,513	—	—
Employment agreements	2,106	685	1,421	—	—
Operating leases—rental properties and equipment	9,610	3,811	4,004	1,001	794
Operating leases—vehicles	2,550	1,389	1,117	44	—
Transition taxes (2)	783	—	198	585	—
	$ 184,503	$ 12,283	$ 169,796	$ 1,630	$ 794

(1) Estimated interest liability has been calculated using the current effective rate for each category of debt over the remaining term of the debt and taking into account scheduled repayments. The revolving line has been assumed to be constant (i.e. $149,300) throughout the remaining term. All of our debt is linked to LIBOR rates.

There were no significant other off-balance sheet arrangements as of December 31, 2019.

Under the terms of the credit facility, all debt outstanding is due when the agreement expires on June 30, 2022.

In addition to the above contractual obligations, $4,597 of unrecognized tax benefits and $6,855 of accrued penalties and interest have been recorded as long term liabilities as of December 31, 2019. We are uncertain as to if or when such amounts may be settled or any tax benefits realized.

(2) The Company elected to pay the transition tax related to the Tax Reform Act over an eight-year period. Total amount has been adjusted to reflect 2017 income tax overpayment applied to transition tax.

Recently Issued Accounting Guidance

Please refer to Notes of Consolidated Financial Statements – Description of Business, Basis of Consolidation, Basis of Presentation and Significant Accounting Policies in the accompanying Notes to the Consolidated Financial Statements for recently issued and adopted accounting standards.

Foreign Exchange

The Company faces market risk to the extent that changes in foreign currency exchange rates affect our non-U.S. dollar functional currency foreign subsidiaries' revenues, expenses, assets and liabilities. We currently do not engage in hedging activities with respect to such exchange rate risks.

Assets and liabilities outside the U.S. are located in regions where we have subsidiaries or joint ventures: Central America, South America, North America, Europe Asia, and Australia. Our investments in foreign subsidiaries and joint ventures with a functional currency other than the U.S. dollar are generally considered long-term. Accordingly, we do not hedge these net investments.

Inflation

Management believes inflation has had minimal impact on the Company's operations during the past two years. The Company is working diligently with its critical raw material suppliers to control inflationary pressures, conducting contract negotiations with focus on the following: reducing or delaying price increases due to higher environmental costs from suppliers mainly in China and India, managing the tariff impacts by sourcing and leveraging alternate geographies where possible, and lastly, monitoring strengths of the U.S. dollar vs other currencies in order to secure benefits and balance tariff effects. The Company recognizes there is long-term pressure on demand for raw materials in the developing world and is utilizing its expertise to minimize inflationary pressure. The Company has been able to push back on many of the proposed price increases for actives and intermediates that are shipped to our U.S. factories, to either avoid, minimize or forestall them.

CRITICAL ACCOUNTING POLICIES

Certain of the Company's policies require the application of judgment by management in selecting the appropriate assumptions for calculating financial estimates. These judgments are based on historical experience, terms of existing contracts, commonly accepted industry practices and other assumptions that the Company believes are reasonable under the circumstances. These estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the consolidated financial statements in the period that revisions are determined to be necessary. Actual results may differ from these estimates under different outcomes or conditions.

The Company's critical accounting policies and estimates include:

Principles of Consolidation—The Company's consolidated financial statements include the accounts of the Company and its subsidiaries. Less than wholly owned subsidiaries, including joint ventures, are consolidated when it is determined that the Company has a controlling financial interest, which is generally determined when the Company holds a majority voting interest. When protective rights, substantive rights or other factors exist, further analysis is performed in order to determine whether or not there is a controlling financial interest. The consolidated financial statements reflect the assets, liabilities, revenues and expenses of consolidated subsidiaries and the non-controlling parties' ownership share is presented as a non-controlling interest. All significant intercompany accounts and transactions are eliminated.

Revenue Recognition and Allowance for Doubtful Accounts— Prior to January 1, 2018, revenues from sales were recognized at the time title and the risks of ownership passed. This was when the customer had made the fixed commitment to purchase the goods, the products were shipped per the customer's instructions, the sales price was fixed and determinable, and collection was reasonably assured. Starting January 1, 2018, revenues from sales are recognized at the time control is transferred to the customer. This is typically the case when the customer has made the fixed commitment to purchase the goods, the products are shipped per the customer's instructions, the sales price can be identified, and collection is probable. The Company has adopted procedures to ensure that revenues are recognized when earned. The procedures are subject to management's review and from time to time certain revenues are excluded until it is clear that the title has passed and there is no further recourse to the Company. We also have some arrangements whereby revenues are recognized over time for certain products that are deemed to have no alternative use accompanied by an enforceable right to payment for performance completed to date. From time to time, the Company may offer a program to eligible customers, in good standing, that provides extended payment terms on a portion of the sales on selected products. The Company analyzes these extended payment programs in connection with its revenue recognition policy to ensure all revenue recognition criteria are satisfied at the time of sale. The Company also earns royalty income from its licensing arrangements which qualify as functional licenses rather than symbolic licenses. Upon signing a new licensing agreement, we typically receive up-front fees, which are generally characterized as non-refundable royalties. These fees are recognized as revenue upon the execution of the license agreements. Minimum royalty fees are recognized once the Company has an enforceable right for payment. Sales-based royalty fees are typically recognized when the sales occur. We calculate and accrue estimated royalties based on the agreement terms and correspondence with the licensees regarding actual sales. Allowance for doubtful accounts is established based on estimates of losses related to customer receivable balances. Estimates are developed using either standard quantitative measures based on historical losses, adjusted for current economic conditions, or by evaluating specific customer accounts for risk of loss.

Accrued Program Costs— The Company offers various discounts to customers based on the volume purchased within a defined time period, other pricing adjustments, some grower volume incentives or other key performance indicator driven payments made to distributors, retailers or growers, usually at the end of a growing season. The Company describes these payments as "Programs." Programs are a critical part of doing business in both the U.S. crop and non-crop chemicals marketplaces. These discount Programs represent variable consideration. In accordance with ASC 606, revenues from sales are recorded at the net sales price, which is the transaction price, and includes estimates of variable consideration. Variable consideration includes amounts expected to be paid to its customers using the expected value method. Each quarter management compares individual sale transactions with Programs to determine what, if any, estimated program liabilities have been incurred. Once this initial calculation is made for the specific quarter, sales and marketing management, along with executive and financial management, review the accumulated Program balance and, for volume driven payments, make assessments of whether or not customers are tracking in a manner that indicates that they will meet the requirements set out in agreed upon terms and conditions attached to each Program. Following this assessment, management will make adjustments to the accumulated accrual to properly reflect the Company's best estimate of the liability at the balance sheet date. The majority of adjustments are made at, or close to, the end of the crop season, at which time customer performance can be more fully assessed. Programs are paid out predominantly on an annual basis, usually in the final quarter of the financial year or the first quarter of the following year. The Company recorded accrued programs of $47,699 at December 31, 2019, as compared to $37,349 at December 31, 2018.

Inventories — The Company values its inventories at lower of cost or net realizable value. Cost is determined by the first-in, first-out ("FIFO") or average cost method, including, as appropriate, material, labor, factory overhead and subcontracting services. The Company writes down and makes adjustments to its inventory net realizable value following assessments of slow moving and obsolete inventory and other annual adjustments to ensure that our standard costs continue to closely reflect manufacturing cost.

Property, Plant and Equipment and Depreciation— Property, plant and equipment includes the cost of land, buildings, machinery and equipment, office furniture and fixtures, automobiles, construction projects and significant improvements to existing plant and equipment. Interest costs related to significant construction projects are capitalized at the Company's current weighted average effective interest rate. Expenditures for minor repairs and maintenance are expensed as incurred. When property or equipment is sold or otherwise disposed of, the related cost and accumulated depreciation are removed from the respective accounts and the gain or loss realized on disposition is reflected in earnings. All plant and equipment assets are depreciated using the straight-line method, utilizing the estimated useful property lives. Once placed into service, building lives range from 10 to 30 years; machinery and equipment lives range from 3 to 15 years. During the years ended December 31, 2019, 2018 and 2017 the Company eliminated from assets and accumulated depreciation $868, $4,057, and $6,317, respectively, of fully depreciated assets.

Leases —The Company has operating leases for warehouses, manufacturing facilities, offices, cars, railcars and certain equipment. On January 1, 2019, the Company adopted the accounting and adoption guidance in ASC 842, Leases, for its operating leases resulting in the recognition of operating lease right-of-use (ROU) assets and lease liabilities on the effective date. The Company measures ROU assets throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. The lease liabilities are measured at the present value of the unpaid lease payments at the lease commencement date. Leases that include both lease and non-lease components are accounted for as a single lease component for each asset class, except for warehouses. The minimum payments under operating leases are recognized on a straight-line basis over the lease term in the consolidated statements of operations. Operating lease expenses related to variable lease payments are recognized in cost of sales or as operating expenses in a manner consistent with the nature of the underlying lease and as the events, activities, or circumstances in the lease agreement occur. Leases with a term of less than 12 months are not recognized on the consolidated balance sheets, and the related lease expenses are recognized in the consolidated statements of operations on a straight-line basis over the lease term. The accounting for leases requires management to exercise judgment and make estimates in determining the applicable discount rate, lease term and payments due under a lease. Most of our leases do not provide an implicit interest rate, nor is it available to us from our lessors. As an alternative, we use our estimated incremental borrowing rate, which is derived from information available at the lease commencement date, including publicly available data, in determining the present value of lease payments. We also estimated the fair value of the lease and non-lease components for some of our warehouse leases based on market data and cost data. The lease term includes the non-cancellable period of the lease plus any additional periods covered by either an option to extend (or not terminate) that the Company is reasonably certain to exercise. The Company has leases with a lease term ranging from 1 year to 20 years. The operating leases of the Company do not contain major restrictions or covenants such as those relating to dividends or additional financial obligations. Finance leases are immaterial to the condensed consolidated financial statements

Intangible Assets—The primary identifiable intangible assets of the Company relate to assets associated with its product and business acquisitions. All of the Company's intangible assets have finite lives and are amortized. The estimated useful life of an identifiable intangible asset to the Company is based upon a number of factors including the effects of demand, competition, and expected changes in the marketability of the Company's products.

Business Combinations—The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The Company's estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. In addition, uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluates these estimates and assumptions quarterly and records any adjustments to the Company's preliminary estimates to goodwill provided that the Company is within the measurement period. Upon the conclusion of the measurement period or final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Company's consolidated statement of operations.

In the event that the Company acquires an entity in which the Company previously held a non-controlling investment, the difference between the fair value and carrying value of the investment as of the date of the acquisition is recorded as a gain or loss and recorded within net income (loss) on equity method investments in the consolidated statement of operations.

Certain of our acquisition agreements include contingent earn-out arrangements, which are generally based on the achievement of future income thresholds. The fair values of these earn-out arrangements are included as part of the purchase price of the acquired companies on their respective acquisition dates. For each transaction, we estimate the fair value of contingent earn-out payments as part of the initial purchase price and record the estimated fair value of contingent consideration as a liability on the consolidated balance sheets.

We review and re-assess the estimated fair value of contingent consideration on a quarterly basis, and the updated fair value could be materially different from the initial estimates or prior quarterly amounts. Changes in the estimated fair value of our contingent earn-out liabilities are reported in operating results.

Asset Acquisitions—If an acquisition of an asset or group of assets does not meet the definition of a business, the transaction is accounted for as an asset acquisition rather than a business combination. An asset acquisition does not result in the recognition of goodwill and transaction costs are capitalized as part of the cost of the asset or group of assets acquired. The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The acquisitions costs are allocated to the assets acquired on a relative fair value basis. Certain of our acquisition agreements include contingent earn-out arrangements, which are recognized only when the contingency is resolved and the consideration is paid or becomes payable.

Impairment—The carrying values of long-lived assets other than goodwill are reviewed for impairment annually and/or whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. The Company evaluates recoverability of an asset group by comparing the carrying value to the future undiscounted cash flows that it expects to generate from the asset group. If the comparison indicates that the carrying value of an asset group is not recoverable, measurement of the impairment loss is based on the fair value of the asset. There were no circumstances that would indicate any impairment of the carrying value of these long-lived assets and no material impairment losses were recorded in 2019 or 2018.

The Company reviews goodwill for impairment utilizing either a qualitative or quantitative assessment. If the Company decides that it is appropriate to perform a qualitative assessment and concludes that the fair value of a reporting unit more likely than not exceeds its carrying value, no further evaluation is necessary. If the Company performs a quantitative assessment, the Company compares the fair value of a reporting unit with its carrying amounts and recognizes an impairment charge for the amount that the carrying amount exceeds the reporting unit's fair value. The Company annually tests goodwill for impairment at the beginning of the fourth quarter, or earlier if triggering events occur. The Company did not record any impairment losses in 2019 or 2018.

Fair Value of Financial Instruments—The accounting standard for fair value measurements provides a framework for measuring fair value and requires expanded disclosures regarding fair value measurements. Fair value is defined as the price that would be received for an asset or the exit price that would be paid to transfer a liability in the principal or most advantageous market in an orderly transaction between market participants on the measurement date. This accounting standard established a fair value hierarchy, which requires an entity to maximize the use of observable inputs, where available. The following summarizes the three levels of inputs required:

- Level 1 – Quoted prices in active markets for identical assets or liabilities.
- Level 2 – Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 – Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

The carrying amount of the Company's financial instruments, which principally include cash and cash equivalents, short-term investments, accounts receivable, long-term investments, accounts payable and accrued expenses approximates fair value because of the relatively short maturity of such instruments. The carrying amount of the Company's short-term and long-term borrowings, which are considered Level 2 liabilities, approximates fair value based upon current rates and terms available to the Company for similar debt.

We measure our contingent earn-out liabilities in connection with acquisitions at fair value on a recurring basis using significant unobservable inputs classified within Level 3 of the fair value hierarchy. We may use various valuation techniques depending on the terms and conditions of the contingent consideration including a Monte-Carlo simulation. This simulation uses probability distribution for each significant input to produce hundreds or thousands of possible outcomes and the results are analyzed to determine probabilities of different outcomes occurring.

Foreign Currency Translation—Certain international operations use the respective local currencies as their functional currency, while other international operations use the U.S. Dollar as their functional currency. The Company considers the U.S. dollar as its reporting currency. Translation adjustments for subsidiaries where the functional currency is its local currency are included in other comprehensive income (loss). Foreign currency transaction gains (losses) resulting from exchange rate fluctuation on transactions denominated in a currency other than the functional currency are reported in earnings. Assets and liabilities of the foreign operations denominated in local currencies are translated at the rate of exchange at the balance sheet date. Revenues and expenses are translated at the weighted average rate of exchange during the period. Translations of intercompany loans of a long-term investment nature are included as a component of translation adjustment in other comprehensive income (loss).

Income taxes—Income tax expense, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best estimate of current and future taxes to be paid. The Company is subject to income taxes in the U.S. and a number of foreign jurisdictions. The Company assessed the ability to realize deferred tax assets and determined that based on the available evidence, including a history of taxable income and estimates of future taxable income, it is more likely than not that the deferred tax assets will be realized. Significant management judgment is required in determining the provision for income taxes and deferred tax assets and liabilities. In the event that actual results differ from these estimates, we will adjust these estimates in future periods, which may result in a change in the effective tax rate in a future period. Accounting for income taxes involves uncertainty and judgment on how to interpret and apply tax laws and regulations within the Company's annual tax filings. Such uncertainties from time to time may result in a tax position that may be challenged and overturned by a tax authority in the future, which could result in additional tax liability, interest charges and possibly penalties. The Company classifies interest and penalties as a component of income tax expense.

ITEM 7A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is exposed to market risk related to changes in interest rates, primarily from its borrowing activities. The Company's indebtedness to its primary lender is evidenced by a line of credit with a variable rate of interest, which fluctuates with changes in the lender's reference rate (LIBOR). The Company may use derivative financial instruments for trading purposes to protect trading performance from exchange rate fluctuations on material contracts, though there are no such instruments in place during any periods presented in this Annual Report.

The Company conducts business in various foreign currencies, primarily when doing business in Europe, Mexico, Central and South America. Therefore, changes in the value of the currencies of such countries or regions affect the Company's financial position and cash flows when translated into U.S. Dollars. The Company has mitigated, and will continue to mitigate, a portion of its currency exchange exposure through natural hedges based on the operation of decentralized foreign operating companies in which the majority of all costs are local-currency-based. A 10% change in the value of all foreign currencies would have an immaterial effect on the Company's financial position and cash flows. As part of an on-going process of assessing business risk, management has identified risk factors which are disclosed in Item 1A. Risk Factors of this Report on Form 10-K.

ITEM 8 FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The Financial Statements and Supplementary Data required by this item are listed at Part IV, Item 15, Exhibits, and Financial Statement Schedules.

ITEM 9 CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Management, under the supervision of the Company's Chief Executive Officer and Chief Financial Officer, periodically evaluate the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)). Based upon this evaluation, as of December 31, 2019, the Chief Executive Officer and the Chief Financial Officer have concluded that these disclosure controls and procedures are effective in ensuring that the information required to be disclosed in reports filed under the Securities Exchange Act of 1934 is (i) recorded, processed, summarized and reported on a timely basis, and (ii) accumulated and communicated to the Company's management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934 for the Company. The Company's internal control system over financial reporting is designed to provide reasonable assurance to management and the Board of Directors as to the fair, reliable and timely preparation and presentation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America filed with the SEC.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even processes determined to be effective can provide only reasonable assurance with respect to the financial statement preparation and presentation.

Management conducted an evaluation of the Company's internal controls over financial reporting based on a framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control—Integrated Framework (2013)*. This evaluation included review of the documentation of controls, evaluation of the design effectiveness of controls, testing of the effectiveness of controls and a conclusion on the evaluation. Based on this evaluation, management believes that as of December 31, 2019, the Company's internal control over financial reporting is effective.

BDO USA, LLP, the independent registered public accounting firm that audited the consolidated financial statements included in the Annual Report on Form 10-K, was engaged to attest to and report on the effectiveness of AVD's internal control over financial reporting as of December 31, 2019. Its report is included herein.

Changes in Internal Controls over Financial Reporting

There were no changes in internal controls over financial reporting during the year ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
American Vanguard Corporation
Newport Beach, California

Opinion on Internal Control over Financial Reporting

We have audited American Vanguard Corporation's (the "Company's") internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedule listed in the accompanying index and our report dated March 10, 2020 expressed an unqualified opinion thereon.

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, included in the accompanying Item 9A, 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 of internal control over financial reporting 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/ BDO USA, LLP

Costa Mesa, California
March 10, 2020

ITEM 9B OTHER INFORMATION

None.

PART III

ITEM 10 DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information set forth under the captions "Executive Officers of the Company," "Election of Directors," "Information about the Board of Directors and Committees of the Board" and "Transactions with Management and Others—Section 16(a) Beneficial Ownership Reporting Compliance" in our definitive proxy statement for our Annual Meeting of Stockholders to be held on June 5, 2020 (the "Proxy Statement"), which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2019, is incorporated herein by reference.

ITEM 11 EXECUTIVE COMPENSATION

Except as specifically provided, the information set forth under the captions "Compensation of Executive Officers" and "Information about the Board of Directors and Committees of the Board—Compensation of Directors" in the Proxy Statement is incorporated herein by reference.

ITEM 12 SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The disclosure contained in Part II, Item 5 under "Equity Compensation Plan Information" is incorporated herein by reference. Information regarding security ownership of certain beneficial owners and management is incorporated by reference to the information set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" in the Proxy Statement.

ITEM 13 CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information set forth under the captions "Transactions with Management and Others" and "Information about the Board of Directors and Committees of the Board" in the Proxy Statement is incorporated herein by reference.

ITEM 14 PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information regarding principal accountant fees and services is incorporated herein by reference to the information set forth under the caption "Ratification of the Selection of Independent Registered Public Accounting Firm—Relationship of the Company with Independent Registered Public Accounting Firm" in the Proxy Statement.

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

PART IV

ITEM 15 EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

(a) The following documents are filed as part of this report:

Index to Consolidated Financial Statements and Supplementary Data:

Description	**Page No**
Financial Statement Schedule:	
Schedule II_A Valuation and Qualifying Accounts	35
Financial Statements:	
Report of Independent Registered Public Accounting Firm	37
Consolidated Balance Sheets as of December 31, 2019 and 2018	38
Consolidated Statements of Operations for the Years Ended December 31, 2019, 2018, and 2017	39
Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2019, 2018, and 2017	40
Consolidated Statements of Stockholders’ Equity for the Years Ended December 31, 2019, 2018 and 2017	41
Consolidated Statements of Cash Flows for the Years Ended December 31, 2019, 2018, and 2017	42
Notes to Consolidated Financial Statements	43

(b) Exhibits Index

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

EXHIBIT INDEX

ITEM 15

Exhibit Number	Description of Exhibit
3.1	Amended and Restated Certificate of Incorporation of American Vanguard Corporation (filed as Exhibit 3.1 to the Company's Form 10-K for the year ended December 31, 2003, which was filed on March 30, 2004 with the Securities Exchange Commission and incorporated herein by reference).
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation of American Vanguard Corporation (filed as Exhibit 3.2 to the Company's Form 10-Q/A for the period ended June 30, 2004, which was filed with the Securities Exchange Commission on February 23, 2005 and incorporated herein by reference).
3.3	Amended and Restated Bylaws of American Vanguard Corporation dated as of June 5, 2014 (filed as Exhibit 99.1 to the Company's Form 8-K, which was filed with the Securities Exchange Commission on June 7, 2014 and incorporated herein by reference.)
4	Form of Indenture (filed as Exhibit 4.4 to the Company's Registration Statement on Form S-3 (File No. 333-122981) and incorporated herein by reference).
10.1	American Vanguard Corporation Employee Stock Purchase Plan (filed as Appendix A to the Company's Proxy Statement filed with the Securities and Exchange Commission on April 23, 2018 and incorporated herein by reference).
10.2	American Vanguard Corporation Amended and Restated Stock Incentive Plan as of June 8, 2016 (filed as Appendix A to the Company's Proxy Statement filed with the Securities and Exchange Commission on April 25, 2016 and incorporated herein by reference).
10.3	Form of Incentive Stock Option Agreement under the American Vanguard Corporation Fourth Amended and Restated Stock Incentive Plan , (filed as Exhibit 10.3 with the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005 and incorporated herein by reference).
10.4	Form of Non-Qualified Stock Option Agreement under the American Vanguard Corporation Fourth Amended and Restated Stock Incentive Plan , (filed as Exhibit 10.4 with the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005 and incorporated herein by reference).
10.5	Employment Agreement between American Vanguard Corporation and Eric G. Wintemute dated January 15, 2008 (filed as Exhibit 10.5 to the Company's Annual Report on Form 10-K for the year ended December 31, 2007, which was filed with the Securities Exchange Commission on March 17, 2008 and incorporated herein by reference).
10.8	Form of Change of Control Severance Agreement, dated effective as of January 1, 2004, between American Vanguard Corporation and its executive and senior officers (filed as Exhibit 10.2 to the Company's Form 10-Q for the period ended March 31, 2004, which was filed with the Securities Exchange Commission on May 17, 2004 and incorporated herein by reference.)
10.9	Form of Amendment of Change of Control Severance Agreement, dated effective as of July 11, 2008, between American Vanguard Corporation and named executive officers and senior officers (filed as Exhibit 99.1 to the Company's Form 8-K, which was filed on July 11, 2008 with the Securities and Exchange Commission and incorporated herein by reference).
10.10	Form of Indemnification Agreement between American Vanguard Corporation and its Directors (as filed as Exhibit 10.7 to the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005 and incorporated herein by reference).
10.11	Description of Compensatory Arrangements Applicable to Non-Employee Directors (as set forth on page 34 of the Company's Proxy Statement which was filed with the Securities and Exchange Commission on April 22, 2019 and incorporated herein by reference).

Exhibit Number	Description of Exhibit
10.13	Form of Restricted Stock Agreement between American Vanguard Corporation and named executive officers (filed as Exhibit 99.1 to the Company's Form 8-K, which was filed with the Securities Exchange Commission on July 24, 2008 and incorporated herein by reference).
10.14	Form of Amended and Restated Change of Control Severance Agreement effective as of January 1, 2014 (filed as Exhibit 10.14 to the Company's 10-K, which was filed with the Securities Exchange Commission on February 28, 2014 and incorporated herein by reference).
10.15	Form of American Vanguard Corporation Amended and Restated Stock Incentive Plan TSR-Based Restricted Stock Units Award Agreement dated June 6, 2013 (filed as Exhibit 10.15 to the Company's 10-K, which was filed with the Securities Exchange Commission on February 28, 2014 and incorporated herein by reference).
10.16	Form of American Vanguard Corporation Amended and Restated Stock Incentive Plan Performance-Based Restricted Stock Units Award Agreement dated June 6, 2013 (filed as Exhibit 10.16 to the Company's 10-K, which was filed with the Securities Exchange Commission on February 28, 2014 and incorporated herein by reference).
10.17	Third Amendment to Second Amended and Restated Credit Agreement dated as of June 30, 2017 among AMVAC and certain affiliates on the other hand, and a group of commercial lenders led by Bank of the West as agent, swing line lender, and letter of credit issuer, on the other hand (filed as Exhibit 10.1 to the Company's Form 8-K, which was filed with the Securities Exchange Commission on July 6, 2017 and is incorporated herein by reference).
10.18	Fourth Amendment to Second Amended and Restated Credit Agreement dated as of November 27, 2019 among AMVAC and certain affiliates, on the one hand, and a group of commercial lenders led by Bank of the West as agent, swing line lender, and letter of credit issuer, on the other hand (filed herewith as Exhibit).
21	List of Subsidiaries of the Company.*
23	Consent of BDO USA, LLP, Independent Registered Public Accounting Firm.*
31.1	Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
31.2	Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
32.1	Certifications Pursuant to 18 U.S.C. Section 1350 as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.*
101	The following materials from American Vanguard Corp's Annual Report on Form 10-K for the year ended December 31, 2019, formatted in XBRL (Extensible Business Reporting Language): (i) Consolidated Balance Sheets; (ii) Consolidated Statements of Operations; (iii) Consolidated Statements of Stockholders' Equity; (iv) Consolidated Statements of Comprehensive Income; (v) Consolidated Statements of Cash Flows; and (vi) Notes to Consolidated Financial Statements, tagged as blocks of text.*

* Filed herewith.

(c) Valuation and Qualifying Accounts:

Schedule II-A—Valuation and Qualifying Accounts
Allowance for Doubtful Accounts Receivable (in thousands)

Fiscal Year Ended	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Deductions	Foreign exchange impact	Balance at End of Period
December 31, 2019	$ 1,263	1,035	—	2	$ 2,300
December 31, 2018	$ 46	1,217	—	—	$ 1,263
December 31, 2017	$ 42	31	(27)	—	$ 46

Inventory Reserve (in thousands)

Fiscal Year Ended	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
December 31, 2019	$ 1,989	573	(432)	$ 2,130
December 31, 2018	$ 3,137	476	(1,624)	$ 1,989
December 31, 2017	$ 3,594	—	(457)	$ 3,137

See accompanying report of independent registered public accounting firm on page 38 of this annual report.

ITEM 16 FORM 10-K SUMMARY

None

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, American Vanguard Corporation has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

AMERICAN VANGUARD CORPORATION

(Registrant)

By: /s/ ERIC G. WINTEMUTE
Eric G. Wintemute
Chief Executive Officer
and Chairman of the Board

March 10, 2020

By: /s/ DAVID T. JOHNSON
David T. Johnson
Chief Financial Officer
and Principal Accounting Officer

March 10, 2020

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 indicated.

By: /s/ ERIC G. WINTEMUTE
Eric G. Wintemute
Principal Executive Officer
and Chairman of the Board

March 10, 2020

By: /s/ DAVID T. JOHNSON
David T. Johnson
Principal Financial Officer
and Principal Accounting Officer

March 10, 2020

By: /s/ DEBRA EDWARDS
Debra Edwards
Director

March 10, 2020

By: /s/ JOHN L. KILLMER
John L. Killmer
Director

March 10, 2020

By: /s/ LAWRENCE S. CLARK
Lawrence S. Clark
Director

March 10, 2020

By: /s/ SCOTT D. BASKIN
Scott D. Baskin
Director

March 10, 2020

By: /s/ MORTON D. ERLICH
Morton D. Erlich
Director

March 10, 2020

By: /s/ ALFRED INGULLI
Alfred Ingulli
Director

March 10, 2020

By: /s/ ESMAIL ZIRAKPARVAR
Esmail Zirakparvar
Director

March 10, 2020

By: /s/ ÉMER GUNTER
Émer Gunter
Director

March 10, 2020

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
American Vanguard Corporation
Newport Beach, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of American Vanguard Corporation (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019**,** in conformity with accounting principles generally accepted in the United States of America.

We also have 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, 2019, based on criteria established in *Internal Control – Integrated Framework (2013*) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 10, 2020 expressed an unqualified opinion thereon.

Change in Accounting Method Related to Leases and Revenue

As discussed in the notes to the consolidated financial statements, the Company has changed its method of accounting for leases effective January 1, 2019 due to the adoption of Accounting Standards Codification ("ASC") 842, *Leases*.

As discussed in the notes to the consolidated financial statements, the Company has changed its method of accounting for revenue effective January 1, 2018 due to the adoption of ASC 606, *Revenue from Contracts with Customers*.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated 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 the 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 audit to obtain reasonable assurance about whether the consolidated 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 consolidated 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 consolidated 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 consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

We have served as the Company's auditor since 1991.

Costa Mesa, California
March 10, 2020

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
December 31, 2019 and 2018
(In thousands, except share data)

	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	$ 6,581	$ 6,168
Receivables:		
Trade, net of allowance for doubtful accounts of $2,300 and $1,263, respectively	136,075	123,320
Other	16,949	10,709
	153,024	134,029
Inventories, net	163,313	159,895
Prepaid expenses	10,457	10,096
Income taxes receivable	2,824	—
Total current assets	336,199	310,188
Property, plant and equipment, net	56,521	49,252
Operating lease right-of-use assets	11,258	—
Intangible assets, net	198,377	186,583
Goodwill	46,557	25,790
Other assets	21,186	21,774
Total assets	$ 670,098	$ 593,587
Liabilities and Stockholders' Equity		
Current liabilities:		
Current installments of other liabilities	$ 1,513	$ 1,609
Accounts payable	64,881	66,535
Deferred revenue	6,826	20,043
Accrued program costs	47,699	37,349
Accrued expenses and other payables	12,815	15,962
Operating lease liabilities, current	4,904	—
Income taxes payable	—	4,030
Total current liabilities	138,638	145,528
Long-term debt, net of deferred loan fees	148,766	96,671
Other liabilities, excluding current installments	12,890	6,795
Operating lease liabilities, long-term	6,503	—
Deferred income tax liabilities, net	19,145	15,363
Total liabilities	325,942	264,357
Commitments and contingent liabilities		
Stockholders' equity:		
Preferred stock, $.10 par value per share; authorized 400,000 shares; none issued	—	—
Common stock, $.10 par value per share; authorized 40,000,000 shares; issued 33,233,614 shares in 2019 and 32,752,827 shares in 2018	3,324	3,276
Additional paid-in capital	90,572	83,177
Accumulated other comprehensive loss	(5,698)	(4,507)
Retained earnings	274,118	262,840
	362,316	344,786
Less treasury stock at cost, 3,061,040 shares in 2019 and 2,902,992 shares in 2018	(18,160)	(15,556)
Total stockholders' equity	344,156	329,230
Total liabilities and stockholders' equity	$ 670,098	$ 593,587

See summary of significant accounting policies and notes to consolidated financial statements.

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
Years ended December 31, 2019, 2018 and 2017
(In thousands, except per share data)

	2019	2018	2017
Net sales	$ 468,186	$ 454,272	$ 355,047
Cost of sales	290,832	271,641	207,655
Gross profit	177,354	182,631	147,392
Operating expenses	151,133	143,610	120,598
Operating income	26,221	39,021	26,794
Change in fair value of derivative instrument	—	1,401	—
Interest expense, net	7,209	4,024	1,941
Income before provision for income taxes and loss on equity method investments	19,012	33,596	24,853
Provision for income taxes	5,202	9,145	4,443
Income before loss on equity method investments	13,810	24,451	20,410
Less net loss from equity method investments	209	389	49
Net income	13,601	24,062	20,361
Net loss (income) attributable to non-controlling interest	—	133	(87)
Net income attributable to American Vanguard	$ 13,601	$ 24,195	$ 20,274
Earnings per common share—basic	$ 0.47	$ 0.83	$ 0.70
Earnings per common share—assuming dilution	$ 0.46	$ 0.81	$ 0.68
Weighted average shares outstanding—basic	29,030	29,326	29,100
Weighted average shares outstanding—assuming dilution	29,656	30,048	29,703

See summary of significant accounting policies and notes to consolidated financial statements.

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years ended December 31, 2019, 2018 and 2017
(In thousands)

	2019	2018	2017
Net income	$ 13,601	$ 24,062	$ 20,361
Other comprehensive income			
Foreign currency translation adjustment	(1,191)	—	344
Comprehensive income	12,410	24,062	20,705
Less: Comprehensive income (loss) attributable to non-controlling interest	—	(133)	87
Comprehensive income attributable to American Vanguard	$ 12,410	$ 24,195	$ 20,618

See summary of significant accounting policies and notes to consolidated financial statements

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
Years ended December 31, 2019, 2018 and 2017
(In thousands, except share data)

	Common Stock		Additional Paid-in	Accumulated Other Comprehensive	Retained	Treasury Stock		AVD	Non-Controlling	
	Shares	**Amount**	**Capital**	**Income/(loss)**	**Earnings**	**Shares**	**Amount**	**Total**	**Interest**	**Total**
Balance, December 31, 2016	**31,819,695**	**$ 3,183**	**$ 71,699**	**$ (4,851)**	**$ 220,428**	**2,450,634**	**$ (8,269)**	**$282,190**	**$ 167**	**$282,357**
Stocks issued under ESPP	34,016	4	551	—	—	—	—	555	—	555
Cash dividends on common stock ($0.06 per share)	—	—	—	—	(1,749)	—	—	(1,749)	—	(1,749)
Foreign currency translation adjustment, net	—	—	—	344	—	—	—	344	—	344
Stock based compensation	—	—	4,714	—	—	—	—	4,714	—	4,714
Stock options exercised; grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	388,155	38	(1,306)	—	—	—	—	(1,268)	—	(1,268)
Net income	—	—	—	—	20,274	—	—	20,274	87	20,361
Balance, December 31, 2017	**32,241,866**	**3,225**	**75,658**	**(4,507)**	**238,953**	**2,450,634**	**(8,269)**	**305,060**	**254**	**305,314**
Adjustment to recognize new revenue recognition standard, net of tax	—	—	—	—	2,214	—	—	2,214	—	2,214
Adjustment to recognize new standard on taxes on foreign asset transfers	—	—	—	—	(180)	—	—	(180)	—	(180)
Stocks issued under ESPP	35,950	2	668	—	—	—	—	670	—	670
Cash dividends on common stock ($0.08 per share)	—	—	—	—	(2,342)	—	—	(2,342)	—	(2,342)
Stock based compensation	—	—	5,805	—	—	—	—	5,805	—	5,805
Stock options exercised; grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	475,011	49	998	—	—	—	—	1,047	—	1,047
Non-controlling interest			48					48	(121)	(73)
Shares repurchased	—	—	—	—	—	452,358	(7,287)	(7,287)		(7,287)
Net income	—	—	—	—	24,195	—	—	24,195	(133)	24,062
Balance, December 31, 2018	**32,752,827**	**3,276**	**83,177**	**(4,507)**	**262,840**	**2,902,992**	**(15,556)**	**329,230**	**-**	**329,230**
Stocks issued under ESPP	47,229	5	711	—	—	—	—	716	—	716
Cash dividends on common stock ($0.08 per share)	—	—	—	—	(2,323)	—	—	(2,323)	—	(2,323)
Foreign currency translation adjustment, net	—	—		(1,191)				(1,191)		(1,191)
Stock based compensation	—	—	7,160	—	—	—	—	7,160	—	7,160
Stock options exercised; grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	433,558	43	(476)	—	—	—	—	(433)	—	(433)
Shares repurchased	—	—	—	—	—	158,048	(2,604)	(2,604)	—	(2,604)
Net income	—	—	—	—	13,601	—	—	13,601	—	13,601
Balance, December 31, 2019	**33,233,614**	**$ 3,324**	**$ 90,572**	**$ (5,698)**	**$ 274,118**	**3,061,040**	**$(18,160)**	**$344,156**	**$ —**	**$344,156**

See summary of significant accounting policies and notes to consolidated financial statements

AMERICAN VANGUARD CORPORATION
AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
Years ended December 31, 2019, 2018 and 2017
(In thousands)

	2019	2018	2017
Increase cash			
Cash flows from operating activities:			
Net income	$ 13,601	$ 24,062	$ 20,361
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization of property, plant and equipment and intangible assets	18,643	18,891	16,959
Amortization of other long term assets	4,207	4,884	5,221
Amortization of discounted liabilities	72	359	110
Provision for bad debts	1,035	1,216	5
Reassessment of deferred consideration	(4,120)	(6,050)	—
Stock-based compensation	7,160	5,805	4,714
Increase (decrease) in deferred income taxes	2,616	(561)	398
Loss from equity method investments	209	389	49
Changes in assets and liabilities associated with operations, net of business combinations:			
(Increase) decrease in net receivables	(11,383)	(22,536)	749
(Increase) decrease in inventories	3,817	(31,440)	16,183
(Increase) decrease in income tax receivable, net	(6,855)	2,655	(12,073)
(Increase) decrease in prepaid expenses and other assets	(876)	186	647
Increase in net operating lease liability	149	—	—
Increase (decrease) in accounts payable	(7,977)	9,097	3,322
Increase (decrease) in deferred revenue	(13,355)	5,468	10,726
Increase (decrease) in accrued program costs	5,797	(1,705)	(4,529)
Increase (decrease) in other payables and accrued expenses	(3,337)	626	(3,841)
Net cash provided by operating activities	9,403	11,346	59,001
Cash flows from investing activities:			
Capital expenditures	(12,985)	(8,050)	(6,666)
Investments	—	—	(950)
Acquisitions of businesses and product lines, and intangible assets additions	(41,852)	(19,647)	(81,896)
Net cash used in investing activities	(54,837)	(27,697)	(89,512)
Cash flows from financing activities:			
Net borrowings under line of credit agreement	51,900	18,975	37,025
Debt issuance cost	—	—	(751)
Cash paid to acquire non-controlling interest	—	(73)	—
Payment on deferred consideration	(850)	—	(26)
Net receipt (payment) from the issuance of common stock (sale of stock under ESPP, exercise of stock options and shares purchased for tax withholding)	283	1,717	(713)
Repurchase of common stock	(2,604)	(7,287)	—
Payment of cash dividends	(2,323)	(2,199)	(1,600)
Net cash provided by financing activities	46,406	11,133	33,935
Net increase (decrease) in cash and cash equivalents	972	(5,218)	3,424
Effect of exchange rate changes on cash and cash equivalents	(559)	49	44
Cash and cash equivalents at beginning of year	6,168	11,337	7,869
Cash and cash equivalents at end of year	$ 6,581	$ 6,168	$ 11,337
Supplemental cash flow information:			
Cash paid during the year for:			
Interest	$ 7,121	$ 3,319	$ 1,500
Income taxes, net	$ 9,276	$ 8,449	$ 17,841
Non-cash investing activities:			
Consideration paid in January 2019 in connection with an asset acquisition completed in 2018	$ —	$ 3,530	$ —

See summary of significant accounting policies and notes to the consolidated financial statements

SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Years Ended December 31, 2019, 2018 and 2017
(Dollars in thousands, except share data)

Description of Business, Basis of Consolidation, Basis of Presentation and Significant Accounting Policies

American Vanguard Corporation (the "Company" or "AVD") is primarily a specialty chemical manufacturer that develops and markets safe and effective products for agricultural, commercial and consumer uses. The Company manufactures and formulates chemicals for crops, human and animal protection. The consolidated financial statements include the accounts of the Company and its subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. The Company operates within a single operating category.

All dollar amounts reflected in the notes to the consolidated financial statements are presented in thousands, except per share data.

Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable category. Selective enterprise information is as follows:

	2019	2018	2017
Net sales:			
Insecticides	$ 153,448	$ 150,595	$ 134,377
Herbicides/soil fumigants/fungicides	181,686	183,350	124,529
Other, including plant growth regulators	67,266	58,360	42,503
Total crop	402,400	392,305	301,409
Non-crop	65,786	61,967	53,638
	$ 468,186	$ 454,272	$ 355,047
Gross profit:			
Crop	$ 140,806	$ 150,986	$ 117,892
Non-crop	36,548	31,645	29,500
	$ 177,354	$ 182,631	$ 147,392

Due to elements inherent to the Company's business, such as differing and unpredictable weather patterns, crop growing cycles, changes in product mix of sales and ordering patterns that may vary in timing, measuring the Company's performance on a quarterly basis (for example, gross profit margins on a quarterly basis may vary significantly) even when such comparisons are favorable, is not as good an indicator as full-year comparisons.

Reclassifications—Certain prior years' amounts have been reclassified to conform to the current year's presentation.

Cost of Sales—In addition to normal cost centers (i.e., direct labor, raw materials formulated products), the Company also includes such cost centers as Health and Safety, Environmental, Maintenance and Quality Control in cost of sales.

Operating Expenses—Operating expenses include cost centers for Selling, General and Administrative, Research, Product Development, and Regulatory, and Freight, Delivery and Warehousing.

	2019	2018	2017
Selling	$ 45,121	$ 39,585	$ 29,112
General and administrative	46,593	42,981	37,660
Research, product development and regulatory	24,070	26,428	26,076
Freight, delivery and warehousing	35,349	34,616	27,750
	$ 151,133	$ 143,610	$ 120,598

Advertising Expense—The Company expenses advertising costs in the period incurred. Advertising expenses, which include promotional costs, are recognized in operating expenses (specifically in selling expenses) in the consolidated statements of operations and were \$5,520, \$4,865 and \$3,020 in 2019, 2018 and 2017, respectively.

Cash and cash equivalents—The Company's cash equivalents consist primarily of certificates of deposit with an initial term of less than three months. For purposes of the consolidated statements of cash flows, the Company considers all highly liquid debt instruments with original maturities of three months or less to be cash equivalents.

Inventories—The Company values its inventories at lower of cost or net realizable value. Cost is determined by the first-in, first-out ("FIFO") or average cost method, including material, labor, factory overhead and subcontracting services. The Company writes down and makes adjustments to its inventory carrying values as a result of net realizable value assessments of slow moving and obsolete inventory and other annual adjustments to ensure that our standard costs continue to closely reflect actual cost. The Company recorded an inventory reserve allowance of $2,130 at December 31, 2019, as compared to $1,989 at December 31, 2018.

The components of inventories, net of reserve allowance, consist of the following:

	2019	2018
Finished products	$ 151,917	$ 147,297
Raw materials	11,396	12,598
	$ 163,313	$ 159,895

Leases— The Company has operating leases for warehouses, manufacturing facilities, offices, cars, railcars and certain equipment. On January 1, 2019, the Company adopted the accounting and adoption guidance in Accounting Standards Codification ("ASC") 842, Leases, for its operating leases resulting in the recognition of operating lease right-of-use ("ROU") assets and lease liabilities on the effective date. The Company measures ROU assets throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. The lease liabilities are measured at the present value of the unpaid lease payments at the lease commencement date. Leases that include both lease and non-lease components are accounted for as a single lease component for each asset class, except for warehouse leases.

The minimum payments under operating leases are recognized on a straight-line basis over the lease term in the consolidated statements of operations. Operating lease expenses related to variable lease payments are recognized in cost of sales or as operating expenses in a manner consistent with the nature of the underlying lease and as the events, activities, or circumstances in the lease agreement occur. Leases with a term of less than 12 months are not recognized on the consolidated balance sheets, and the related lease expenses are recognized in the consolidated statements of operations on a straight-line basis over the lease term.

The accounting for leases requires management to exercise judgment and make estimates in determining the applicable discount rate, lease term and payments due under a lease. Most of our leases do not provide an implicit interest rate, nor is it available to us from our lessors. As an alternative, the Company uses our estimated incremental borrowing rate, which is derived from information available at the lease commencement date, including publicly available data, in determining the present value of lease payments. The Company also estimated the fair value of the lease and non-lease components for some of our warehouse leases based on market data and cost data.

The lease term includes the non-cancellable period of the lease plus any additional periods covered by either an option to extend (or not terminate) that the Company is reasonably certain to exercise. The Company has leases with a lease term ranging from 1 year to 20 years.

The operating leases of the Company do not contain major restrictions or covenants such as those relating to dividends or additional financial obligations. Finance leases are immaterial to the consolidated financial statements. There were no lease transactions with related parties during 2019 and 2018.

The operating lease expense for the year ended December 31, 2019 was $5,547. Lease expenses related to variable lease payments and short-term leases were immaterial. Additional information related to operating leases are as follows:

	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities	$ 5,398
ROU assets obtained in exchange for new liabilities	$ 3,580

The weighted-average remaining lease term and discount rate related to the operating leases as of December 31, 2019 were as follows:

Weighted-average remaining lease term (in years)	3.18
Weighted-average discount rate	3.68%

Future minimum lease payments under non-cancellable operating leases as of December 31, 2019 were as follows:

	December 31, 2019
2020	$ 5,200
2021	3,367
2022	1,754
2023	723
2024	322
Thereafter	794
Total lease payments	$ 12,160
Less: imputed interest	753
Total	$ 11,407
Amounts recognized in the consolidated balance sheet:	
Operating lease liabilities, current	$ 4,904
Operating lease liabilities, long term	$ 6,503

The adoption of ASC 842 did not have a material impact on 2019 operating results.

Revenue Recognition— In accordance with Accounting Standards Update ("ASU") No. 2014-09, "*Revenue from Contracts with Customers*,", and the related amendments. ("ASC 606"), the Company recognizes revenue when control of the promised goods or services is transferred to its customers in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported in accordance with the Company's previous revenue recognition methodology under ASC 605, *Revenue Recognition*.

The Company recognizes revenues from the sale of its products, which include insecticides, herbicides, soil fumigants, and fungicides. The Company sells its products to customers, which include distributors and retailers. In addition, the Company recognizes royalty income related to licensing arrangements which qualify as functional licenses rather than symbolic licenses. Upon signing a new licensing agreement, the Company typically receives up-front fees, which are generally characterized as non-refundable royalties. These fees are recognized as revenue upon the execution of the license agreements. Minimum royalty fees are recognized once the Company has an enforceable right for payment. Sales-based royalty fees are typically recognized when the sales occur. The Company calculates and accrues estimated royalties based on the agreement terms and correspondence with the licensees regarding actual sales. Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable segment. Selective enterprise information of sales disaggregated by category and geographic region is as follows:

	Year Ended December 31,	
	2019	**2018**
Net sales:		
Crop:		
Insecticides	$ 153,448	$ 150,595
Herbicides/soil fumigants/fungicides	181,686	183,350
Other, including plant growth regulators	67,266	58,360
Total crop	402,400	392,305
Non-crop	65,786	61,967
Total net sales	$ 468,186	$ 454,272
Net sales:		
U.S.	$ 282,225	$ 300,314
International	185,961	153,958
Total net sales	$ 468,186	$ 454,272
Timing of revenue recognition:		
Goods and services transferred at a point in time	$ 464,967	$ 453,449
Goods and services transferred over time	3,219	823
Total net sales	$ 468,186	$ 454,272

Performance Obligations

A performance obligation is a promise in a contract or sales order to transfer a distinct good or service to the customer and is the unit of account in ASC 606. A transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. Certain of the Company's sales orders have multiple performance obligations, as the promise to transfer individual goods or services is separately identifiable from other promises in the sales orders. For sales orders with multiple performance obligations, the Company allocates the sales order's transaction price to each performance obligation based on its relative stand-alone selling price. The stand-alone selling prices are determined based on the prices at which the Company separately sells these products. The Company's performance obligations are satisfied either at a point in time or over time as work progresses.

At December 31, 2019, the Company had $6,826 of remaining performance obligations, which are comprised of deferred revenue and services not yet delivered. The Company expects to recognize all these remaining performance obligations as revenue in fiscal 2020.

Contract Balances

The timing of revenue recognition, billings and cash collections may result in deferred revenue in the consolidated balance sheets. The Company sometimes receives payments from its customers in advance of goods and services being provided in return for early cash incentive programs, resulting in deferred revenues. These liabilities are reported on the consolidated balance sheets at the end of each reporting period. The contract assets in the table below are related to royalties earned on certain licenses granted for the use of the Company's intellectual property, which are reflected in other receivables in the consolidated balance sheets and recognized at a point in time and remain outstanding as of December 31, 2019 and 2018.

	December 31, 2019	**December 31, 2018**
Contract assets	$ 6,091	$ 3,750
Deferred revenue	$ 6,826	$ 20,043

Revenue recognized for the year ended December 31, 2019, that was included in the deferred revenue balance at the beginning of 2019 was $20,043.

Allowance for Doubtful Accounts—Allowance for doubtful accounts is established based on estimates of losses related to customer receivable balances. Estimates are developed using either standard quantitative measures based on historical losses, adjusted for current economic conditions, or by evaluating specific customer accounts for risk of loss.

Accrued Program Costs— The Company offers various discounts to customers based on the volume purchased within a defined time period, other pricing adjustments, some grower volume incentives or other key performance indicator driven payments made to distributors, retailers or growers, usually at the end of a growing season. The Company describes these payments as "Programs." Programs are a critical part of doing business in both the US crop and non-crop chemicals marketplaces. These discount Programs represent variable consideration. In accordance with ASC 606, revenues from sales are recorded at the net sales price, which is the transaction price net of the impact of Programs and includes estimates of variable consideration. Variable consideration includes amounts expected to be paid to its customers estimated using the expected value method. Each quarter management compares individual sale transactions with Programs to determine what, if any, estimated program liabilities have been incurred. Once this initial calculation is made for the specific quarter, sales and marketing management, along with executive and financial management, review the accumulated Program balance and, for volume driven payments, make assessments of whether or not customers are tracking in a manner that indicates that they will meet the requirements set out in agreed upon terms and conditions attached to each Program. Following this assessment, management will make adjustments to the accumulated accrual to properly reflect the Company's best estimate of the liability at the balance sheet date. The majority of adjustments are made at, or close to, the end of the crop season, at which time customer performance can be more fully assessed. Programs are paid out predominantly on an annual basis, usually in the final quarter of the financial year or the first quarter of the following year. The Company accrued program costs of $47,699 at December 31, 2019, as compared to $37,349 at December 31, 2018.

Property, Plant and Equipment and Depreciation— Property, plant and equipment includes the cost of land, buildings, machinery and equipment, office furniture and fixtures, automobiles, construction projects and significant improvements to existing plant and equipment. Interest costs related to significant construction projects are capitalized at the Company's current weighted average effective interest rate. Expenditures for minor repairs and maintenance are expensed as incurred. When property or equipment is sold or otherwise disposed of, the related cost and accumulated depreciation are removed from the respective accounts and the gain or loss realized on disposition is reflected in operations. All plant and equipment are depreciated using the straight-line method, utilizing the estimated useful property lives. See note 1 for useful lives.

Intangible Assets— The primary identifiable intangible assets of the Company relate to assets associated with its product and business acquisitions. All of the Company's intangible assets have finite lives and are amortized. The estimated useful life of an identifiable intangible asset to the Company is based upon a number of factors including the effects of demand, competition, and expected changes in the marketability of the Company's products.

Business Combinations— The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The Company's estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. In addition, uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluates these estimates and assumptions quarterly and records any adjustments to the Company's preliminary estimates to goodwill provided that the Company is within the measurement period. Upon the conclusion of the measurement period or final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Company's consolidated statement of operations.

In the event that the Company acquires an entity in which the Company previously held a non-controlling investment, the difference between the fair value and carrying value of the investment as of the date of the acquisition is recorded as a gain or loss and recorded within net income (loss) on equity method investments in the consolidated statement of operations.

Certain of our acquisition agreements include contingent earn-out arrangements, which are generally based on the achievement of future income thresholds. The fair values of these earn-out arrangements are included as part of the purchase price of the acquired companies on their respective acquisition dates. For each transaction, the Company estimate the fair value of contingent earn-out payments as part of the initial purchase price and record the estimated fair value of contingent consideration as a liability on the consolidated balance sheets.

We review and re-assess the estimated fair value of contingent consideration on a quarterly basis, and the updated fair value could be materially different from the initial estimates or prior quarterly amounts. Changes in the estimated fair value of our contingent earn-out liabilities are reported in operating results.

Asset Acquisitions— If an acquisition of an asset or group of assets does not meet the definition of a business, the transaction is accounted for as an asset acquisition rather than a business combination. An asset acquisition does not result in the recognition of goodwill and transaction costs are capitalized as part of the cost of the asset or group of assets acquired. The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The acquisitions costs are allocated to the assets acquired on a relative fair value basis.

Impairment— The carrying values of long-lived assets other than goodwill are reviewed for impairment annually and/or whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. The Company evaluates recoverability of an asset group by comparing the carrying value to the future undiscounted cash flows that it expects to generate from the asset group. If the comparison indicates that the carrying value of an asset group is not recoverable, measurement of the impairment loss is based on the fair value of the asset. There were no circumstances that would indicate any impairment of the carrying value of these long-lived assets and no material impairment losses were recorded in 2019 or 2018.

The Company reviews goodwill for impairment utilizing either a qualitative or quantitative assessment. If the Company decides that it is appropriate to perform a qualitative assessment and concludes that the fair value of a reporting unit more likely than not exceeds its carrying value, no further evaluation is necessary. If the Company performs a quantitative assessment, the Company compares the fair value of a reporting unit with its carrying amounts and recognizes an impairment charge for the amount that the carrying amount exceeds the reporting unit's fair value. The Company annually tests goodwill for impairment in beginning of the fourth quarter, or earlier if triggering events occur. The Company did not record any impairment losses in 2019 or 2018.

Fair Value of Financial Instruments— The accounting standard for fair value measurements provides a framework for measuring fair value and requires expanded disclosures regarding fair value measurements. Fair value is defined as the price that would be received for an asset or the exit price that would be paid to transfer a liability in the principal or most advantageous market in an orderly transaction between market participants on the measurement date. This accounting standard established a fair value hierarchy, which requires an entity to maximize the use of observable inputs, where available. The following summarizes the three levels of inputs required:

- Level 1 – Quoted prices in active markets for identical assets or liabilities.
- Level 2 – Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 – Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

The carrying amount of the Company's financial instruments, which principally include cash and cash equivalents, short-term investments, accounts receivable, long-term investments, accounts payable and accrued expenses approximates fair value because of the relatively short maturity of such instruments. The carrying amount of the Company's short-term and long-term borrowings, which are considered Level 2 liabilities, approximates fair value based upon current rates and terms available to the Company for similar debt.

We measure our contingent earn-out liabilities in connection with acquisitions at fair value on a recurring basis using significant unobservable inputs classified within Level 3 of the fair value hierarchy. We may use various valuation techniques depending on the terms and conditions of the contingent consideration including a Monte-Carlo simulation. This simulation uses probability distribution for each significant input to produce hundreds or thousands of possible outcomes and the results are analyzed to determine probabilities of different outcomes occurring. Refer to Note 9 for a reconciliation of the Company's deferred consideration.

Foreign Currency Translation— Certain international operations use the respective local currencies as their functional currency, while other international operations use the U.S. Dollar as their functional currency. The Company considers the U.S. dollar as its reporting currency. Translation adjustments for subsidiaries where the functional currency is its local currency are included in other comprehensive income (loss). Foreign currency transaction gains (losses) resulting from exchange rate fluctuation on transactions denominated in a currency other than the functional currency are reported in earnings. Assets and liabilities of the foreign operations denominated in local currencies are translated at the rate of exchange at the balance sheet date. Revenues and expenses are translated at the weighted average rate of exchange during the period. Translations of intercompany loans of a long-term investment nature are included as a component of translation adjustment in other comprehensive income (loss).

Income Taxes—The Company utilizes the liability method of accounting for income taxes as set forth in ASC 740. Under the liability method, deferred taxes are determined based on the temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the basis differences reverse. A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized. In determining the need for valuation allowances, the Company considers projected future taxable income and the availability of tax planning strategies. If in the future the Company determines that it would not be able to realize its recorded deferred tax assets, an increase in the valuation allowance would be recorded, decreasing earnings in the period in which such determination is made.

The Company assesses its income tax positions and records tax benefits for all years subject to examination based upon the Company's evaluation of the facts, circumstances and information available at the reporting date. For those tax positions where there is greater than 50% likelihood that a tax benefit will be sustained, the Company has recorded the largest amount of tax benefit that may potentially be realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. For those income tax positions where there is less than 50% likelihood that a tax benefit will be sustained, no tax benefit has been recognized in the consolidated financial statements. At December 31, 2019 and 2018, the Company recorded unrecognized tax benefits of $4,597 and $2,170, respectively.

Per Share Information—ASC 260 requires dual presentation of basic earnings per share ("EPS") and diluted EPS on the face of all consolidated statements of operations. Basic EPS is computed as net income divided by the weighted average number of shares of common stock outstanding during the period. Diluted EPS reflects potential dilution to EPS that could occur if securities or other contracts, which, for the Company, consists of restricted stock grants and options to purchase shares of the Company's common stock, are exercised as calculated using the treasury stock method.

The components of basic and diluted earnings per share were as follows:

	2019	2018	2017
Numerator:			
Net income attributable to American Vanguard	$ 13,601	$ 24,195	$ 20,274
Denominator:			
Weighted average shares outstanding—basic	29,030	29,326	29,100
Dilutive effect of stock options and grants	626	722	603
Weighted average shares outstanding—diluted	29,656	30,048	29,703

For the years ended December 31, 2019, 2018, and 2017, no options or grants were excluded from the computation.

Use of Estimates—The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities (including those related to litigation), and revenues, at the date that the consolidated financial statements are prepared. Significant estimates relate to the allowance for doubtful accounts, inventory reserves, impairment of long-lived assets, assets acquired and liabilities assumed in connections with business combinations and asset acquisitions, accrued program costs, and stock based compensation and income taxes. Actual results could materially differ from those estimates.

Total comprehensive income (loss)—In addition to net income, total comprehensive income (loss) includes changes in equity that are excluded from the consolidated statements of operations and are recorded directly into a separate section of stockholders' equity on the consolidated balance sheets. For the years ended December 31, 2019, 2018, and 2017 total comprehensive income (loss) consisted of net income attributable to AVD and foreign currency translation adjustments.

Stock-Based Compensation—The Company accounts for stock-based awards to employees and directors pursuant to ASC 718.

ASC 718 requires companies to estimate the fair value of share-based payment awards on the date of grant. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company's Consolidated Statements of Operations.

Stock-based compensation expense recognized during the period is based on the fair value of the portion of share-based payment awards that is ultimately expected to vest during the period. Stock-based compensation expense recognized is reduced for estimated forfeitures pursuant to ASC 718. Estimated forfeitures recognized in the Company's consolidated statements of operations reduced compensation expense by $191, $358, and $177 for the years ended December 31, 2019, 2018, and 2017, respectively. The Company estimates that 17.8% of all restricted stock grants and 17.8% of the performance-based restricted shares that are currently subject to vesting will be forfeited. These estimates are reviewed quarterly and revised as necessary.

The below tables illustrate the Company's stock based compensation, unamortized stock-based compensation, and remaining weighted average period for the years ended December 31, 2019, 2018 and 2017. This projected expense will change if any stock options and restricted stock are granted or cancelled prior to the respective reporting periods, or if there are any changes required to be made for estimated forfeitures.

	Stock-Based Compensation	Unamortized Stock-Based Compensation	Remaining Weighted Average Period (years)
December 31, 2019			
Restricted Stock	$ 3,655	$ 5,512	1.9
Unrestricted Stock	411	205	0.4
Performance-Based Restricted Stock	3,094	2,835	1.9
Total	$ 7,160	$ 8,552	
December 31, 2018			
Restricted Stock	$ 3,272	$ 5,006	1.3
Unrestricted Stock	385	160	0.4
Performance-Based Restricted Stock	2,148	2,565	1.9
Total	$ 5,805	$ 7,731	
December 31, 2017			
Incentive Stock Options	$ 345	$ —	—
Performance-Based Options	416	—	—
Restricted Stock	2,355	3,628	1.0
Unrestricted Stock	350	160	0.4
Performance-Based Restricted Stock	1,248	1,642	1.8
Total	$ 4,714	$ 5,430	

The Company uses the Black-Scholes option-pricing model ("Black-Scholes model") to value option grants using the following weighted average assumptions (i.e. risk-free interest rate, dividend yield, volatility and average lives). There were no stock options granted during 2019, 2018 or 2017.

The expected volatility and expected life assumptions are complex and use subjective variables. The variables take into consideration, among other things, actual and projected employee stock option exercise behavior. The Company estimates the expected term or vesting period using the "safe harbor" provisions of SAB 107 and SAB 110. The Company used historical volatility as a proxy for estimating expected volatility.

The Company values restricted stock grants using the Company's traded stock price on the date of grant. The weighted average grant-date fair values of restricted stock grants during 2019, 2018, and 2017 were $16.84, $20.21, and $16.24, respectively.

Recently Issued Accounting Guidance:

<u>*Accounting standards adopted in 2019:*</u>

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU 2016-02 and subsequent amendments, collectively known as ASC 842, Leases. ASC 842 requires recognition of operating leases as lease assets and liabilities on the balance sheet and requires the disclosure of key information about leasing arrangements. The Company elected to adopt ASC 842 by applying the modified transition method and, in addition, elected to use the effective date of January 1, 2019 as the initial date of application. We elected to apply all relevant practical expedients permitted under the transition guidance within the new lease standard with the exception of the practical expedient allowing the use of hindsight in determining the lease term and in assessing impairment. The new standard also provides practical expedients for an entity's ongoing accounting. We elected an accounting policy to keep leases with an initial term of 12 months or less off the balance sheet and to recognize those lease payments in the consolidated statements of operations on a straight-line basis over the lease term. We also elected the practical expedient to not separate lease and non-lease components for all our leases, except for warehouse leases.

The adoption of ASC 842 resulted in the recognition of operating lease ROU assets of $12,936 and operating lease liabilities of $12,936 on the effective date as of January 1, 2019. The new guidance did not have a material impact on the consolidated statement of operations or consolidated statement of cash flows. The accounting for finance leases under ASC 842 remained substantially unchanged from previous accounting guidance and are not material.

In January 2017, the FASB issued ASU 2017-04, *Intangibles-Goodwill and Other (ASC 350).* The FASB eliminated the Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities (including unrecognized assets and liabilities) following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Under this update, an entity should perform its goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount that the carrying amount exceeds the reporting unit's fair value. This update is effective for fiscal years beginning after December 15, 2019 with early adoption permitted after January 1, 2017. The Company adopted ASU 2017-04 as of January 1, 2019. The impact of the new standard will be dependent of the facts and circumstances of future individual impairments but did not have any immediate impact.

<u>*Accounting standards not yet adopted:*</u>

In June 2016, the FASB issued ASU 2016-13 "*Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*" which requires the measurement and recognition of expected credit losses for financial assets held at amortized cost. ASU 2016-13 replaces the existing incurred loss impairment model with an expected loss model, which requires the use of forward-looking information to calculate credit loss estimates. It also eliminates the concept of other-than-temporary impairment and requires credit losses related to available-for-sale debt securities to be recorded through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities. These changes will result in earlier recognition of credit losses. The Company will adopt ASU 2016-13 effective January 1, 2020 with the cumulative effect of adoption recorded as an adjustment to retained earnings and is in the process of determining the impact on its operating results, however, we do not expect the adoption of ASU 2016-13 to result in a material change to our consolidated financial statements.

In December 2019, the FASB issued ASU no. 2019-12, "*Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes,*" ("ASU No. 2019-12"). The amendment removes certain exceptions to the general income tax accounting methodology including an exception for the recognition of a deferred tax liability when a foreign subsidiary becomes an equity method investment and an exception for interim periods showing operating losses in excess of anticipated operating losses for the year. The amendment also reduces the complexity surrounding franchise tax recognition; the step up in the tax basis of goodwill in conjunction with business combinations; and the accounting for the effect of changes in tax laws enacted during interim periods. The amendments in this update are effective for the Company for fiscal years beginning after December 15, 2020, including interim periods within those years with early adoption permitted. The Company is evaluating the effect of adopting this new accounting guidance but does not expect adoption will have a material impact on the consolidated financial statements.

(1) Property, Plant and Equipment

Property, plant and equipment at December 31, 2019 and 2018 consist of the following:

	2019	2018	Estimated useful lives
Land	$ 2,706	$ 2,548	
Buildings and improvements	18,640	17,555	10 to 30 years
Machinery and equipment	116,757	109,064	3 to 15 years
Office furniture, fixtures and equipment	6,228	5,655	3 to 10 years
Automotive equipment	1,762	1,116	3 to 6 years
Construction in progress	5,263	2,513	
Total gross value	151,356	138,451	
Less accumulated depreciation	(94,835)	(89,199)	
Total net value	$ 56,521	$ 49,252	

For the years ended December 31, 2019, 2018, and 2017, the Company's aggregate depreciation expense related to property and equipment was $6,504, $8,142, and $8,154, respectively. For the years ended December 31, 2019, 2018, and 2017, the Company eliminated from assets and accumulated depreciation $868, $4,057 and $6,317 of fully depreciated assets, respectively.

(2) Long-Term Debt

Long-term debt of the Company at December 31, 2019 and 2018 is summarized as follows:

	2019	2018
Revolving line of credit	$ 149,300	$ 97,400
Less debt issuance costs	(534)	(729)
	$ 148,766	$ 96,671

Principal payments on long-term debt at December 31, 2019 of $149,300 are due in 2022.

As of June 30, 2017, AMVAC Chemical Corporation ("AMVAC"), the Company's principal operating subsidiary, as borrower, and affiliates (including the Company, AMVAC CV and AMVAC BV), as guarantors and/or borrowers, entered into a Third Amendment to Second Amended and Restated Credit Agreement with a group of commercial lenders led by Bank of the West as agent, swing line lender and Letter of Credit issuer. As of November 27, 2019, AMVAC, as borrower and certain affiliates, on the one hand, entered into a Fourth Amendment to Second Amended and Restated Credit Agreement with a group of commercial lenders led by Bank of the West as agent, swing line lender and Letter of Credit under the terms of which the maximum limits for both Permitted Acquisitions and Investments in Foreign Subsidiaries were increased and new language was added with respect to Eurocurrency Rates, LIBOR Rates and ERISA. The Third and Fourth Amendments, taken together, constitute the Credit Agreement.

The Credit Agreement is a senior secured lending facility, consisting of a line of credit of up to $250,000, an accordion feature of up to $100,000 and a maturity date of June 30, 2022. The Credit Agreement contains two key financial covenants; namely, borrowers are required to maintain a Consolidated Funded Debt Ratio of no more than 3.25-to-1 and a Consolidated Fixed Charge Covenant Ratio of at least 1.25-to-1. The Company's borrowing capacity varies with its financial performance, measured in terms of EBITDA as defined in the Credit Agreement, for the trailing twelve-month period. Under the Credit Agreement, revolving loans bear interest at a variable rate based, at borrower's election with proper notice, on either (i) LIBOR plus the "Applicable Rate" which is based upon the Consolidated Funded Debt Ratio ("Eurocurrency Rate Loan") or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month LIBOR Rate plus 1.00%, plus, in the case of (x), (y) or (z) the Applicable Rate ("Alternate Base Rate Loan"). Interest payments for Eurocurrency Rate Loans are payable on the last day of each interest period (either one, two, three or six months, as selected by the borrower) and the maturity date, while interest payments for Alternate Base Rate Loans are payable on the last business day of each month and the maturity date. The interest rate on December 31, 2019 was 3.74%.

At December 31, 2019, according to the terms of the Credit Agreement and based on our performance against the most restrictive covenant listed above, the Company had the capacity to increase its borrowings by up to $26,977. This compares to an available borrowing capacity of $112,150 as of December 31, 2018. The level of borrowing capacity is driven by three factors: (1) our financial performance, as measured in EBITDA for trailing twelve-month period, (2) the inclusion of proforma EBITDA related to acquisitions completed during the preceding twelve months and (3) the leverage covenant (being the number of times EBITDA the Company may borrow under its credit facility agreement). The Company was in compliance with all the debt covenants as of December 31, 2019.

Substantially all of the Company's assets are pledged as collateral under the Credit Agreement.

(3) Income Taxes

The provisions for income taxes are:

	2019	2018	2017
Current:			
Federal	$ (235)	$ 5,641	$ 2,124
State	(151)	1,777	1,347
Foreign	2,956	2,121	570
Deferred:			
Federal	2,867	650	160
State	1,548	(365)	242
Foreign	(1,783)	(679)	—
	$ 5,202	$ 9,145	$ 4,443

Total income tax expense differed from the amounts computed by applying the U.S. Federal income tax rate of 21.0% in 2019 and 2018 and 35% in 2017 to income before income tax expense, as a result of the following:

	2019	2018	2017
Computed tax expense at statutory federal rates	$ 3,993	$ 7,054	$ 8,651
Increase (decrease) in taxes resulting from:			
State taxes, net of federal income tax benefit	1,131	1,627	988
Domestic production deduction	—	—	(150)
Impact of the enactment of the Tax Cuts and Jobs Act (net)	—	1,089	(3,433)
Income tax credits	(819)	(689)	(431)
Foreign tax rate differential	341	(37)	(1,503)
Subpart F income	—	14	3
(Gain) loss on equity investments	—	(61)	62
Stock based compensation	366	277	262
Global intangible low-taxed income	249	—	—
Other	(59)	(129)	(6)
	$ 5,202	$ 9,145	$ 4,443

Income before provision for income taxes and losses on equity investments are:

	2019	2018	2017
Domestic	$ 15,465	$ 26,124	$ 18,931
Foreign	3,547	7,472	5,922
	$ 19,012	$ 33,596	$ 24,853

Temporary differences between the financial statement carrying amounts and tax bases of assets and liabilities that give rise to significant portions of the net deferred tax liability at December 31, 2019 and 2018 relate to the following:

	2019	2018
Deferred tax asset		
Inventories	$ 2,912	$ 3,299
State income taxes	328	53
Program accrual	7,529	7,088
Vacation pay accrual	756	685
Accrued bonuses	599	1,246
Bad debt expense	627	294
Stock compensation	2,755	1,723
NOL carryforward	1,141	580
Tax credits	824	779
Lease liability	3,308	—
Other	209	266
Deferred tax asset	$ 20,988	$ 16,013
Deferred tax liability		
Plant and equipment, principally due to differences in depreciation and capitalized interest	$ 35,545	$ 30,269
Lease asset	3,265	—
Prepaid expenses	1,323	1,107
Deferred tax liability	$ 40,133	$ 31,376
Total net deferred tax liability	$ 19,145	$ 15,363

The following is a roll-forward of the Company's total gross unrecognized tax benefits, not including interest and penalties, for the years ended December 31, 2019 and 2018:

	2019	2018
Balance at beginning of year	$ 2,170	$ 2,118
Additions for tax positions related to the current year	155	128
Additions for tax positions related to the prior years	27	24
Additions for tax positions related to acquired businesses	2,458	—
Reduction for tax positions related to the prior years	(213)	(100)
Balance at end of year	$ 4,597	$ 2,170

The Company recognizes accrued interest and penalties related to unrecognized tax benefits in the provision for income taxes in the Company's consolidated financial statements. For the years ended December 31, 2019, 2018, and 2017 the Company had recognized approximately $6,877, $2,368, and $2,257 respectively in interest and penalties related to unrecognized tax benefits.

It is expected that the amount of unrecognized tax benefits will change within the next twelve months; however, we do not expect the change to have a significant impact on our consolidated financial statements. At this time, an estimate of the range of the reasonable possible outcomes cannot be made.

The Company believes it is more likely than not that the deferred tax assets detailed in the table above will be realized in the normal course of business. It is the intent of the Company that undistributed earnings of foreign subsidiaries are permanently reinvested. The amount of undistributed earnings was $5,315 as of December 31, 2019. Upon distribution of earnings in the form of dividends or otherwise, the Company may still be subject to state income taxes and withholding taxes payable to the various foreign countries. Determination of the unrecognized deferred tax liability is not practical due to the complexities of a hypothetical calculation.

The Company is subject to U.S. federal income tax as well as to income tax in multiple state jurisdictions. Federal income tax returns of the Company are subject to IRS examination for the 2016 through 2018 tax years. State income tax returns are subject to examination for the 2015 through 2018 tax years. The Company has other foreign income tax returns subject to examination.

The Company has been notified by the Florida Department of Revenue of its intent to examine the Company's state income tax returns for the years ended December 31, 2012 through December 31, 2013 and December 31, 2015 through December 31, 2018. The Company has also been notified by the Department of Revenue State of Mississippi of its intent to examine the Company's state income tax returns for the years ended December 31, 2015 through December 31, 2017. Currently the results of these audits are not determinable since the audits are presently in the initial phases.

On November 9, 2018, the Company completed the purchase of all of the outstanding shares of TyraTech, Inc., a loss corporation. The Company obtained approximately $3,971 of usable federal net operating losses through the acquisition. The Internal Revenue Code of 1986, as amended, imposes restrictions on the utilization of NOLs in the event of an "ownership change" of a corporation. During 2019, the Company completed the Section 382 analysis and determined that the utilization of the losses is subject to an annual limitation of $162, with an additional $890 of net operating losses available over the first five years after the ownership change.

(4) Litigation and Environmental

A. DBCP Cases

Over the course of the past 30 years, AMVAC and/or the Company have been named or otherwise implicated in a number of lawsuits concerning injuries allegedly arising from either contamination of water supplies or personal exposure to 1, 2-dibromo-3-chloropropane ("DBCP"). DBCP was manufactured by several chemical companies, including Dow Chemical Company, Shell Oil Company and AVD and was approved by the USEPA to control nematodes. DBCP was also applied on banana farms in Latin America. The USEPA suspended registrations of DBCP in October 1979, except for use on pineapples in Hawaii. That suspension was partially based on 1977 studies by other manufacturers that indicated a possible link between male fertility and exposure to DBCP among their factory production workers involved with producing it.

At present, there are three domestic lawsuits and approximately 85 Nicaraguan lawsuits filed by former banana workers in which AMVAC has been named as a party. Only two of the Nicaraguan actions have actually been served on AMVAC. With respect to Nicaraguan matters, there was no change in status during 2019. As described more fully below, activity in domestic cases during 2019 is as follows. The two cases remaining in Delaware includes 287 plaintiffs who have appealed a lower court finding that the matter was barred by the statute of limitations; these matters (Chavez and Marquinez) have been remanded to the trial court, following a ruling by the Delaware Supreme Court on recognizing the doctrine of cross-jurisdictional tolling. In Hawaii, in the matter of Patrickson, et. al. v. Dole Food Company, the parties have stipulated that the Company shall be dismissed, insofar as it was not a party to the class action case that tolled the statute of limitations. In Adams (also in Hawai'i), there has been no activity since 2014, when the court granted dismissal of co-defendant Dole on the basis of a worker's compensation bar and gave plaintiffs leave to amend their complaint in light of that ruling. Finally, plaintiffs in Chaverri, which had been dismissed by the Superior Court of the State of Delaware in 2012 for failure to meet the applicable statute of limitations, have brought a motion to vacate the dismissal on the ground that the matter should be subject to trial on the merits under the principle of cross-jurisdictional tolling. That motion was denied and is now on appeal.

Nicaraguan Matters

A review of court filings in Chinandega, Nicaragua, has found 85 suits alleging personal injury allegedly due to exposure to DBCP and involving approximately 3,592 plaintiffs have been filed against AMVAC and other parties. Of these cases, only two – Flavio Apolinar Castillo et al. v. AMVAC et al., No. 535/04 and Luis Cristobal Martinez Suazo et al. v. AMVAC et al., No. 679/04 (which were filed in 2004 and involve 15 banana workers) – have been served on AMVAC. All but one of the suits in Nicaragua have been filed pursuant to Special Law 364, an October 2000 Nicaraguan statute that contains substantive and procedural provisions that Nicaragua's Attorney General previously expressed as unconstitutional. Each of the Nicaraguan plaintiffs' claims $1,000 in compensatory damages and $5,000 in punitive damages. In all of these cases, AMVAC is a joint defendant with Dow Chemical Company and Dole Food Company, Inc. AMVAC contends that the Nicaragua courts do not have jurisdiction over it and that Public Law 364 violates international due process of law. AMVAC has objected to personal jurisdiction and demanded under Law 364 that the claims be litigated in the U.S.. In 2007, the court denied these objections, and AMVAC appealed the denial. It is not presently known as to how many of these plaintiffs actually claim exposure to DBCP at the time AMVAC's product was allegedly used nor is there any verification of the claimed injuries. Further, to date, plaintiffs have not had success in enforcing Nicaraguan judgments against domestic companies before U.S. courts. With respect to these Nicaraguan matters, AMVAC intends to defend any claim vigorously. Furthermore, the Company does not believe that a loss is either probable or reasonably estimable and has not recorded a loss contingency for these matters.

Delaware DBCP Cases

Chavez. On or about May 31, 2012, HendlerLaw, P.C. filed several actions involving claims for personal injury allegedly arising from exposure to DBCP on behalf of 230 banana workers from Costa Rica, Ecuador and Panama. Defendant Dole subsequently brought a motion to dismiss these matters under the "first-to-file" theory of jurisdiction, specifically in light of the fact that they involved identical claims and claimants as matters that had been brought by the same law firm in Louisiana. These Delaware matters were consolidated into one matter ("Chavez"). On August 21, 2012, the U.S. District Court in Chavez granted defendants' motion to dismiss the actions with prejudice, finding that the same claimants and claims had been pending in the Hendler-Louisiana cases where they had been first filed. However, plaintiffs appealed the dismissal, and on September 2, 2016, the Third Circuit Court reversed the District Court decision, finding that it was not proper for the trial court to have dismissed these cases with prejudice even though the Louisiana courts had dismissed the same claims for expiration of the statute of limitations. In reaching its decision, the Third Circuit reasoned that no court had yet addressed the merits of the matter, that Delaware's statute of limitations may differ from that of Louisiana, and that it would have been proper for the Delaware trial court to have dismissed the matter without prejudice (that is, with the right to amend and refile). Accordingly, Chavez was remanded to the U.S. District Court in Delaware on September 2, 2016, where it remained until it was stayed in June 2017 (as indicated in "Marquinez" below) and subsequently reactivated in March 2018.

Marquinez. On or about May 31, 2012, two cases (captioned Abad Castillo and Marquinez, hereafter "Marquinez") were filed with the U.S. District Court for the District of Delaware (USDC DE No. 1:12-CV-00695-LPS) involving claims for physical injury arising from alleged exposure to DBCP over the course of the late 1960's through the mid-1980's on behalf of 2,700 banana plantation workers from Costa Rica, Ecuador, Guatemala, and Panama. Defendant Dole brought a motion to dismiss 22 plaintiffs from Abad Castillo on the ground that they were parties in cases that had been filed by HendlerLaw, P.C. in Louisiana. On September 19, 2013, the appeals court granted, in part, and denied, in part, the motion to dismiss, holding that 14 of the 22 plaintiffs should be dismissed. On May 27, 2014, the district court granted Dole's motion to dismiss the matter without prejudice on the ground that the applicable statute of limitations had expired in 1995. Then, on August 5, 2014, the parties stipulated to summary judgment in favor of defendants (on the same ground as the earlier motion) and the court entered judgment in the matter. Plaintiffs were given an opportunity to appeal; however, only 57 of the 2,700 actually entered an appeal. Thus, only 57 plaintiffs remain in Marquinez.

On or about June 18, 2017, the Third Circuit Court submitted a certified question of law to the Delaware Supreme Court on the question of when the tolling period ended. At that time, as mentioned above, the Chavez case had been stayed, pending the ruling of the state's highest court. The Delaware Supreme Court heard oral argument on January 17, 2018 and, on March 15, 2018 ruled on the matter, finding that federal court dismissal in 1995 on the grounds of forum non conveniens did not end class action tolling, and that such tolling ended when class action certification was denied in Texas state court in June 2010. Thus, both Marquinez and Chavez were remanded to the district court, following the appeals court's receipt of the ruling. Discovery has commenced, and the court is considering proposed schedules for completing discovery over the next 24 months. At this stage, defendants have identified multiple claimants whose medical examinations disqualify them from discovery. Plaintiffs seek to complete a limited number of medical examinations in each country in order to enable a representative subgroup of claimants to proceed with the litigation, while defendants seek to complete all medical examinations before proceeding. Further, in December 2019, defendants brought a motion to the effect that damages should be adjudicated as per local law (e.g., Ecuadorian). At this stage in the proceedings, the Company does not believe that a loss is probable or reasonably estimable and has not recorded a loss contingency for these matters.

Chaverri. This matter involves 258 plantation workers from Costa Rica, Ecuador and Panama alleging physical injury from DBCP in the late 1970's, was originally filed in the state of Texas in 1993, then underwent a tortuous series of law and motion developments until it was ultimately refiled in May 2012 by the Hendler firm in the Superior Court of the State of Delaware as Chaverri et al. v. Dole Food Company, Inc. et al. (including AMVAC) (N12C-06-017 ALR), where it was subsequently dismissed with prejudice in August 2012 under the statute of limitations. In light of the Delaware Supreme Court's adoption of cross-jurisdictional tolling, however, in January 2019, plaintiffs filed a motion to vacate the dismissal, arguing that the matter had been dismissed on a basis which the Delaware Supreme Court no longer recognizes without ever having been adjudicated as to the merits. On November 8, 2019, the court denied plaintiff's motion to vacate on the grounds that the motion was untimely, and plaintiffs had presented no extraordinary circumstances to support this unusual remedy. Plaintiffs have filed a notice of appeal of the court's order with the Supreme Court of Delaware. The Company believes that a loss is neither probable nor reasonably estimable and has not recorded a loss contingency.

Hawaiian DBCP Matters

Patrickson, et. al. v. Dole Food Company, et al. In October 1997, AMVAC was served with two complaints in which it was named as a defendant, filed in the Circuit Court, First Circuit, State of Hawai'i and in the Circuit Court of the Second Circuit, State of Hawai'i (two identical suits) entitled Patrickson, et. al. v. Dole Food Company, et. al ("Patrickson Case") alleging damages sustained from injuries (including sterility) to banana workers caused by plaintiffs' exposure to DBCP while applying the product in their native countries. Other named defendants include: Dole Food Company, Shell Oil Company and Dow Chemical Company. After several years of law and motion activity, the court granted judgment in favor of the defendants based upon the statute of limitations on July 28, 2010. On August 24, 2010, the plaintiffs filed a notice of appeal. On April 8, 2011, counsel for plaintiffs filed a pleading to withdraw and to substitute new counsel. On October 21, 2015, the Hawai'i Supreme Court granted the appeal and overturned the lower court decision, ruling that the State of Hawai'i now recognizes cross-jurisdictional tolling (that is, the principle under which the courts of one state recognize another state's common law on the tolling of statutes of limitation), that plaintiffs filed their complaint within the applicable statute of limitations and that the matter is to be remanded to the lower court for further adjudication. However, in November 2018, the parties stipulated that, because it was not named as a defendant in the Carcamo matter (class action matter that gave rise to the tolling of the statute of limitations), AMVAC should be dismissed from this matter. Thus, we expect that the Company will be dismissed with prejudice from this action as soon as the court issues an order to that effect.

Adams v. Dole Food Company et al. On approximately November 23, 2007, AMVAC was served with a suit filed by two former Hawaiian pineapple workers (and their spouses), alleging that they had testicular cancer due to DBCP exposure; the action is captioned Adams v. Dole Food Company et al in the First Circuit for the State of Hawaii. Plaintiff alleges that they were exposed to DBCP between 1971 and 1975. AMVAC denies that any of its product could have been used at the times and locations alleged by these plaintiffs. Following the dismissal of Dole Food Company on the basis of the exclusive remedy of worker's compensation benefits, plaintiffs appealed the dismissal. The court of appeals subsequently remanded the matter to the lower court in February 2014, effectively permitting plaintiffs to amend their complaint to circumvent the workers' compensation bar. There has been no activity in the case since that time, and the Company does not believe that a loss is either probable or reasonably estimable and has not recorded a loss contingency for this matter.

B. Other Matters

EPA FIFRA/RCRA Matter. On November 10, 2016, the Company was served with a grand jury subpoena out of the U.S. District Court for the Southern District of Alabama in which the U.S. Department of Justice ("DoJ") sought production of documents relating to the Company's reimportation of depleted Thimet containers from Canada and Australia. The Company retained defense counsel to assist in responding to the subpoena and otherwise defending the Company's interests. Over the course of the past two years, government attorneys have interviewed several individuals who may be knowledgeable of the matter and have sought and received documents from the Company. At this stage, DoJ has not made clear its intentions with regard to either its theory of the case or potential criminal enforcement. Thus, it is too early to tell whether a loss is probable or reasonably estimable. Accordingly, the Company has not recorded a loss contingency on this matter.

In a matter arising from similar facts, USEPA Region 5 contacted the Company's legal representatives in November 2019 to commence discussions on the resolution of potential civil enforcement claims that could be brought against the Company arising from its reimportation of depleted Thimet containers and the disposition of the contents of such containers in 2015. After negotiation, the Company and USEPA have entered into a consent agreement and final order ("CAFO"), including payment of a civil penalty in an amount that is not material to the Company's financial performance.

Harold Reed v. AMVAC et al. During January 2017, the Company was served with two Statements of Claim that had been filed on March 29, 2016 with the Court of Queen's Bench of Alberta, Canada (as case numbers 160600211 and 160600237) in which plaintiffs Harold Reed (an applicator) and 819596 Alberta Ltd. dba Jem Holdings (an application equipment rental company) allege physical injury and damage to equipment, respectively, arising from a fire that occurred during an application of the Company's potato sprout inhibitor, SmartBlock, at a potato storage facility in Coaldale, Alberta on April 2, 2014. Plaintiffs allege, among other things, that AMVAC was negligent and failed to warn them of the risks of such application. Reed seeks damages of $250 for pain and suffering, while Jem Holdings seeks $60 in lost equipment; both plaintiffs also seek unspecified damages as well. Also during January 2017, the Company received notice that four related actions relating to the same incident were filed with the same court: (i) Van Giessen Growers, Inc. v Harold Reed et al (No. 160303906)(in which grower seeks $400 for loss of potatoes); (ii) James Houweling et al. v. Harold Reed et al. (No. 160104421)(in which equipment owner seeks damages for lost equipment); (iii) Chin Coulee Farms, etc. v. Harold Reed et al. (No. 150600545)(in which owner of potatoes and truck seeks $530 for loss thereof); and (iv) Houweling Farms v. Harold Reed et al. (No. 15060881)(in which owner of several Quonset huts seeks damages for lost improvements, equipment and business income equal to $4,300). The Company was subsequently named as cross-defendant in those actions by Reed. During the third quarter of 2017, counsel for the Company filed a Statement of Defence (the Canadian equivalent of an answer), alleging that Reed was negligent in his application of the product and that the other cross-defendants were negligent for using highly flammable insulation and failing to maintain sparking electrical fixtures in the storage units affected by the fire. The parties have exchanged written discovery, and depositions of persons most knowledgeable took place during the first quarter of 2019. Citing the length of the cases' pendency and the expense, in December 2019, plaintiff Reed voluntarily dismissed two actions (160600211 and 160600237) for no consideration. With respect to the remaining actions, further depositions are scheduled during mid-year 2020. The Company believes that the claims against it in the remaining matters are without merit and intends to defend them vigorously. At this stage in the proceedings, the Company does not believe that a loss is probable or reasonably estimable; accordingly, the Company has not recorded a loss contingency.

(5) Employee Deferred Compensation Plan and Employee Stock Purchase Plan

The Company maintains a deferred compensation plan ("the Plan") for all eligible employees. The Plan calls for each eligible employee, at the employee's election, to participate in an income deferral arrangement under Internal Revenue Code Section 401(k). The plan allows eligible employees to make contributions which cannot exceed 100% of compensation, or the annual dollar limit set by the Internal Revenue Code. The Company matches the first 5% of employee contributions. The Company's contributions to the Plan amounted to $1,997, $1,914 and $1,550 in 2019, 2018 and 2017, respectively.

During 2001, the Company's Board of Directors adopted the AVD Employee Stock Purchase Plan (the "ESPP Plan"). The Plan allows eligible employees to purchase shares of common stock through payroll deductions at a discounted price. An original aggregate number of approximately 1,000,000 shares of the Company's Common Stock, par value $0.10 per share (subject to adjustment for any stock dividend, stock split or other relevant changes in the Company's capitalization) were allowed to be sold pursuant to the Plan, which is intended to qualify under Section 423 of the Internal Revenue Code. The Plan allows for purchases in a series of offering periods, each six months in duration, with new offering periods (other than the initial offering period) commencing on January 1 and July 1 of each year. The initial offering period commenced on July 1, 2001. Pursuant to action taken by the Company's Board of Directors in December 10, 2010, the expiration of the Plan was extended to December 31, 2013. The Plan was amended and restated on June 30, 2011 following stockholders' ratification of the extended expiration date. The Plan was amended as of June 6, 2018 following stockholders' ratification of a ten-year extension to the expiration date (which now stands at December 31, 2028). Under the Plan, as amended as of June 6, 2018, 995,000 shares of the Company's common stock were authorized. As of December 31, 2019, 2018, and 2017, 643,630, 690,859, and 726,809 shares, respectively, remained available under the plan. The expense recognized under the Plan was immaterial during the years ended December 31, 2019, 2018 and 2017, respectively.

Shares of common stock purchased through the Plan in 2019, 2018 and 2017 were 47,229, 35,950 and 34,016, respectively.

(6) Major Customers and International Sales

In 2019, there were three customers that accounted for 18%, 14% and 7%, respectively, of the Company's consolidated sales. In 2018, there were three customers that accounted for 12%, 9%, and 8% of the Company's consolidated sales. In 2017, there were three customers that accounted for 13%, 10% and 10% of the Company's consolidated sales.

The Company primarily sells its products to large distributors, buying cooperatives and other co-operative groups and extends credit based on an evaluation of the customer's financial condition. The Company had three significant customers who each accounted for approximately 13%, 12% and 6% of the Company's receivables as of December 31, 2019. The Company had three significant customers who each accounted for approximately 8%, 7% and 5% of the Company's receivables as of December 31, 2018. The Company has long-standing relationships with its customers and the Company considers its overall credit risk for accounts receivables to be moderate.

International sales for 2019, 2018 and 2017 were as follows:

	2019	2018	2017
South and Central America	$ 111,106	$ 86,172	$ 25,748
Mexico	28,835	24,578	16,030
Asia	15,554	14,828	28,880
Canada	11,637	3,403	4,083
Europe	6,889	11,059	10,700
Africa	6,750	8,027	7,893
Australia	2,798	2,635	4,334
Middle East	2,392	3,256	1,237
	$ 185,961	$ 153,958	$ 98,905

(7) Royalty expenses

The Company has two licensing agreements that require minimum annual royalty payments. Those agreements related to the acquisition of certain products. The Company also has two other licensing arrangements in which royalties are paid based on percentage of annual sales. Certain royalty agreements contain confidentiality covenants. Royalty expenses were $137, $86 and $81 for 2019, 2018 and 2017, respectively.

(8) Product and Business Acquisitions

During the year ended December 31, 2019, the Company completed three acquisitions in exchange for a total cash consideration at closing of $37,972, net of cash acquired $981 and deferred consideration of $3,051. In addition, the Company assumed liabilities of $19,867 and capitalized costs of $14 incurred in the asset acquisition process. The total asset value of $60,904 was allocated as follows: product rights $13,279, trade names $5,452, customer relationships $5,705, goodwill $22,652, working capital and fixed assets $10,432, and indemnification assets $3,384.

On January 10, 2019, the Company completed the acquisition of all of the outstanding shares of stock of two affiliated businesses, Defensive and Agrovant, which are located in Jaboticabal in the state of Sao Paul, Brazil. At closing the Company paid cash consideration of $20,679, which was net of cash acquired of $981, deferred consideration of $3,051 including contingent consideration dependent on certain financial results for 2019, and liabilities assumed of $18,160, including liabilities of $9,111 related to income tax matters. These companies were founded in 2000 and are suppliers of crop protection products and micronutrients with focus on the fruit and vegetable market segments. The acquisition was accounted for as a business combination and the total asset value of $41,890 was allocated as follows: trade name $1,010, customer relationships $5,705, goodwill $22,652, working capital and fixed assets $9,139 and indemnification assets $3,384. The operating results of the acquired businesses are included in our consolidated statement of operations from the date of acquisition. The goodwill recognized is expected to be deductible for income tax purposes, subject to merging AMVAC do Brasil with Defensive and Agrovant.

On July 1, 2019, the Company completed a product acquisition for cash consideration in the amount of $7,293 and the assumption of a liability in the amount of $300. The acquisition was accounted for as an asset acquisition and the acquired assets consist of product rights $5,108, trade names $1,200, and inventory $1,293. Costs of $8 incurred in the asset acquisition process were capitalized.

On December 20, 2019, the Company completed a product acquisition for cash consideration in the amount of $10,000 and the assumption of a liability in the amount of $1,407. The acquisition was accounted for as an asset acquisition and the acquired assets consist of product rights $8,171 and trade names $3,242. Costs of $6 incurred in the asset acquisition process were capitalized.

During the year ended December 31, 2018, the Company completed four acquisitions in exchange for a total cash consideration at closing of $19,851, net of cash acquired $1,600, cash consideration paid in January 2019 $3,530 and the fair value of the Company’s pre-existing ownership position $2,044. In addition, the Company assumed liabilities of $1,750 and capitalized costs of $108 incurred in the asset acquisition process. The total value of $27,283 was allocated as follows: product registrations and product rights $12,720, trade names, trademarks and patents $2,678, customer lists $739, goodwill $3,927, inventory $5,461, other working capital $121 and property, plant and equipment $27, and deferred tax assets $1,610.

The acquisition of TyraTech Inc. (“TyraTech”) was accounted for as a business combination. The Company acquired 65.62% of TyraTech’s issued and outstanding shares on November 8, 2018 in exchange for cash consideration of $2,154 at closing, net of cash acquired of $1,600, and liabilities assumed of $1,750. Together with the Company’s pre-existing ownership of 34.38% with a fair value of $2,044, TyraTech became a wholly owned subsidiary of the Company and was delisted from the AIM market of the London Stock Exchange. TyraTech is a life sciences company focused on nature-derived insect and parasite control products. Their patented technology platform leverages synergistic essential oil combination to target invertebrate pest receptors that are not active in humans and other mammals. The assessment of the purchase price allocation related to the business combination was completed in 2019. The purchase price allocation is as follows: working capital of $115, intangible assets of $180 and goodwill of $3,927, property, plant and equipment of $27, other assets of $89, and deferred tax assets of $1,610. Goodwill is not expected to be deductible for income tax purposes. The goodwill consists largely of acquired workforce and tax related matters. As a result of this acquisition, the Company was required to step up the value of its ownership and recorded a gain of $1,463. The acquired business was included in the Company’s consolidated financial statements from the date of acquisition.

Three of the 2018 acquisitions mentioned previously related to product lines, acquired from E.I DuPont et Nemours and Company (one) and Bayer CropScience (two), were purchased for total cash consideration at closing of $21,335, including transaction costs of $108, and $3,530 paid in January 2019. These acquisitions were accounted for as asset acquisitions because the Company did not acquire any substantive processes. Of this amount, $5,378 was recorded to inventory and the remaining to intangibles. One of the asset acquisitions includes contingent consideration in the form of potential milestone payments that could amount to a maximum additional payment of $12,500. These milestone payments will be recorded as additional acquisition costs upon the point in time the milestone criteria are met, if applicable. No such milestones were achieved in 2018 or 2019. The purchase price allocation was completed as at December 31, 2018 and the acquired product lines were included in the Company’s consolidated financial statements from the date of acquisition.

Cash paid at closing for the asset acquisitions and business combination was funded through our revolving line of credit. The Company considers that the acquisitions completed during 2019 and 2018 are immaterial individually and in the aggregate to the accompanying consolidated financial statements, and accordingly pro-forma financial information is not included.

During the year ended December 31, 2017, the Company completed acquisitions with a total combined purchase consideration, net of cash acquired, of $92,555 including cash paid at closing in the amount of $81,896 and deferred consideration of $10,659. At closing the Company recorded $12,814 related to tax matters associated with the acquisitions. At December 31, 2017 the purchase price was provisionally allocated as follows: product registrations and product rights $55,127, trade names and trademarks $9,500, customer relationships and customer lists $3,700, goodwill $22,184, working capital $14,679 and property, plant and equipment $512. The purchase price allocation was finalized during 2018, which resulted in a reduction in goodwill of $348.

The following unaudited pro forma information presents a summary of the Company’s combined results of operations for the year ended December 31, 2017, as if the 2017 business acquisitions had occurred on January 1, 2017. The following pro forma financial information is not necessarily indicative of the results of operations as they would have been had the transaction been effected on the assumed date, nor is it necessarily an indication of trends in future results for a number of reasons. Consequently, actual results will differ from the unaudited pro forma financial information.

	Year ended December 31, 2017
Pro forma net sales	$ 458,793
Pro forma net income	24,540
Pro forma earnings per common share – basic	0.84
Pro forma earnings per common share – assuming dilution	0.83

(9) Intangible Assets and Goodwill

The following schedule represents intangible assets recognized in connection with product acquisitions (See description of Business, Basis of Consolidation and Significant Accounting Policies for the Company's accounting policy regarding intangible assets):

	Amount
Intangible assets at December 31, 2016	$ 121,433
Additions during fiscal 2017	68,327
Impact of movement in exchange rates	(6)
Amortization expense	(8,804)
Intangible assets at December 31, 2017	180,950
Additions during fiscal 2018	16,429
Impact of movement in exchange rates	(45)
Amortization expense	(10,751)
Intangible assets at December 31, 2018	186,583
Additions during fiscal 2019	25,368
Write offs	(264)
Impact of movement in exchange rates	(1,158)
Amortization expense	(12,152)
Intangible assets at December 31, 2019	$ 198,377
Goodwill at December 31, 2018	$ 25,790
Net additions during fiscal 2019	22,652
Impact of movement in exchange rates	(1,885)
Goodwill at December 31, 2019	$ 46,557
Intangible assets and goodwill at December 31, 2019	$ 244,934

The following schedule represents the gross carrying amount and accumulated amortization of intangible assets and goodwill. Product rights and trademarks are amortized over their expected useful lives of 25 years. Customer lists are amortized over their expected useful lives of nine to ten years.

	2019			2018		
	Gross	Accumulated Amortization	Net Book Value	Gross	Accumulated Amortization	Net Book Value
Product Rights	$ 252,786	$ 89,204	$ 163,582	$ 235,684	$ 79,627	$ 156,057
Trademarks	32,795	6,633	26,162	30,483	5,337	25,146
Customer Lists	12,028	3,395	8,633	7,529	2,149	5,380
Total intangibles assets	297,609	99,232	198,377	273,696	87,113	186,583
Goodwill	46,557	—	46,557	25,790	—	25,790
Total intangibles and goodwill	$ 344,166	$ 99,232	$ 244,934	$ 299,486	$ 87,113	$ 212,373

The following schedule represents future amortization charges related to intangible assets:

Year ending December 31,	Amount
2020	$ 12,768
2021	12,619
2022	12,498
2023	11,988
2024	11,690
Thereafter	136,814
	$ 198,377

The following schedule represents the Company's deferred consideration liability under acquisitions agreements:

	Amount
Obligations under acquisition agreements at December 31, 2016	$ 592
Additional obligations acquired	10,659
Accretion of discounted liabilities	109
Payments on existing obligations	(26)
Obligations under acquisition agreements at December 31, 2017	11,334
Adjustment to deferred consideration within the measurement period	(1,697)
Reassessment of deferred consideration	(6,050)
Accretion of discounted liabilities	345
Payments on existing obligations	(66)
Obligations under acquisition agreements at December 31, 2018	3,866
Additional obligations acquired	3,051
Reassessment of deferred consideration	(4,120)
Accretion of discounted liabilities	72
Payments on existing obligations	(850)
Foreign exchange effect	(229)
Obligations under acquisition agreements at December 31, 2019	$ 1,790

As of December 31, 2019, the $1,790 in remaining deferred consideration is included in other liabilities.

(10) Commitments

We enter into various obligations in the ordinary course of business, generally of a short-term nature. Those that are binding primarily relate to purchase commitments for inventory and orders submitted for equipment for our production plants as well as service agreements.

(11) Research and Development

Research and development expenses which are included in operating expenses were $8,906, $9,164 and $8,455 for the years ended December 31, 2019, 2018 and 2017, respectively.

(12) Equity Plan Awards

Under the Company's Equity Incentive Plan of 1993, as amended ("the Plan"), all employees are eligible to receive non-assignable and non-transferable restricted stock, options to purchase common stock, and other forms of equity. As of December 31, 2019, the number of securities remaining available for future issuance under the Plan is 1,171,059.

Incentive Stock Option Plans ("ISOP")

Under the terms of the Company's ISOP, under which options to purchase common stock can be issued, all employees are eligible to receive non-assignable and non-transferable options to purchase shares. The exercise price of any option may not be less than the fair market value of the shares on the date of grant; provided, however, that the exercise price of any option granted to an eligible employee owning more than 10% of the outstanding common stock may not be less than 110% of the fair market value of the shares underlying such option on the date of grant. No options granted may be exercisable more than ten years after the date of grant.

In 2019, 2018 and 2017, no options were granted.

Option activity within each plan is as follows:

	Incentive Stock Option Plans	Weighted Average Price Per Share	Exercisable Weighted Average Price Per Share
Balance outstanding, December 31, 2016	541,905	$ 9.33	$ 7.97
Options exercised	(55,979)	$ 8.37	
Options forfeited	(13,143)	11.49	
Balance outstanding, December 31, 2017	472,783	$ 9.38	$ 9.38
Options exercised	(88,719)	10.62	
Balance outstanding, December 31, 2018	384,064	$ 9.10	$ 9.10
Options exercised	(51,241)	8.87	
Balance outstanding, December 31, 2019	332,823	$ 9.14	$ 9.14

Information relating to stock options at December 31, 2019 summarized by exercise price is as follows:

	Outstanding Weighted Average			Exercisable Weighted Average	
Exercise Price Per Share	Shares	Remaining Life (Months)	Exercise Price	Shares	Exercise Price
Incentive Stock Option Plan:					
$7.50	195,850	11	$ 7.50	195,850	$ 7.50
$11.32-$14.75	136,973	58	$ 11.48	136,973	$ 11.48
	332,823	30	$ 9.14	332,823	$ 9.14

During 2017, the Company recognized stock-based compensation expense related to incentive stock options of $345. During 2019 and 2018, the Company did not recognized stock-based compensation expense related to incentive stock options.

The weighted average exercise prices for options granted and exercisable and the weighted average remaining contractual life for options outstanding as of December 31, 2019 and 2018 was as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (Months)	Intrinsic Value (thousands)
As of December 31, 2019:				
Incentive Stock Option Plans:				
Outstanding	332,823	$ 9.14	30	$ 3,439
Vested	332,823	$ 9.14	30	$ 3,439
Exercisable	332,823	$ 9.14	30	$ 3,439
As of December 31, 2018:				
Incentive Stock Option Plans:				
Outstanding	384,064	$ 9.10	42	$ 2,338
Vested	384,064	$ 9.10	42	$ 2,338
Exercisable	384,064	$ 9.10	42	$ 2,338

The total intrinsic value of options exercised during 2019, 2018 and 2017 was $393, $955, and $545, respectively. Cash received from stock options exercised during 2019, 2018, and 2017 was $454, $951, and $468, respectively.

Nonstatutory Stock Options ("NSSO")

The Company did not grant any non-statutory stock options during the three years ended December 31, 2019.

Common Stock Grants

During 2019, the Company issued a total of 341,653 shares of common stock to certain employees and non-executive board members. Of these, 33,973 shares vest immediately, 500 shares will vest 6 months from the employee's employment date, 1,000 shares will vest one year from the employee's employment date, 500 shares will vest two years from the employee's employment date, 15,001 shares will vest three years from the employee's employment date, and majority of the balance will cliff vest after three years of service. The fair values of the grants range from $13.09 to $17.34 per share based on the publicly traded share prices as of the market close on the date of grants. The total fair value of $5,754 is being recognized over the vesting period, which is representative of the related service periods. During 2019, 60,778 shares of common stock granted to employees were forfeited.

During 2018, the Company issued a total of 282,030 shares of common stock to certain employees and non-executive board members. Of these, 25,312 shares vest immediately, 1,017 shares will vest 6 months from the employee's employment date, 1,017 shares will vest eighteen months from the employee's employment date, 5,250 shares will vest two years from the employee's employment date, and majority of the balance will cliff vest after three years of service. The fair values of the grants range from $16.85 to $23.60 per share based on the publicly traded share prices as of the market close on the date of grants. The total fair value of $5,651 is being recognized over the vesting period, which is representative of the related service periods. During 2018, 33,269 shares of common stock granted to employees were forfeited

A status summary of non-vested shares as of December 31, 2019 and 2018, are presented below:

	December 31, 2019		December 31, 2018	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested shares at January 1st	587,210	$ 17.59	391,753	$ 15.61
Granted	341,653	16.84	282,030	20.21
Vested	(148,240)	14.99	(53,304)	17.06
Forfeited	(60,778)	18.12	(33,269)	17.29
Nonvested shares at December 31st	719,845	$ 17.67	587,210	$ 17.59

During 2019, 2018 and 2017, the Company recognized stock-based compensation expense related to restricted shares of $4,066, $3,657, and $2,705, respectively.

Performance-Based Stock Grants

During the year ended December 31, 2019, the Company issued a total of 137,557 performance-based shares to employees. The shares granted during 2019 have an average fair value of $16.96. The fair value was determined by using the publicly traded share price as of the market close on the date of grant and Monte Carlo Valuation method. The Company will recognize as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on March 28, 2022 with a measurement period commencing January 1, 2019 and ending December 31, 2021. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an earnings before income taxes ("EBIT") goal weighted at 50% and a net sales goal weighted at 30%. The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company's EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company's stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company's 2018 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

During 2019, the Company concluded that the performance measure based on EBIT and net sales for the performance-based shares granted in 2016 and 2017, when compared to the peer group, was both met at 200% of targeted performance and all related additional expenses were recorded as of December 31, 2019. The 2016 and 2017 performance shares based on market price was met at 125% and 50%, respectively, however, the market condition is reflected in the grant date fair value valuation and no additional expenses were recognized. As a result, 42,368 additional shares were earned since the Company achieved performance targets when compared to the peer group.

During the year ended December 31, 2018, the Company issued a total of 130,332 performance-based shares to employees. The shares granted during 2018 have an average fair value of $18.74. The fair value was determined by using the publicly traded share price as of the market close on the date of grant. The Company is recognizing as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on March 9, 2021 with a measurement period commencing January 1, 2018 and ending December 31, 2020. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an earnings before income taxes ("EBIT") goal weighted at 50% and a net sales goal weighted at 30%. The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company's EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company's stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company's 2017 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

During the year ended December 31, 2017, the Company issued a total of 128,594 performance-based shares to employees. The shares granted during 2017 have an average fair value of $15.43. The fair value was determined by using the publicly traded share price as of the date of grant. The Company recognized as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on February 8, 2020 with a measurement period commencing January 1, 2017 and ending December 31, 2019. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an earnings before income taxes ("EBIT") goal weighted at 50% and a net sales goal weighted at 30% . The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company's EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company's stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company's 2016 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

As of December 31, 2019, the performance-based shares related to EBIT and net sales have an average fair value of $17.34 per share. The fair value was determined by using the publicly traded share price as of the market close on the date of grant. The performance-based shares related to the Company's stock price have an average fair value of $15.46 per share. The fair value was determined by using the Monte Carlo valuation method. For awards with performance conditions, the Company recognizes share-based compensation cost on a straight-line basis for each performance criteria over the implied service period.

As of December 31, 2018, the performance-based shares related to EBIT and net sales have an average fair value of $19.95 per share. The fair value was determined by using the publicly traded share price as of the market close on the date of grant. The performance-based shares related to the Company's stock price have an average fair value of $16.49 per share. The fair value was determined by using the Monte Carlo valuation method. For awards with performance conditions, the Company recognizes share-based compensation cost on a straight-line basis for each performance criteria over the implied service period.

As of December 31, 2017, the performance-based shares related to EBIT and net sales have an average fair value of $16.10 per share. The fair value was determined by using the publicly traded share price as of the date of grant. The performance-based shares related to the Company's stock price have an average fair value of $12.60 per share. The fair value was determined by using the Monte Carlo valuation method. For awards with performance conditions, the Company recognizes share-based compensation cost on a straight-line basis for each performance criteria over the implied service period.

During 2019, 2018 and 2017, the Company recognized stock-based compensation expense related to performance-based shares of $3,094, $2,148, and $1,248, respectively. In 2019, the Company assessed the likelihood of achieving the performance measures based on peer group information currently available for the performance-based shares granted in 2018. Based on the performance thus far, the Company has concluded that it is likely that the performance measure based on EBIT and net sales will be met at 125% of targeted performance and have recorded the related additional expense in 2019. The performance shares based on market price are expected to be met at 125% of targeted performance. The effect of market conditions for performance shares based on market are included in the grant date fair value valuation and no additional expenses were recognized in 2019.

As of December 31, 2019, the Company had approximately $2,835 of unamortized stock-based compensation expenses related to unvested performance-based shares. This amount will be recognized over the weighted-average period of 1.9 years. This projected expense will change if any performance-based shares are granted or cancelled prior to the respective reporting periods, changes to expected vesting for performance-based shares or if there are any changes required to be made for estimated forfeitures.

A summary of non-vested shares as of December 31, 2019 and 2018, is presented below:

	December 31, 2019		December 31, 2018	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested shares at January 1st	287,077	$ 16.87	186,057	$ 14.93
Granted	137,557	16.96	130,332	18.74
Additional granted based on performance achievement	42,368	12.97	—	—
Vested	(92,572)	14.78	(22,857)	11.90
Forfeited	(28,998)	17.70	(6,455)	16.22
Nonvested shares at December 31st	345,432	$ 16.92	287,077	$ 16.87

Performance Incentive Stock Option Plan

For the three years ended December 31, 2019, the Company did not grant any employees performance incentive stock options to acquire shares of common stock.

Performance option activity is as follows:

	Incentive Stock Option Plans	Weighted Average Price Per Share	Exercisable Weighted Average Price Per Share
Balance outstanding, December 31, 2017	81,666	$ 11.49	$ 11.49
Additional vesting based on performance	77,598	11.49	11.49
Options exercised	(18,853)	11.49	11.49
Balance outstanding, December 31, 2018	140,411	$ 11.49	$ 11.49
Options exercised	(19,629)	11.49	11.49
Balance outstanding, December 31, 2019	120,782	$ 11.49	$ 11.49

Information relating to performance stock options at December 31, 2019 is summarized by exercise price is as follows:

	Outstanding Weighted Average			Exercisable Weighted Average	
Exercise Price Per Share	Shares	Remaining Life (Months)	Exercise Price	Shares	Exercise Price
Performance Incentive Stock Option Plan:	120,782	60	$ 11.49	120,782	$ 11.49

The weighted average exercise price for performance options granted and exercisable and the weighted average remaining contractual life for performance options outstanding as of December 31, 2019 and 2018 was as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (Months)	Intrinsic Value (thousands)
As of December 31, 2019:				
Performance Incentive Stock Option Plans:				
Outstanding	120,782	$ 11.49	60	$ 964
Vested	120,782	$ 11.49	60	$ 964
Exercisable	120,782	$ 11.49	60	$ 964
As of December 31, 2018:				
Performance Incentive Stock Option Plans:				
Outstanding	140,411	$ 11.49	72	$ 520
Vested	140,411	$ 11.49	72	$ 520
Exercisable	140,411	$ 11.49	72	$ 520

During 2017, the Company recognized stock-based compensation expense related to performance incentive stock options of $416. During 2019 and 2018, the Company did not recognize stock-based compensation expense related to performance incentive stock options.

(13) Accumulated Other Comprehensive Loss

The following table lists the beginning balance, annual activity and ending balance of foreign currency translation adjustment included as a component of accumulated other comprehensive loss:

Balance, December 31, 2016	$ (4,851)
Foreign currency translation adjustment	344
Balance, December 31, 2017	(4,507)
Foreign currency translation adjustment	—
Balance, December 31, 2018	(4,507)
Foreign currency translation adjustment	(1,191)
Balance, December 31, 2019	$ (5,698)

(14) Equity Method Investments

The Company utilized the equity method of accounting with respect to its investment in TyraTech, a Delaware corporation that specialized in developing, marketing and selling pesticide products containing essential oils and other natural ingredients, until the Company acquired all of TyraTech's remaining outstanding shares as of November 8, 2018 (see Note 8). For the period from January 1, 2018 to November 8, 2018, and for the year ended December 31, 2017, the Company recognized losses of $1,424, and $177, respectively on its equity method investment. In addition, the Company recognized a gain in the amount of $1,463 in connection with the re-measurement of its pre-existing equity interest in TyraTech at fair value as of the acquisition date of the remaining outstanding shares. As of December 31, 2017, the Company's ownership position in TyraTech was approximately 15.11%.

On August 2, 2016, AMVAC BV entered into a joint venture with Huifeng. The entity, Hong Kong JV, is intended to focus on activities such as market access and technology transfer between the two members. AMVAC BV is a 50% owner of the entity. No material contributions were made subsequent to the initial investment.

On June 27, 2017, both AMVAC BV and Huifeng (Hong Kong) Ltd. made individual capital contributions of $950 to the Hong Kong JV. As of December 31, 2019 and 2018, the Company's ownership position in the Hong Kong JV was 50%. The Company utilizes the equity method of accounting with respect to this investment. On July 7, 2017, the Hong Kong JV purchased the shares of Profeng Australia, Pty Ltd. ("Profeng"), for a total consideration of $1,900. The purchase consists of Profeng Australia, Pty Ltd Trustee and Profeng Australia Unit Trust. Both Trust and Trustee were previously owned by Huifeng via its wholly owned subsidiary Huifeng (Hong Kong) Ltd. For the years ended December 31, 2019, 2018 and 2017, the Company recognized a (loss) and income of ($209), ($356) and $128, respectively, as a result of the Company's ownership position in the Hong Kong JV. At December 31, 2019 and 2018, the carrying value of the Company's investment in the Hong Kong JV was $513 and $722, respectively.

(15) Equity Investment

In February 2016, AMVAC BV made an equity investment of $3,283 in Biological Products for Agriculture ("Bi-PA"). Bi-PA develops biological plant protection products that can be used for the control of pests and disease of agricultural crops. As of December 31, 2019 and 2018, the Company's ownership position in Bi-PA was 15%. Since this investment does not have readily determinable fair value, the Company has elected to measure the investment at cost less impairment, if any, and also record an increase or decrease for changes resulting from observable price changes in orderly transactions for the identical or a similar investment of Bi-PA. The Company periodically reviews the investment for possible impairment. There was no impairment or observable price changes on the investment during the years ended December 31, 2019 and 2018. The investment is not material and is recorded within other assets on the consolidated balance sheets.

(16) Share Repurchase Program

On November 5, 2018, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate number of shares with a total purchase price not to exceed $20,000 of its common stock, par value $0.10 per share, in the open market, depending upon market conditions over the short to mid-term. The Shares Repurchase Program expired on March 8, 2019. During 2019 and 2018, the Company purchased 158,048 and 452,358 shares for a total of $2,604 and $7,287 at an average price of $16.48 and $16.11 per share, respectively.

The table below summarizes the number of shares of our common stock that were repurchased during the years ended December 31, 2019 and 2018. The shares and respective amount are recorded as treasury shares on the Company's consolidated balance sheets.

Month ended	Total number of shares purchased	Average price paid per share	Total amount paid
January 31, 2019	158,048	$ 16.48	$ 2,604
Total number of shares repurchased	158,048	$ 16.48	$ 2,604
November 30, 2018	196,858	$ 17.10	$ 3,366
December 31, 2018	255,500	15.35	3,921
Total number of shares repurchased	452,358	$ 16.11	$ 7,287

(17) Quarterly Data—Unaudited

The following tables contain selected unaudited statement of operations information for each quarter of 2019 and 2018. The Company believes that the following information reflects all normal recurring adjustments necessary for a fair presentation of the information for the periods presented. The operating results for any quarter are not necessarily indicative of results for any future period.

	March 31	June 30	September 30	December 31
Quarterly Data—2019				
Net sales	$ 99,676	$ 113,104	$ 124,884	$ 130,521
Gross profit	41,702	41,653	47,463	46,536
Net income attributable to American Vanguard	3,906	3,106	3,153	3,436
Basic net income per share	0.13	0.11	0.11	0.12
Diluted net income per share	0.13	0.11	0.11	0.12
Quarterly Data—2018				
Net sales	$ 104,108	$ 107,046	$ 111,780	$ 131,338
Gross profit	41,051	43,297	45,300	52,983
Net income attributable to American Vanguard	4,655	5,599	6,525	7,416
Basic net income per share	0.16	0.19	0.22	0.25
Diluted net income per share	0.16	0.19	0.22	0.25

Note: Totals may not agree with full year amounts due to rounding and separate calculations each quarter.

(18) Forward Cover Contract

As of October 26, 2018, the Company entered into a foreign exchange forward cover contract in connection with the anticipated acquisition of the Defensive and Agrovant businesses in Brazil. The forward cover contract's settlement amount was determined based on the BRL/USD exchange rate on December 27, 2018 and the Company was required to make a payment (and record a loss) under the terms of the contract in the amount of $1,401. Under the accounting rules for derivative financial instruments, a gain or loss related to a contract, which is entered into in connection with an anticipated business combination, is recorded in the statements of operations. There were no similar losses or gains recorded in either 2019 or 2017.

Exhibit 21

AMERICAN VANGUARD CORPORATION AND SUBSIDIARIES
LISTING OF SUBSIDIARIES

Subsidiaries of the Company and the jurisdiction in which each company was incorporated are listed below. Unless otherwise indicated parenthetically, 100% of the voting securities of each subsidiary are owned by the Company. All companies indicated with an asterisk (*) are subsidiaries of AMVAC. All of the following subsidiaries are included in the Company's consolidated financial statements:

AMVAC Chemical Corporation	California
GemChem, Inc.	California
2110 Davie Corporation (formerly ABSCO Distributing)	California
AMVAC Chemical UK Ltd*	England
AMVAC do Brasil Representácoes Ltda*	Brazil
Agroservicios Amvac, SA de CV*	Mexico
Amvac Mexico S. De R.L. De C.V.*	Mexico
AMVAC de Costa Rica Srl	Costa Rica
AVD International LLC*	Delaware
AMVAC CV	Netherlands
AMVAC Netherlands BV*	Netherlands
Envance Technologies, LLC*	Delaware
OHP Inc.*	California
Amvac Colombia SAS	Columbia
AgriCenter S.A	Costa Rica
Tyratech, Inc.	Delaware
American Vanguard Australia PTY Ltd	Australia
Amvac Singapore PTE Ltd	Singapore
Defensive Ind Comercio E Representacao Ltda	Brazil
Agrovant Comercio De Productos Agricolas Ltda	Brazil
Amvac Canada ULC	Canada
Amvac Hong Kong Limited	Hong Kong

Exhibit 23

Consent of Independent Registered Public Accounting Firm

American Vanguard Corporation
Newport Beach, CA

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 333-125813, 333-102381, 333-76218 and 333-64220) of American Vanguard Corporation of our reports dated March 10, 2020, relating to the consolidated financial statements and financial statement schedule, and the effectiveness of American Vanguard Corporation’s internal control over financial reporting, which appear in this Form 10-K.

/s/ BDO USA, LLP
Costa Mesa, CA
March 10, 2020

Exhibit 31.1

AMERICAN VANGUARD CORPORATION

CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Eric G. Wintemute, certify that:

1. I have reviewed this report on Form 10-K of American Vanguard Corporation;
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 consolidated 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 Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer 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 Company 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 Company, 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 Company's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosures 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 Company's internal control over financial reporting that occurred during the Company's most recent fiscal quarter (the Company's fourth fiscal quarter in the case of an Annual Report) that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and
5. The Company's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of Company's board of directors:
   (a) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are reasonably likely to adversely affect the Company'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 Company's internal control over financial reporting.

Date: March 10, 2020

/s/ Eric G. Wintemute

Eric G. Wintemute
Chief Executive Officer and Chairman of the Board

Exhibit 31.2

AMERICAN VANGUARD CORPORATION

CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David T. Johnson, certify that:

1. I have reviewed this report on Form 10-K of American Vanguard Corporation;
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 consolidated financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer 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 Company 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 Company, 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 Company's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosures 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 Company's internal control over financial reporting that occurred during the Company's most recent fiscal quarter (the Company's fourth fiscal quarter in the case of an Annual Report) that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and
5. The Company's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of Company's board of directors:
   (a) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are reasonably likely to adversely affect the Company'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 Company's internal control over financial reporting.

Date: March 10, 2020

/s/ David T. Johnson

David T. Johnson
Chief Financial Officer and Principal Accounting Officer

Exhibit 32.1

AMERICAN VANGUARD CORPORATION

CERTIFICATION 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 of American Vanguard Corporation (the "Company") on Form 10-K for the period ending December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned Chief Executive Officer and Chief Financial Officer of the Company hereby certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to 906 of the Sarbanes-Oxley Act of 2002 that based on their knowledge (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (2) the information contained in the Report fairly represents, in all material respects, the financial condition and results of operations of the Company as of and for the periods covered in the Report.

/s/ ERIC G. WINTEMUTE

Eric G. Wintemute,
Chief Executive Officer and Chairman of the Board

/s/ DAVID T. JOHNSON

David T. Johnson
Chief Financial Officer and Principal Accounting Officer

March 10, 2020

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to American Vanguard Corporation and will be retained by American Vanguard Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

The foregoing certification is being furnished to the Securities and Exchange Commission as an exhibit to the Form 10-K and shall not be considered filed as part of the Form 10-K.