



#### INNOVATION • LEADERSHIP • EXCELLENCE



### CEO LETTER

# MTI is 25.

Twenty-five years—a quarter century—of competing, and excelling, in a demanding business environment, is an achievement worth celebrating.

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Let's take a brief look at this accomplishment by our employees dedicated to nurturing a small company to grow four-fold around the world while preserving that commitment to growth and excellence today.

On October 23, 1992, Minerals Technologies Inc. (MTI) became an independent company when Pfizer Inc., the large pharmaceutical firm, spun off its Specialty Minerals and Refractories businesses through an initial public offering (IPO), and MTI's stock began trading on the New York Stock Exchange at \$16 per share. Today that \$16 is worth approximately \$144, adjusted for a 2-for-1 stock split, representing a compound annual growth rate of over 9%.

A great deal has occurred since that day, both within MTI and the markets we serve. In the last quarter century, the company has been transformed. Sales have increased from \$394 million in 1992 to \$1.638 billion in 2016; earnings during that period have grown steadily from 51 cents a share to \$4.47; and the number of business segments have doubled from two to four.

Amid all the changes that have ensued, an overwhelming constant for Minerals Technologies has been a strong set of values based upon honesty and integrity. Since its inception in 1992, MTI has had a solid reputation with its stakeholders—employees, customers, shareholders, suppliers and the communities in which we operate for being trustworthy. I believe that foundation is the primary reason that MTI has been able to survive and grow in a highly competitive business environment that has seen other public companies falter. The seeds of the company's success were planted with a new idea and a new technology developed by Specialty Minerals in the 1980s. By the mid-1990s, the independent MTI was growing earnings at approximately 15 percent a year, driven primarily by the foresight of the company's leaders who developed the precipitated calcium carbonate (PCC) technology that revolutionized the way paper was made in North America. Until the mid-1980s, copy paper, known as uncoated freesheet, was manufactured in an acid-based process using clay as the primary filler pigment and titanium dioxide as the brightener. The management and scientists at Specialty Minerals developed the concept of building PCC manufacturing facilities, called satellite plants, on site at major papermakers and transporting PCC directly to the paper machine. The result was higher quality, less costly paper produced in an alkaline process that prevented the paper from turning yellow or brittle. Once the U.S. paper industry saw the savings and improved quality PCC provided, MTI began seeing significant customer demand for the product. In 1992, the company had 29 satellite PCC plants in operation in North America; a quarter century later, in 2017, we have 55 satellite plants, with 18 plants in Asia, including 7 in China.

The Specialty Minerals business segment also consisted of four mining operations that constituted the company's Processed Minerals product line. The mines included three limestone mining and processing facilities in Adams, Massachusetts; Canaan, Connecticut; and Lucerne Valley, California, and a talc operation in Barretts, Montana. In 1992, Processed Minerals (then known as Other Mineral Products) had sales of \$101 million, which has grown to \$139 million today.

# Sales have increased

from \$394 million in 1992 to \$1.638 billion in 2016; earnings have grown steadily from 51 cents a share to \$4.47; and the number of business segments have doubled from two to four.



Rounding out the IPO was our Refractories business unit, which was named Minteq International Inc. In 1992, Minteq sales were \$146 million and in 2016 were \$275 million. During that time period, MTI made three acquisitions in the Refractories segment that remain with us today: Ferrotron Technologies, our laser measurement business, Martin Marietta Magnesia Specialties refractories operation, and Rijnstaal B.V., a metallurgical wire producer.

When MTI went public, we had manufacturing operations in 20 countries and had 2,030 employees; today we operate in 35 countries and have approximately 3,600 employees.

During the 1990s, under the leadership of Jean-Paul Vallès, MTI's first Chairman and Chief Executive Officer, the company was growing rapidly. People like the late Walter Nazarewicz, President of Specialty Minerals, (also known as the 'Father of Paper PCC'), Paul Saueracker, who ran the Paper PCC operation and would later become MTI Chairman and CEO, and John Sorel, who headed the team that took PCC to Europe, South America and Asia and would become Chief Financial Officer of MTI, led the company's successful efforts to introduce this new technology, and to sell 10-year contracts to papermakers around the globe. Over this 10 year period, the Processed Minerals and Minteq businesses were solid contributors. Minteq, a leader in monolithic refractory materials that are "gunned" or sprayed onto hot steel-making vessels to maintain safety linings, saw improved growth as the segment focused on higher value specialty products. Performance Minerals, which produces ground calcium carbonate (GCC), talc and Specialty PCC for the building materials, polymers, ceramics, paints and coatings, glass and other manufacturing industries, purchased the Specialty PCC facility in Lifford, U.K. in 1998, and sold its Midwestern limestone operation in Port Inland, Michigan the same year.

In 2000, Paul Saueracker took over the helm of the company in the midst of a challenging environment, including a recession that primarily hit North America and Europe, and slowing paper demand in those regions.

In 2006, Paul Saueracker announced his retirement and the MTI Board of Directors elected Joseph C. Muscari, an MTI Board member since 2005, as Chairman and CEO in March 2007, after 37 years at Alcoa Inc. When MTI went public in 1992, we had manufacturing operations in 20 countries and had 2,030 employees; today we operate in 35 countries and have approximately 3,600 employees.

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Over the course of the next few years, MTI experienced record-breaking annual profit growth, but by far the most transformative event took place in 2014 when MTI acquired AMCOL International Corporation, a \$1 billion company based in Hoffman Estates, Illinois.

Joe Muscari brought a new perspective to MTI. His focus was on growth in profit, improving return on capital, rejuvenating Research & Development, and ultimately changing the culture to become a high performing operating company. I worked for Joe at Alcoa for 7 years, and, at his request, I joined MTI along with him as Vice President of Corporate Development.

In the first six months of 2007, the company conducted an in-depth review of all businesses, and in October 2007 initiated a restructuring of MTI's businesses, aimed at returning the company's focus to its core competencies. We exited businesses, eliminated underperforming assets and consolidated certain products and operations to better position MTI for future success. The company began a sharper focus on expense control, and we instituted four culture-based lead teams aimed at transforming MTI's culture and providing increased transparency and accountability, as well as improving performance at all levels throughout MTI. These teams were: Operational Excellence; Environmental, Health & Safety; Expense Reduction; and Technology & Innovation.

The company also began to introduce a culture of Continuous Improvement based upon what we have come to call Operational Excellence, which is a system of Lean Manufacturing. In addition, we introduced a stronger culture of safety, with the goal to bring MTI's safety performance to world class levels. All of these efforts, and the processes we put into place, were aimed at transforming MTI's culture—moving toward higher performance and speed by becoming more open and transparent across the entire company.

In 2008 and 2009, world markets were hit with the worst recession since the 1930s, which saw our major markets of paper, steel and construction contract. Steel production in the United States declined by more than 50 percent in the fourth quarter of 2008, and the housing market was at a 50-year low. Our Paper PCC business was the most stable as a result of our long-term agreements with our paper company customers, but a 20-percent decline in paper production in the United States and Europe, our largest markets, resulted in a 10-percent decline in Paper PCC volume.

Over the past 10 years, production of copy paper in North America and Europe continued to decline by about two to three percent a year, yet production in China and India, as well as other areas of Asia, have continued to grow. We expanded our scope to capture this growth in Asia, and began a highly focused, longterm campaign to grow our Paper PCC business and its offshoot new technologies; and in 2000, we entered into a 10-year joint venture exclusivity agreement with Asia Pulp & Paper (APP) for three new PCC satellite plants in China. Our marketing efforts in China accelerated in 2010 following the expiration of our APP exclusivity agreement. In 2012, we began operation of a 100,000 ton-per-year satellite plant in China, and that effort continued to gain momentum. Our development work in India also achieved significant traction. By 2011, MTI had five satellite PCC plants in operation in India, making us the largest PCC producer for paper in that country. By 2013, MTI had seven satellite plants in China and 16 in total in Asia. We had also begun to introduce our new FulFill® platform of technologies, which was an offspring of our new product development program, in 2010. This technology allows papermakers to increase the amount of PCC in their paper, which replaces higher cost fiber.

Over the course of the next few years, MTI experienced record-breaking annual profit growth, but by far the most transformative event took place in 2014 when MTI acquired AMCOL International Corporation, a \$1 billion company based in Hoffman Estates, Illinois, outside of Chicago. AMCOL, founded in 1927 (see story on page 19), was the world's largest producer of bentonite, which is known as the "mineral of 1,000 uses." The acquisition, making MTI the world leader in both PCC and bentonite, created a much stronger platform for future growth. We have been able to expand our expertise in our core competencies of mineralogy and fine particle technology to accelerate new product development. Combining MTI and AMCOL created substantial new opportunities for growth through geographic expansion and new product innovation, and has resulted in a broader, less cyclical portfolio to penetrate new end markets.

The acquisition increased our employee base significantly. By the end of 2016, after AMCOL was fully integrated into MTI and the company had achieved a significant number of synergies, MTI had 3,583 employees, up from 1,978 prior to the acquisition.

On September 3, 2016, Joe Muscari passed away unexpectedly. His passing was a shock to everyone at MTI. More personally, I had worked for Joe for 17 years; he was my mentor and friend. He is greatly missed.

The Board of Directors immediately named Duane R. Dunham, a longtime board member and former Chairman and Chief Executive Officer of Bethlehem Steel as Chairman of the Board. On December 13, 2016, I was elected Chief Executive Officer by the Board.

As the leader of this fine company, I am dedicated to continuing to execute our key growth strategies of geographic expansion, new product innovation and acquisitions. As importantly, we are focused on continuous improvement and will maintain an unwavering commitment to our high-performance culture, which is driven by integrity, discipline, and transparency.

Our sharp focus on growth in Asia, especially China, will remain a major objective. We have taken a longterm approach to growing in China with an aggressive marketing initiative there to assure that our products and technologies are specified for adoption in new applications. Part of that initiative resulted in MTI being selected for one of six EcoPartnerships announced during the eighth annual U.S.-China Strategic and Economic Dialogue in 2016.

Innovation is key to long-term growth, and we have been able to increase the number of opportunities for organic growth through innovation. In the past three years—with the addition of AMCOL—MTI has tripled the number of new product ideas in our pipeline. We now generate approximately 15 percent of sales from new products commercialized in the past five years. Our R&D pipeline is strong and we will continue to nourish it. Today the company is as strong as ever. We have a broader platform for growth through more diverse end markets and product offerings, and have more avenues for growth, including organic, geographic and acquisition opportunities. Importantly, we have great people to help us execute. We are not, however, without challenges. But, as we always have, we will address and overcome these challenges with the same energy and creativity as those MTI employees who came before us. We have developed a strong management team and a highly capable set of global business leaders who are dedicated to building upon the achievements of those who established and grew this company over the past 25 years. We will follow that excellent example by growing Minerals Technologies for yet another 25 years.

Douglas T. Dietrich Chief Executive Officer



Today the company is as strong as ever. We have a broader platform for growth through more diverse end markets and product offerings, and have more avenues for growth, including organic, geographic and acquisition opportunities.

### FOUR STAGES OF MTI 1992-2000



MTI's First Board of Directors: From left, John B. Curcio, Michael F. Pasquale, Edmund T. Pratt, Jr., Jean-Paul Vallès, William C Steere, Jr.





October 23, 1992: Minerals Technologies became an independent, publicly traded company on the New York Stock Exchange after an initial public offering (IPO) from Pfizer, the pharmaceutical firm.

The company grew sales from \$394 million in 1992 to \$671 million in 2000.

Jean-Paul Vallès was elected Chairman of the board and Chief Executive Officer.

The agreement for the company's first international satellite plant was signed in 1993 for a facility in Saillatsur-Vienne, France. The company would construct satellites in Finland, Portugal, South Africa, Poland, Brazil, Thailand, Israel, Germany, China and Japan by 2000.





Ferrotron Elektronik GmbH, a producer of laser measurement devices for the steel industry based in Duisburg, Germany, was acquired as part of Minteq International Inc.



Paul Vallès' retirement

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In 1998, MTI purchased the specialty precipitated calcium carbonate (PCC) manufacturing facility at Lifford, United Kingdom.

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## FOUR STAGES OF MTI 2001-2006

MTI named one of **100 best corporate citizens** by Business Ethics magazine.



In 2006, Board member Joseph C. Muscari was elected Chairman and Chief Executive Officer of the company.



Minteq International acquires Martin Marietta Magnesia Specialties, a U.S.- based refractory producer, and Rijnstaal B.V., a Netherlands-based producer of metallurgical wire.



## FOUR STAGES OF MTI 2007-2013

New leadership brought major changes. After an in-depth strategic review, the company restructured its business operations. MTI exited certain businesses and consolidated product lines to return to its core competencies.



The drive to reduce waste in all processes becomes part of MTI's commitment to Continuous Improvement. The company began to initiate adoption and implementation of Operational Excellence, which is a system of Lean Manufacturing designed to bring value to customers.

Four Culture-Based Lead Teams were established in the areas of Environmental Health & Safety; Technology and Innovation; Operational Excellence; and Expense Reduction.

The company introduced a stronger culture of safety, with the goal to bring MTI's safety performance to world class levels.





satellite contracts, three of which were in India. This marked the highest level of new satellite facility activity in the Paper PCC business in more than 10 years. In 2010, MTI recorded the highest earnings in its 18-year history.

MTI initiates strategy of geographic expansion, new product innovation and acquisitions.



In 2010, the company secured four new



The company began a sharper focus on PCC growth in Asia, where paper production continued to grow.

In 2013, **Robert** Wetherbee was elected as Chief Executive Officer. Joseph C. Muscari was named Executive Chairman.

## FOUR STAGES OF MTI 2014-2017

In 2014, **Joseph C. Muscari** resumed the Chief Executive Officer position.

> MTI acquires AMCOL International Corporation for \$1.8 billion, doubling the size of the company to become the world's largest producer of PCC and bentonite.

The acquisition was transformational, allowing MTI to expand its core competencies of mineralogy and fine particle technology and to create a broader platform for geographic expansion and new product innovation.











The company reports the seventh consecutive year of record earnings in 2016, with earnings per share of \$4.47

In December 2016, the board elected **Douglas T. Dietrich** as Chief Executive Officer.





NEW YORK STOCK EXCHANGE

NYSE CLOSING BELL

MTX

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NEW YORK STOCK EXCHANGE





#### 25TH ANNIVERSARY TIMELINE 1992-2017

#### 1992

MTI becomes a publicly traded company on the New York Stock Exchange through an initial public offering by Pfizer Inc. on October 23, 1992. The stock was priced at \$16 per share under the symbol MTX.



Jean-Paul Vallès was elected chairman and chief executive officer.

#### 1994

Minerals Technologies moved corporate headquarters to the Chrysler Building in New York City.

#### 1996

MTI continued to expand internationally with new satellite PCC plants constructed in Brazil and Indonesia.

#### 992 '93 '94 '95 '96 '97



#### 1997

International expansion continued with new satellite plants in South Africa, Finland and Germany.



#### 1995

Specialty Minerals establishes a European Research Center in Finland.

#### 1993

On April 6, 1993, the company completed a secondary public offering of common stock at \$25 per share, eliminating any Pfizer ownership in MTI.

The company announced its first international precipitated calcium carbonate (PCC) plant in France.

#### 1998

MTI purchased a Specialty PCC operation in Lifford, United Kingdom.

The company enters the Chinese market with a joint venture agreement for three satellite plants with a major papermaker in China.

#### 2000

MTI acquires Ferrotron, a German maker of laser scanning measurement devices.

Paul R. Saueracker was elected chief executive officer.

#### 2002

MTI acquires Polar Minerals Inc.

#### 2004

The company announced construction of two large PCC satellite plants in China at paper mills owned by Asia Pulp & Paper Company (China) Pte.

The Refractories segment announced construction of a 100,000-ton per year manufacturing facility for refractory products in Suzhou, China.

#### 98 '99 '00 '01 '02 '03 '04

#### 2003

MTI began operation of a satellite PCC plant at a paper mill in Sipitang, Sabah, Malaysia. The company had 54 satellite PCC plants in 17 countries.

MTI reached a twopart agreement with International Paper Company to extend eight satellite PCC plant supply contracts and to initiate joint efforts to develop new mineral-based products for papermaking applications.



#### 2001

The company purchases refractories business from Martin Marietta Materials.

#### 1999

MTI built a satellite PCC plant at a paper mill in Japan, our first satellite in that country.







#### 25TH ANNIVERSARY TIMELINE 1992-2017

#### 2006

MTI surpasses \$1 billion in sales for the first time.

Joe Muscari, a member of the MTI Board of Directors, was elected Chairman and Chief Executive Officer.



#### 2008

Minerals Technologies achieved the best earnings performance in its history, posting \$3.44 per share on sales of \$1.11 billion.

#### 2010

MTI Named to Forbes Magazine Most Trustworthy Companies for Corporate Governance Practices.

The company secured four new satellite contracts, three of which were in India. This marked the highest level of new satellite facility activity in the Paper PCC business in more than 10 years.

MTI launched a new product platform called Fulfill®—a portfolio of new PCC products that increase filler levels in paper to save papermakers money.

#### 005 '06 '07 '08 '09 '10 '11

#### 2012

China growth strategy gained momentum with agreement with Sun Paper for a 100,000-ton per year satellite PCC plant.

MTI started operations at two other new satellite plants—one in Thailand and another in India.

MTI signed six new commercial agreements for the use of the FulFill® E-325 technology with papermakers in Asia, North America, Europe and South Africa.

#### 2014

Minerals Technologies acquired AMCOL International Corporation, a \$1 billion company that doubled MTI's revenues to \$2 billion while creating a stronger platform for future growth.

In 2014, the company introduced the NewYield® process technology that converts a paper mill waste stream into a useable filler pigment.

#### 2017

Signed agreement with Asia Pulp & Paper for new 125,000-ton satellite PCC plant and 40,000-ton expansion in Indonesia.



#### '12 '13 '14 '15 '16 '17

2011

Operating income topped \$100 million for the first time in company history.

The company had five satellite plants in operation in India, making it the largest producer in India of PCC for the paper industry.

Performance Minerals introduced new GCC and talc products for bioplastic based consumer disposables for packaging.

Began operation of the company's

first satellite plant in India.

#### 2009



#### 2007

2005

MTI realigned its operations by exiting some businesses and consolidating certain product lines.

Operational Excellence processes established.

facility in Walsum, Germany.

MTI began producing PCC coating products in a new 125,000-ton per year manufacturing

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2016

Executive Officer.

The company reported its seventh consecutive year of record earnings, with earnings per share of \$4.47.

eighth annual U.S.-China Strategic

MTI was selected for one of six EcoPartnerships announced during the

Douglas T. Dietrich was elected Chief



#### 2015

MTI launched a new lightweight pet litter in 2015.

and Economic Dialogue.

The company introduced Enersol®, a crop enrichment technology, in China.

#### 2013

MTI now had seven satellite plants in China and 16 in total in Asia, which was second only to the 25 satellites in operation in North America.





25 YEARS MINERALS TECHNOLOGIES INC

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**RESEARCH & DEVELOPMENT** 

THE FOUNDATION TO MTI'S SUCCESS



#### Innovative, disruptive technology invented by dedicated research scientists is the foundation of Minerals Technologies' success.

When MTI went public in 1992, Specialty Minerals Inc. and Minteq International Inc., each had highly regarded scientists and technicians in Bethlehem and Easton, Pennsylvania. These scientists were, and continue to be, adept at transforming and modifying minerals through our expertise in inorganic chemistry, crystallography and fine particle technology to produce value-added products. In the case of Specialty Minerals, the expertise centered on calcium carbonate and talc, while Minteq focused on producing monolithic refractory materials from magnesium oxide and alumina. In 2014, when MTI acquired AMCOL, that same principle of providing a technological advantage applied to bentonite, 'the clay of 1,000 uses.'

In 1992, the driving force behind the company's success-and subsequent rapid growth-was the business model that placed "satellite" plants on site at paper mill customers in North America to provide precipitated calcium carbonate (PCC) in a slurry form via pipeline to paper machines. This approach helped revolutionize the way uncoated freesheet, or copy paper, was made in North America. PCC provided papermakers with substantial cost savings and changed the papermaking chemistry from acid to alkaline, which prevented copy paper from turning yellow or brittle over time, allowing it to last more than 100 years. (Uncoated freesheet paper requires a mineral filling agent to provide opacity and brightness to the sheet because pulp fibers are translucent. Before PCC became the filler of choice, uncoated freesheet paper was filled with kaolin clay and titanium dioxide was used as a brightener.)

The company's scientists had known that PCC functioned well as a filler mineral in paper because the SMI plant in Adams, Massachusetts, had been supplying the material in dried form to bible and cigarette paper manufacturers, which required an acid-free material. By building satellite plants on site, the company eliminated the cost of drying and transporting PCC, but scientists needed to, and did, develop crystal structures that would work for freesheet paper. Between 1986 and 1992, when MTI became independent, Specialty Minerals had built 29 satellite PCC plants in North America. Papermakers saw the value PCC provided and SMI was building satellite plants as quickly as possible in those early years. This required SMI scientists to develop crystal shapes, or morphologies, which were tailored to provide the most benefit to specific paper companies for both filling and coating paper.

More recently, Paper PCC research has widened its portfolio to provide papermakers with solutions beyond filling and coating paper. Newly introduced platform technologies like FulFill®, which increases PCC filler levels in paper to save papermakers money over higher cost pulp, and NewYield®, which addresses environmental problems by recycling waste streams in the papermaking process, are two such advances.

Specialty Minerals researchers over the last 25 years have also developed new products for Specialty PCC (SPCC), ground calcium carbonate (GCC) and talc. Specialty PCC, a high-purity material that is sold in a dry form, was, in the early 1990s, used primarily in plastics as a functional filler. But SPCC processes evolved toward more complex systems of very fine particles, down to nanometers or hundredths of a micron, providing more unique and differentiated properties. Today SPCC is used as a functional additive in sealants, adhesives, plastics, rubber, inks, paper, pharmaceuticals, nutritional supplements and many other demanding applications.

The company's GCC materials are widely used as an industrial mineral. MTI scientists have developed new GCC products over the years that are used for a variety of end uses including building products, paints, plastics, agriculture and glass, among others.

MTI researchers continue to develop and enhance new talc products, which are used in filling and reinforcing plastic for automotive and appliance parts, as an antiblock for blown and cast films, paints and coatings, and for pitch control in papermaking. MTI's talc from its mine in Barretts, Montana is used in the automotive industry to make bumpers, interior plastic dashboards and other parts to reduce weight and improve gasoline mileage. Our talc has the high-purity chemical properties that make it the mineral of choice for production of the high-performance ceramic substrate in catalytic convertors.

Over the past 25 years, Minteq scientists have continued to develop new, monolithic refractory materials and systems that are used to protect the safety linings in hot steel-making vessels. Minteq researchers are adept at working with steel customers to design custom refractory solutions to maintain the life of these vessels. Minteq has the expertise to design and understand the interaction between inorganic materials like magnesium oxide and alumina with organic materials to produce high-durability monolithic refractories to fit the steel maker's needs. With the acquisition of Ferrotron, a German manufacturer of laser scanning measurement devices in 2000, the company has also developed new robotic systems for both measurement and robotic application of refractory materials. With the AMCOL acquisition in 2014, MTI found a research organization devoted to the same principles of improving the functionality of a mineral—in this case bentonite—through technological enhancement. Founded in 1927 as the American Colloid Company (see AMCOL article below), the company's roots were

in mining and processing the absorbent aluminium phyllosilicate clay discovered in Wyoming. The first commercial use was foundry sand to produce metal castings for the burgeoning automobile industry. Over the years, AMCOL scientists' ability to modify the surface of bentonite saw the advent of such uses as

#### AMCOL

The May 9, 2014 acquisition of AMCOL International Corporation for \$1.8 billion was transformational for Minerals Technologies, nearly doubling its size and providing a broader platform for future growth. As such an integral part of MTI, it is important to recognize AMCOL's long and distinguished 87-year heritage in celebrating MTI's quarter century anniversary.

In 1927, the same year Charles Lindbergh made the first non-stop Atlantic flight and Babe Ruth scored 60 home runs, Paul Bechtner left his job in the sand casting industry in Michigan and headed west. In South Dakota, Bechtner forged a partnership with owners of the Bentonite Mining and Manufacturing Company to found the American Colloid Company (ACC). Through his work with sand casting, Bechtner was convinced that bentonite provided the best bonding material for the castings foundry needed for the rapidly expanding automobile industry.

Bechtner, who would become known as "Mr. Bentonite," brought his much needed marketing savvy to the company. In 1927, he established corporate headquarters for American Colloid Company in Lead, South Dakota, as well as a headquarters for American Colloid Company Sales Division in a tiny office in Chicago. As 'General Manager,' a title he kept until his death in 1961, Bechtner ran the company as chairman and chief executive officer. The company built its first plant in Upton, Wyoming in 1928, which was a small shed that housed a steam dryer and a hammer mill. Horses pulled the scrapers that mined the bentonite and employees shoveled the clay into Model T trucks.

From these beginnings, American Colloid Company grew through the decades, building bentonite processing plants in the upper Midwest and some southern states. Early on, bentonite was used primarily in the foundry industry, but expanded for use as a suspending agent in drilling muds for oil and gas wells, which would become a significant part of the business.

In 1949, as the company continued to grow, the corporate offices were moved to Chicago's 4.2 million square foot Merchandise Mart. By 1950, with revenues of \$2.1 million, American Colloid Company had become the world's largest bentonite producer.

During the sixties, American Colloid began to expand overseas with construction of a plant in Duisburg, Germany, as well as shipping to Europe through distributors. This was a period of substantial growth, with sales increasing from \$4.5 million to \$18 million between 1960 and 1970.

In the early 70s, ACC supplied products for seven markets: export, foundry, chemical, oil well, and newlyformed offshoots—building materials, animal feed and industrial chemicals. During this period, the company also developed Additrol, a blend of bonding sand additives for foundries.

American Colloid become a publicly traded company on NASDAQ in 1987 with sales of about \$89 million.

In 1991, ACC patented clumping cat litter—a revolutionary product at the time. The next year, the Colloid Environmental Technologies Company (CETCO) subsidiary was launched to provide service in five areas of expertise: lining technologies, remediation technologies, drilling systems, building envelope and oilfield services.

American Colloid Company changed its name to AMCOL International Corporation in 1995 to reflect the extensive business activity in international markets. Three years later, the company moved its stock listing to the New York Stock Exchange.

The company continued to generate growth, and by 2012 had recorded \$1 billion in sales.

Since the acquisition in 2014, Minerals Technologies has integrated the AMCOL businesses into a \$1.6 billion company that is the world leader in two major industrial minerals—precipitated calcium carbonate and bentonite—as well as holding strong leadership positions in multiple industries with its specialty minerals. This acquisition has allowed MTI to expand its extensive expertise in the core competencies of mineralogy and fine particle technology to accelerate new product development, has created substantial new opportunities for geographic expansion and has resulted in a broader portfolio of products to penetrate new end markets.



clumpable cat litter, high viscosity clay for drilling water, oil and gas wells, and the development of geosynthetic clay liners for landfills. Bentonite's versatility led these researchers to discover uses for the material in laundry detergents, cosmetics and animal health products. They also developed a crop enhancement product derived from leonardite, a naturally occurring mineral mined in North Dakota.

Since 1992, MTI has expanded its research base from two locations to 12 R&D centers worldwide. Not only has the number of research facilities increased, the process MTI has used to advance new product development has also changed. Between 1992 and 2007, the company's efforts to discover and develop products and technologies to satisfy customers' needs were less structured than they would later become. The process had been to develop a product and then illustrate its advantages to customers. While there had been a stage gate process through which new product ideas were tested and reviewed, it wasn't until 2007 that the company initiated a highly structured, rigorous new product and process development (NPPD) system. Under the present NPPD system, our scientists and technicians work much more closely with customers to determine their needs, as well as with MTI's manufacturing operations to determine production readiness of new products. The result of the new NPPD process was a revitalization of MTI's pipeline. In 2006, the company

had 16 new product ideas under development; by 2016, that number had increased to 245 ideas, and 15 percent of the company's revenues came from products commercialized in the last five years.

Innovation is an integral part of MTI's corporate DNA and organizational culture. We are a research- and development-based organization adept at transforming and modifying minerals through our expertise in inorganic chemistry, crystallography, coatings and structural analysis to produce value-added products for our customers. MTI will continue to build on that 25-year foundation to develop new products and systems to meet the needs of customers and enhance shareholder value.



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