



# CORPORATE RESPONSIBILITY & SUSTAINABILITY REPORT

2016 UPDATE

MINERALS  
TECHNOLOGIES  
INC.

# SUSTAINABILITY

---

The information contained in our sustainability report is supplemented by other Minerals Technologies' reports and documents. These include the Annual Report to Shareholders and the annual Form 10K and SEC filings, which can be found on our website: [www.mineralstech.com](http://www.mineralstech.com). We encourage readers to review all these sources to learn more about MTI in addition to our sustainability efforts.

This report may contain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, which describe or are based on current expectations. Actual results may differ materially from these expectations. In addition, any statements that are not historical fact (including statements containing the words "believes," "plans," "anticipates," "expects," "estimates," and similar expressions) should also be considered to be forward-looking statements. The company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events, or otherwise. Forward-looking statements in this document should be evaluated together with the many uncertainties that affect our businesses, particularly those mentioned in the risk factors and other cautionary statements in our 2016 Annual Report on Form 10-K and in our other reports filed with the Securities and Exchange Commission.

# CONTENTS

---

CEO Letter	2	Process Waste	30
Key Initiatives	6	Environmental Incidents & Compliance	32
Safety	6	Minimizing Environmental Impact	34
Operating and Financial Performance	9	Social	36
Innovation and Growth	9	Labor Practices and Decent Work	36
Organizational Profile	10	Working with Communities	36
MTI Locations Worldwide	12	Raw Materials and Process Safety	36
MTI Awards and Achievements	13	Ethics and Integrity	36
MTI Financial Profile	15	Product Stewardship	38
Report Parameters	16	Regulatory Approvals	38
Scope of Report	17	Product Classification and Labeling	38
Report Limitations	17	Customers	38
Governance, Commitments & Engagement	18	Economic	40
Stakeholder Groups	20	Financial Implications, Risks and Opportunities Due to Climate Change	41
Environmental Data	21	MTI, Sun Paper and Tsinghua University	42
Energy	22	Making a Difference in India	44
Fossil Fuel	22	Sowing the Seeds of Corporate Responsibility	45
Electricity	23	Summary	47
Water and Wastewater	24		
Air Emissions	26		
Greenhouse Gas Emissions from MTI Processes	26		
Emissions of Air Pollutants	28		

## PEOPLE

We place the health and safety of people ahead of all else.

We cultivate respect for individuals and for the diversity of cultures, beliefs and perspectives.

## CUSTOMER FOCUS

We foster relationships with our customers based on trust and mutual benefit.

We strive to enhance value to customers through improved product quality, customer service and innovation.

## EXCELLENCE

We constantly seek new, innovative technologies and efficient business processes to remain a market leader.

We drive for success by focusing on continuous improvement in all facets of the business—processes, systems, products, services and people.

## ACCOUNTABILITY

We deliver profitable growth and higher returns for our shareholders.

We manage our operations, our capital and our business opportunities in a sustainable manner.

We serve as good stewards of natural resources, and we employ sound environmental practices to protect the communities in which we operate.

## HONESTY

We value honest, open and ongoing communications with our employees, customers, shareholders, suppliers and the communities in which we do business.

We uphold the spirit and intent of the law and conduct our affairs ethically.

# DEAR STAKEHOLDERS:

---



## **THIS SUSTAINABILITY REPORT—MINERALS TECHNOLOGIES’ NINTH—INFORMS OUR STAKEHOLDERS ABOUT OUR ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACT, AS WELL AS OUR EFFORTS, THROUGH A STRUCTURED PROCESS, TO CONTINUOUSLY IMPROVE OUR SUSTAINABLE PRACTICES.**

---

In 1987, the United Nations World Commission on Environment and Development defined the goal of sustainable development as being able to “meet the needs of the present without compromising the ability of future generations to meet their own needs.” This Sustainability Report—Minerals Technologies’ ninth—informing our stakeholders about our economic, environmental, and social impact, as well as our efforts, through a structured process, to continuously improve our sustainable practices.

Our journey towards sustainability started a decade ago when the company began to transform its culture into a highly disciplined and structured business system with a foundation in safety, employee engagement, transparency and accountability. The major catalyst in this transformation was a process of continuous improvement known as Operational Excellence (OE), which has been critical to our success. OE is closely aligned with the concept of Lean Manufacturing (Lean), which can be best described as a management philosophy aimed at eliminating waste in production and business processes while focusing on the activities that create value for the customer.

For MTI, Operational Excellence and Lean are integral to safety. Safety of our employees is a core value and our number one priority. Our daily goal is for all MTI employees and visitors to return home to their families in the same condition they began their work day. During 2016, the company achieved near-world class performance of 1.25 recordable injuries

per 100 employee years, with the world class performance standard at 1.0 recordable injuries per 100 employee years. Our lost workday rate was 0.29 injuries per 100 employee years, down from 0.42 in 2015 compared to the world class standard of 0.10. This is a 31 percent reduction in recordable injuries over 2015. Our Energy Services and Minteq business units did exceptionally well—both exceeding the world class performance of 1.0 for recordable injuries. Our safety performance demonstrates that we are making progress in all business units and all regions of the world. Everyone at MTI can be proud of our safety record and our efforts to make MTI a safer place to work. However, there is still room to improve, and we remain committed to the target condition of zero injuries worldwide with the belief that all injuries are preventable.

When we introduced OE/Lean to MTI in 2007, we instituted a process whereby our senior managers learned the principles of these disciplines and then communicated that knowledge to all employees throughout the company. Management continues to play an active leadership role to provide in-depth OE training and guidance that has accelerated the process. Today, I am pleased to say that Operational Excellence/Lean practices are part of our daily work, and continue to play a key role in improved business performance. The Operational Excellence tools that our employees utilize include:

- 5S: A foundational way to organize the workplace, epitomized by the phrase: “A place for everything and everything in its place.” This process

highlights waste and serves as a basis for continuous improvement. The 5S’s are: Seiri (Sort); Seiton (Set in Order); Seiso (Shine); Seiketsu (Standardize); Shitsuke (Sustain).

- Standard Work: A detailed definition of the most efficient method to perform a task to ensure a safe, stable, repeatable and unambiguous process to achieve reliable output and superior quality.
- Total Productive Maintenance (TPM): A process to optimize equipment effectiveness, eliminate breakdowns and promote autonomous operator maintenance through day-to-day activities involving the total workforce.
- Daily Management Control: A system that supports the ability to manage departments, functions and processes. Key operational data is collected, measured and charted for visual tracking. This tracking facilitates rapid responses to sudden operational issues or the adoption of countermeasures to slowly developing adversity.
- Kaizen Events: Highly focused improvement workshops that address a specific process or work area. (Kaizen translates to “change for the better.”) The events, which can be a few hours or multiple days, typically involve a cross-functional group and may include suppliers and customers.
- Failure Mode Effects Analysis (FMEA) is a process that evaluates our manufacturing and business processes for potential failures. In application, it applies inductive reasoning to help reduce the potential frequency

and severity of any flaw or mistake in a process in use or in design. It is particularly helpful as part of the change management process to engage employees in a focused manner to ensure the changes we make to any process deliver the targeted result in the least wasteful way.

- Voice of the Customer (VOC) refers to the process that focuses on capturing and meeting customer expectations. The process is designed to identify and translate customer wants and needs into product and business process design. Ultimately, this better understanding enables all of our employees to link their activities to providing higher value-added products and services to our customers.

In 2010, MTI began merging our focus on Safety with Lean principles to better leverage both efforts. This approach is illustrated by the combination of the MTI Residual Risk Reduction process to all Kaizen, Standard Work, Non-Routine Task Reviews and TPM activities. This integration of Lean and Safety provides an excellent platform for performing tasks and managing our processes in the safest and lowest-cost ways.

Today, every MTI employee, whether in a manufacturing operation or a staff function, is engaged in applying these tools and processes in eliminating waste. In 2016, our employees held approximately 4,000 Kaizen events, which, on average, meant that about 10 continuous improvement events occurred every day somewhere within MTI—a 27 percent improvement over 2015. Our employees also continued to generate new ideas through a robust suggestion system, which has become an integral part of how we operate. In 2016, our employees generated 45,097 ideas, a 14 percent improvement over the previous year. I am particularly pleased with the 70 percent implementation rate, which is a testament to how engaged our employees are globally.

Our ultimate objective is to deliver value to customers through safe, highly efficient and reliable production and service delivery processes. We will meet this objective through the relentless pursuit of continuous improvement and the elimination of waste, which we believe are prerequisites to being a sustainability leader in the global marketplace.

Operational Excellence has contributed to superior business results while at the same time supporting a work environment that's marked by high levels of personal achievement, satisfaction and engagement. For example, during 2016 Minerals Technologies improved productivity by approximately 7 percent. This improvement saved close to \$5 million in costs compared to 2015 and marks the seventh year that the company has had productivity improvements of 5 percent or higher.

The company and its business units have long sought a variety of ways to be environmentally responsible.

Efforts by our Performance Materials business were cited in mid-2016 by personnel from the U.S. Department of the Interior's Bureau of Land Management as a good example of a "success story" in restoring sage grouse habitat near our mining operations in South Dakota and Wyoming. This is a great example of being a good corporate neighbor and how mining operations can coexist in environmentally sensitive areas.

Also during the year, the Minteq Calcium department, a part of our Refractories segment, reduced daily consumption of propane gas in its three combustion furnaces by nearly 300 gallons of propane

a day through an employee-led project. Over the entire year this reduction in propane consumption will net savings of more than \$110,000.

In 2016, Performance Minerals, which provides ground calcium carbonate, talc and precipitated calcium carbonate (PCC) for non-paper applications, introduced ECO-CAL® calcium carbonate, a more sustainable product for the roofing industry.

In June 2017, UPM (China) Co., Ltd, a major customer, awarded its "Star Supplier for Innovation" to our Changshu PCC plant. The award specifically recognized the Changshu plant for its efforts in clear filtrate water recycling and compressed air sharing.

The Energy Services segment is a leading global provider of off-shore water treatment, using its key technologies to remove oil, hydrocarbons, heavy metals, toxic materials and other contaminants. The segment is creating new ways to improve cost-efficient energy production. Operating as CETCO® Energy Services, we offer a range of patented technologies, products and services for different phases of oil and gas production throughout the world. In 2016, CETCO® Energy Services Australia was awarded an "A" rating from Chevron for the improvements we implemented to comply with their Contractor Health, Environment and Safety Management system.

Our Paper PCC group, the world's largest supplier of precipitated calcium carbonate to the paper industry, developed a product called NewYield® Technology that enables papermakers to repurpose essentially 100 percent of a waste stream generated

**“TODAY, EVERY MTI EMPLOYEE,  
WHETHER IN A MANUFACTURING  
OPERATION OR A STAFF FUNCTION,  
IS ENGAGED IN APPLYING THESE  
TOOLS AND PROCESSES IN  
ELIMINATING WASTE.”**

---



**“IN 2016, WE POSTED  
OUR SEVENTH  
CONSECUTIVE YEAR OF  
RECORD EARNINGS”**

---

in the papermaking process. NewYield® Technology converts this waste stream into a useable product and enables the paper industry to reduce its adverse impact on soil and groundwater. This product is expected to be particularly beneficial to Chinese papermakers, many of which lack alternatives for disposal of this waste stream. NewYield® is the basis of an EcoPartnership that the company announced in June 2016 in conjunction with the eighth annual U.S.-China Strategic and Economic Dialogue. The partnership was sponsored by the U.S. State Department and China's National Development and Reform Commission (NDRC). MTI was one of six companies and institutions awarded EcoPartnerships that were signed in Beijing. The others were: Caterpillar Inc., the University of Southern California, Chemical & Metal Technologies, the U.S. Geological Service and UniEnergy Technologies.

We are the world-leading supplier of Geosynthetic Clay Liners (GCLs) for industrial, hazardous and municipal solid waste landfills, mining sites, and for containment of challenging residues

such as coal ash from coal-fired electrical generation and red mud from alumina processing.

Our Performance Materials group has developed the Enersol® soil enhancing product that promotes sustainable growth and optimal yield of commercial crops by adding organic materials to the soil. The active ingredients humic, fulvic and ulmic acids that act as natural chelating agents improve soil's ability to provide essential nutrients.

NewYield®, Enersol®, and our GCL products were all featured at the Second Annual Climate-Smart, Low Carbon Cities Summit in Beijing in June 2016.

On the economic front, in 2016 we posted our seventh consecutive year of record earnings. For the year, MTI reported earnings per share of \$4.47 compared with earnings of \$4.31 per share in 2015, a nearly 4 percent increase achieved despite a 9 percent decrease in sales. Operating income for the full year was \$257 million, excluding special items, the same level as 2015. However, we improved operating margins to 15.7 percent of sales compared with 14.3 percent in 2015, a 10 percent

improvement. Cash flow from operations for the year was \$225 million, and the company paid down \$190 million of acquisition-related debt in 2016, bringing our net leverage ratio to 2.5 times EBITDA.

MTI will follow the same path of continuous improvement for sustainability as we have in every other aspect of our business, be it economic, environmental or social impact. We take seriously our responsibility to maintain the environment for future generations.

This report outlines our efforts to make MTI a sustainable enterprise regarding the environment, corporate governance, economic and social issues. We are interested in learning what our stakeholders think about our sustainability efforts so we can improve in the future. Please send your thoughts to: [investor.relations@mineralstech.com](mailto:investor.relations@mineralstech.com).

Sincerely,

Douglas T. Dietrich  
Chief Executive Officer  
Minerals Technologies Inc.

# KEY INITIATIVES

## WE PLACE THE HEALTH AND SAFETY OF PEOPLE AHEAD OF ALL ELSE.

In 2007, the company adopted four long-term initiatives aimed at improving environment, health and safety, operating performance and sustainable growth. These initiatives are guided by cross-functional lead teams for Environmental, Health & Safety; Operational Excellence; Expense Reduction; and Technology and Innovation. MTI has made significant progress in all of these areas.

### SAFETY

The safety of our workforce, visitors, customers and neighbors is the primary concern of MTI. Responsibility for health and safety is shared by all employees.

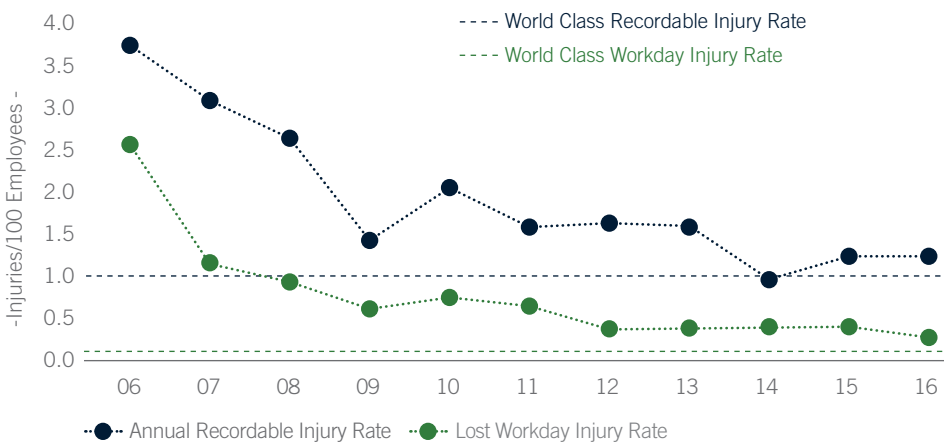
MTI has a vision of zero injuries, based on the belief that all injuries are preventable. In order to implement this vision, all

MTI employees have a role in site safety. Overall site safety efforts are coordinated by site safety committees that include both management and worker representation, based on Corporate Health and Safety Standards. Site personnel conduct routine site safety inspections, training, and emergency planning and reporting of all injuries and near misses. We have experienced significant improvements in plant working conditions as a result of the OE implementation at all of our business units. Our sites are identifying and addressing the risks present at our sites using our risk reduction and lean operating tools.

As a result of these improvements, since 2012, the recordable injury rate has improved 23 percent, while the lost workday injury rate has improved

40 percent. The company's safety performance continued on a strong track in 2016. The 2016 lost workday rate of 0.29 injuries per 100 employees was 31 percent lower than the rate recorded in 2015. This remains the lowest rate in company history, and is approaching world class safety levels of 0.10. The company's recordable injury rate declined from the previous year to 1.25 injuries per 100 employees, just above the world class level of 1.0. Unfortunately, we experienced an increase in the recordable injury rate from 2014 to 2016, while the lost workday injury rate remained essentially the same year to year.

**FIGURE 1**  
Safety: Historical Injury Rates  
(Injuries/100 Employees)





**TABLE 1**

Recordable rate - injuries/100 employee years

Regions:	2012	2013	2014	2015	2016
Americas	1.98	2.30	0.88	1.30	1.51
Asia	1.00	0.59	1.11	1.00	1.01
Europe	1.27	0.93	1.06	0.77	0.34
MTI Total	1.63	1.59	0.97	1.23	1.25

**TABLE 2**

Lost workday rate - injuries/100 employee years

Regions:	2012	2013	2014	2015	2016
Americas	0.43	0.46	0.20	0.27	0.31
Asia	0.34	0.00	0.37	0.25	0.30
Europe	0.64	0.46	0.91	0.69	0.08
MTI Total	0.48	0.39	0.40	0.42	0.29



## **MINERALS TECHNOLOGIES INC.**

**HAS BEEN AN OPERATING ENTITY SINCE 1992,  
WHEN IT WAS FORMED THROUGH AN INITIAL  
PUBLIC OFFERING.**

**WE HAVE GROWN FROM A COMPANY WITH  
\$360 MILLION IN REVENUES IN 1992 TO \$1.638  
BILLION IN 2016. THE COMPANY IS DEDICATED  
TO PROFITABLE GROWTH AND IMPROVING  
SHAREHOLDER VALUE.**



## OPERATING AND FINANCIAL PERFORMANCE

Our efforts to improve productivity and efficiency in all areas of MTI through Operational Excellence continue to provide huge benefits. We are driving Operational Excellence deeper into the company and our employees remain engaged in continuous improvement activities. The number of Kaizen Events – a structured problem solving forum – increased 27 percent in 2016 and the number of employee suggestions were up 14 percent. Sales per employee have increased from \$367,000 per employee in 2007 to \$457,000 per employee in 2016, a compound annual growth rate of 2.5 percent.

## INNOVATION AND GROWTH

Many of the company's product lines are technologically advanced. MTI's internal research teams have dedicated years of experience into analyzing properties of minerals and synthetic materials while developing processes and applications to enhance their performance. Our expertise in inorganic chemistry, crystallography and structural analysis, fine particle technology and other aspects of materials science apply to and support all of our product lines. The company's business strategy for growth in sales and profitability depends, to a large extent, on the continued success of its research and development activities.

In the Specialty Minerals segment, the significant achievements of our research and development efforts include: the satellite PCC plant concept; PCC crystal morphologies for paper coating; FulFill® High-Filler Technology systems; and EMforce®, Optibloc® and Titanium Dioxide (TiO<sub>2</sub>) extenders for the Processed Minerals and Specialty PCC product lines to commercialize similar units at three more locations globally.

The company's Performance Materials segment offers a strong portfolio of internally developed custom blended compounds, formulations and technology to facilitate efficient metalcasting processes for our customers. The Additrol® formulation, a custom greensand bond blend, meets the need of both ferrous and non-ferrous metalcasting applications. The Volclay® application is used in greensand molding

applications ranging from the production of iron and steel castings to the production of non-ferrous castings. The Hevi-Sand® specialty chromite blend prevents metal penetration and can be used with most foundry binders in molds and cores.

Similarly, within the Performance Materials segment, we offer a strong portfolio of products developed principally by our internal efforts. The company's Resistex® formulation withstands aggressive leachates. The Organoclay® technology offers highly effective solutions for removing oils, greases and other high-molecular weight, low-solubility organic compounds from aqueous streams. We will continue to seek out promising compounds and innovative technologies to incorporate into our product lines.

Under the FulFill® platform of products, we continue to develop our filler-fiber composite material. The FulFill® brand High-Filler Technology is a portfolio of technologies that offers papermakers a variety of efficient, flexible solutions that decreases dependency on natural fiber and reduces costs. The FulFill® E-325 series allows papermakers to increase filler loading levels of precipitated calcium carbonate, which replaces higher cost pulp, and increases PCC usage. Depending on paper grades, this PCC volume increase may range from 15 to 30 percent. The company continues to progress in the commercialization of FulFill® E-325. At the end of 2016, we had signed agreements with 27 paper mills on four continents and we are actively engaged with additional paper mill sites for further FulFill® deployment.

Another area of product innovation within this platform is the development of unique calcium carbonates to enhance the performance of novel biopolymers. Novel biopolymers are plant based polymers that are being developed as alternatives to fossil fuel based ones.

In the Refractories segment, the company's achievements include the development of Fastfire® and Optiform® shotcrete refractory products; LaCam® laser-based refractory measurement systems; and the Minscan® and Hotcrete® application systems. In 2016, we commercialized our first Compact Lance Unit (CLU®) installation and we expect additional market interest. This development is an integral part of our Sure-Cal™ calcium wire treatment process that provides our steel customers with optimum calcium recovery, plus reliable and consistent castability of carbon steel.

# ORGANIZATIONAL PROFILE

---



Minerals Technologies Inc. is a resource- and technology-based company that develops, produces and markets worldwide a broad range of specialty mineral, mineral-based and synthetic mineral products and related systems and services. As of December 31, 2016 the company employed 3,583 persons. The Company has four reportable segments: Specialty Minerals, Performance Materials, Refractories and Energy Services.

We are, in essence, two types of businesses—minerals-based and service-based. Our minerals-related segments of Specialty Minerals (consisting of both the Paper PCC and Performance Minerals business units) and Performance Materials contribute nearly 78 percent of

our sales, 85 percent of operating income, and nearly \$300 million in EBITDA. These high-performing businesses are the engines of MTI's future, global growth and form the basis for our 2020 growth targets established in mid-2015.

These minerals-based segments produce and sell products and technologies based primarily upon calcium carbonate, bentonite, talc and leonardite. These products are used in a variety of industries, including the paper, metalcasting, building materials, paints and coatings, automotive, environmental remediation, consumer products, ceramic, polymer, and food and pharmaceutical industries.

Our service-related business segments—Energy Services and Refractories—comprise about 22 percent of our sales, approximately 15 percent of operating income and \$61 million in EBITDA.

The Refractories segment produces monolithic refractory materials and specialty products, services and application equipment used primarily by the steel, non-ferrous metal and glass industries. Energy Services provides produced water treatment, filtration and well-testing services to both on-shore and off-shore oil and gas producers around the world.



**MINERALS BUSINESSES:**

Specialty Minerals

- Paper PCC
- Performance Minerals

Performance Materials

**SERVICE BUSINESSES:**

Energy Services

Refractories

# MTI LOCATIONS WORLDWIDE

---

**MINERALS TECHNOLOGIES  
OPERATES IN:**



# MTI AWARDS AND ACHIEVEMENTS

---

## 2016 ACCOMPLISHMENTS

### PERFORMANCE MATERIALS

The Wyoming State mine inspector issued two awards on safety: one for Colony East for operating without a lost time accident for the 2016 calendar year, and one for Colony West for operating without a lost time accident for the 2016 calendar year. Colony East operated 82,781 employee hours in 2016, while Colony West operated 60,018 employee hours.

The Performance Materials plants in Troy, Indiana; Archbold, Ohio; and Chattanooga, Tennessee are certified by the Occupational, Health and Safety Administration (OSHA) for meeting the requirement under its Safety & Health Achievement Recognition Program (SHARP). The program recognizes small business employers who have used OSHA's On-site Consultation Program services and operate an exemplary injury and illness prevention program.

### SPECIALTY MINERALS — PERFORMANCE MINERALS BUSINESS UNIT

Sherwin Williams' Certified Supplier Award was presented to MTI's Performance Minerals business unit for the Barretts, Montana; Lucerne Valley, California; Canaan, Connecticut and Adams, Massachusetts plants. The award was presented in 2016 for achieving a level of excellence in meeting the Purchasing Center of Excellence Supplier Performance Criteria and demonstrating our commitment to "continuous improvement." In addition, Barretts' Talc operation was recognized by Advanced Composite for 25 years of service excellence.

### ENERGY SERVICES

Aberdeen, Scotland: CETCO Energy Services was awarded the 2015 Society of Petroleum Engineers (SPE) Environmental Innovation Award for our CrudeSep® Compact Flootation Technology at the Aberdeen Exhibition and Conference Centre. SPE is the largest and best known individual member organization serving managers, engineers, scientists and other professionals worldwide in the upstream segment of the oil and gas industry. Australia: Chevron awarded CETCO Energy Services 'Business Partner A' status. This is the highest level of Business Partner and allows us to be prequalified for services. This reflects our Quality Standards and Environmental, Health and Safety performance.

### SAFETY AND ENVIRONMENTAL CERTIFICATIONS

Five sites (Cork, Ireland; Rotherham, UK; Hengelo, Netherlands; Lifford, UK; and Suzhou, China) are ISO 14001 certified. Four of those sites (Cork, Rotherham, Lifford and Hengelo) are also ISO 18001 certified. ISO 14001 Certification outlines the requirements and guidance for use of environmental management systems; ISO 18001 outlines the requirements and guidance for use of occupational health and safety management systems.

## ADAMS SPONSORS A CAREER DAY AT LOCAL SCHOOLS WITH SENIOR MANAGEMENT IN ATTENDANCE TO SHOW SUPPORT FOR ACADEMIC ACHIEVEMENT AND INDUSTRY.

### ADAMS, MASSACHUSETTS

The Adams facility continues to support the Berkshire United Way, and is the largest donor in the region.

The facility hosts educational tours for elementary and college level students.

Adams sponsors a career day at local schools with senior management in attendance to show support for academic achievement and industry. Awarded the ISO 9001:2008 (Quality Management System) Recertification.

### BARRETTS, MONTANA

Corning Ceramics awarded Barretts Certified Supplier Status, marking the third year in a row that Barretts was the Top Raw Material Supplier.

Barretts received special recognition from the local United Way for 26 years of contributions (Barretts was the founding company for Beaverhead County United Way and represented 70 percent of the funds raised in 2015).

Barretts received a letter of appreciation for donation of talc to the elementary school art department in Ronan, Montana, to be used for “soapstone carvings.” (Many of the children are of Native American lineage and soapstone carving dates far back into their history.)





# MTI FINANCIAL PROFILE

**WORLDWIDE NET SALES IN 2016 WERE \$1.638 BILLION.**

At December 31, 2016, the company had approximately \$1.0 billion in shareholders' equity and \$1.1 billion in debt. Total market capitalization for the company was approximately \$2.7 billion. In 2016, we posted our seventh consecutive year of record earnings. For the year, MTI reported earnings per share of \$4.47 compared with earnings per share of \$4.31 in 2015, a 4 percent increase, despite a 9 percent decrease in sales.

**MINERALS-BASED BUSINESSES: 78%**  
(percentage of 2016 net sales/millions of dollars)



- Specialty Minerals \$591.5 / 36%
  - Paper PCC 24%, \$387.9
  - Ground Calcium Carbonate (GCC) 5%, \$83.6
  - Specialty PCC 4%, \$64.3
  - Talc 3%, \$55.7
- Performance Materials \$686.1 / 42%
  - Metalcasting 16%, \$258.0
  - HPC & Specialty Products 10%, \$171.2
  - Basic Minerals & Other Products 6%, \$103.9
  - Environmental Products 5%, \$78.9
  - Building Materials 5%, \$74.1

**SERVICE-BASED BUSINESSES: 22%**  
(percentage of 2016 net sales/millions of dollars)



- Refractories \$274.5 / 17%
  - Refractories 14%, \$219.0
  - Metallurgical Wire 3%, \$55.5
- Energy Services \$85.9 / 5%
  - Energy Services 5%, \$85.9

**2016 NET SALES BY GEOGRAPHIC AREA**  
(percentage of 2016 net sales/millions of dollars)



- United States 57%, \$936.2
- Europe/Africa 21%, \$338.8
- Asia 17%, \$280.4
- Canada/Latin America 5%, \$82.6

**2016 NET SALES BY SEGMENT**  
(percentage of 2016 net sales/millions of dollars)



- Specialty Minerals 36%, \$591.5
- Performance Materials 42%, \$686.1
- Energy Services 5%, \$85.9
- Refractories 17%, \$274.5

# REPORT PARAMETERS

---

In 2007, the company's Environmental, Health and Safety (EHS) Lead Team was organized with the purpose of significantly improving MTI's safety program and environmental performance. In 2009, the EHS Lead Team published the first MTI Sustainability Report summarizing the relevant sustainability aspects of the company's activities. The Team used the Global Reporting Initiative (GRI) Level C guidelines as the guide for the report contents. The EHS Lead Team recognized that the process of collecting and

summarizing the information necessary for this report would allow each business unit and location to better assess the impact of their activities and identify opportunities for improvements.

This update for 2016 reviews the key sustainability topics relevant to the activities of the four reportable segments of MTI. We used both an internal process and feedback from MTI's stakeholders to identify and evaluate the Indicator Aspects listed in the GRI guidelines.

Questions, comments and suggestions about this Sustainability Report should be directed to the following address:

## **INVESTOR RELATIONS**

Minerals Technologies Inc.  
Corporate Communications  
622 Third Avenue, 38th Floor  
New York, New York 10017-6707 USA  
Phone: +1-212-878-1831  
Email: [investor.relations@mineralstech.com](mailto:investor.relations@mineralstech.com)  
Website: [www.mineralstech.com](http://www.mineralstech.com)



# SCOPE OF REPORT

---

The major goal of this report is to identify and quantify the key topics and indicators relevant to the company's sustainability activities. This report originated through input from routine discussions with customers and shareholders as well as a formal process for soliciting input from key selected stakeholders. We are focused on continuous improvement in the accuracy and completeness of the data in this report.

The MTI Sustainability Report summarizes the environmental activities of all mining and manufacturing operations owned and operated by MTI's four reportable segments. The environmental impact of the Energy Services business unit, which has no significant manufacturing operations, is not included in this report. The report does not include the activities of suppliers, nor does it cover the activities of tolling (outsourced) manufacturers.

## REPORT LIMITATIONS

### THIS UPDATE HAS THE FOLLOWING LIMITATIONS:

- Some operations do not record specific environmental metrics. Where data was unavailable for the reporting period, estimates were made based on similar operations or historical information. We continue to improve the process of gathering and recording the pertinent environmental metrics from all operations.
  - No environmental data is obtained from the MTI administrative facilities, sales locations, equipment storage and repair centers or research/development locations. The environmental impact from these operations is believed to be insignificant compared to the manufacturing locations.
  - The activities of the transportation business unit, Ameri-Co Carriers, Inc., are not included in the report at this time.
  - No environmental data is available for the Refractory Segment Steel Mill Service locations, which are located within customers' steel mills. The Steel Mill Service crews rely upon the customer to provide energy, water and waste disposal at the application site within the steel mills. These activities are a small fraction of the overall impact associated with the operations of the steel mill.
- MTI is unable to determine the greenhouse gas impact of the electrical use at the Paper PCC facilities. Typically, the host paper mills supply electricity to the satellite plants. Many of the paper mills generate this electricity from onsite cogeneration systems that use a variety of fuels, including biomass waste from the paper plant operations. The fuel usage (and thus, the emissions of greenhouse gases) changes each year, depending on the availability of the fuels and the operations at the mill. Due to this fact, MTI is unable to estimate the indirect greenhouse gas impact from the use of electricity at the Paper PCC operations.

The semi-manual process of gathering the information for this report was recognized as a shortcoming in the preparation of the annual update. In line with our goal of continuous improvement, starting in 2016, a group headed by the EHS Lead Team reviewed the 2015 Sustainability process and made two key changes:

1. A Kaizen was held to determine how to improve the process for data collection, analysis and reporting.
2. Standard Work was implemented to stabilize the process and create a repeatable, more reliable and automated system in order to improve the accuracy and completeness of the data.

We now have an improved process with a more efficient approach to data collection and analysis. We recognize, however, that there may still be gaps in accuracy of data and some discrepancies in data may exist between years.

# GOVERNANCE, COMMITMENTS & ENGAGEMENT

---

Minerals Technologies' governing body is its eight-member Board of Directors. Duane R. Dunham is Chairman of the Board. In addition to Mr. Dunham, the Board consists of six independent directors and one executive director. The Board of Directors has three committees—Audit; Corporate Governance and Nominating; and Compensation.

## **MECHANISMS FOR SHAREHOLDERS AND EMPLOYEES TO PROVIDE RECOMMENDATIONS OR DIRECTION TO THE BOARD INCLUDE:**

- Stockholders and any other interested parties may communicate by email with the independent members of the Board at the following address: [independent.directors@mineralstech.com](mailto:independent.directors@mineralstech.com). The independent members of the Board have direct access to all messages sent to this address and the messages are monitored by MTI's office of the General Counsel. No message sent to this address will be deleted without the approval of the chair of the committee of the Board with primary responsibility for the principal subject matter of the message.
- To propose items of business for consideration at the company's Annual Meeting, written proposals must be made through the process laid out in the company's proxy statement. These include: If intended to be considered at an annual meeting, the nomination or proposed item of business must be received no less than 70 days nor more than 90 days in advance of the first anniversary of the previous year's annual meeting.
- The company has an MTI Hotline, which allows employees to report any corporate governance concerns. These concerns go to the General Counsel and are then presented to the Audit Committee of the Board.

## **THE PRIMARY DUTIES OF THE AUDIT COMMITTEE ARE:**

- To assist the Board of Directors in its oversight of (i) the integrity of the company's financial statements, (ii) the company's compliance with legal and regulatory requirements, (iii) the qualifications and independence of the company's independent registered public accounting firm, and (iv) the performance of the company's internal audit function and independent registered public accounting firm;
- To appoint, compensate, and oversee the work of the independent registered public accounting firm employed by the company (including resolution of disagreements between management and the auditors concerning financial reporting) for the purpose of preparing or issuing an audit report or related work. The independent registered public accounting firm shall report directly to the committee; and
- To prepare the report of the committee required by the rules of the SEC to be included in the company's annual proxy statement.

**THE PRIMARY DUTIES OF THE CORPORATE GOVERNANCE AND NOMINATING COMMITTEE ARE:**

- The identification of individuals qualified to become Board members and the recommendation to the Board of nominees for election to the Board at the next annual meeting of stockholders or whenever a vacancy shall occur on the Board;
- The establishment and operation of committees of the Board; and
- The development and recommendation to the Board of corporate governance principles applicable to the company.

**THE PRIMARY DUTIES OF THE COMPENSATION COMMITTEE ARE:**

- To participate in the development of our compensation and benefits policies;
- To establish, and from time to time, vary the salaries and other compensation of the company's employee-directors and other elected officers; and
- To participate in top-level management succession planning.



# STAKEHOLDER GROUPS

---

**MTI USED BOTH FORMAL AND INFORMAL METHODS TO IDENTIFY STAKEHOLDERS AND OBTAIN INPUT REGARDING THE TOPICS AND INDICATORS THAT ARE MATERIAL TO THE COMPANY'S SUSTAINABILITY ACTIVITIES. THOSE STAKEHOLDERS WHO PROVIDED INPUT INCLUDE:**

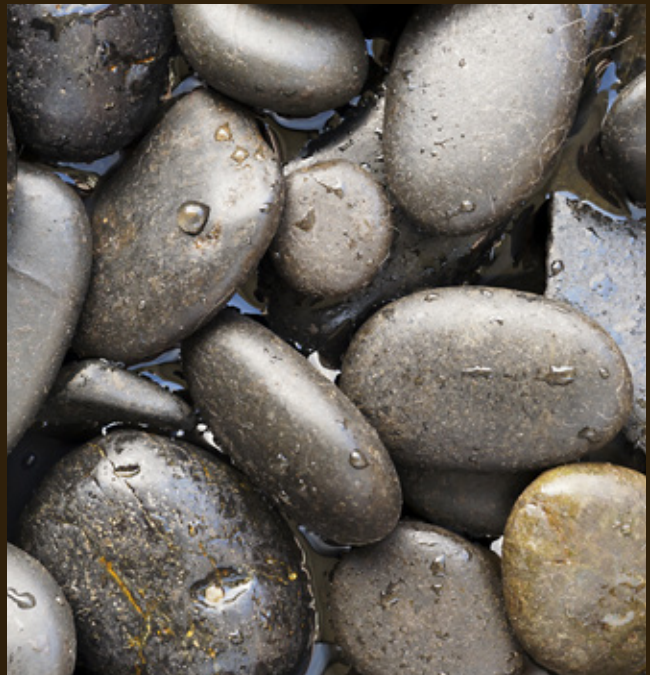
**CUSTOMERS**

**EMPLOYEES**

**SHARE-  
HOLDERS**

**SUPPLIERS**

**COMMUNITIES  
IN WHICH WE  
OPERATE**



# ENVIRONMENTAL DATA

---

**PRIOR TO THE 2015 UPDATE,  
ALL MTI MANUFACTURING  
OPERATIONS PROVIDED  
ANNUAL SUMMARIES OF THE  
FOLLOWING PARAMETERS  
FROM THEIR SITES:**

- Total production
- Fuel usage
- Electrical usage
- Process water usage
- Process wastewater volumes, and
- Disposal of process solid waste

Data for 2012 to 2016 is presented to illustrate the improvements that have been realized as a result of the efforts by every employee in the company. The data for 2014 includes a full year of data for the “legacy” MTI operations - Paper PCC, Performance Minerals and Refractories (Minteq), but only the partial year impact from the former AMCOL operations, which we acquired in May 2014. Therefore, 2015 represents a new baseline year for future comparisons.

The energy consumption data is used to calculate air emissions, including greenhouse gas emissions. Where possible, the information is presented both as a total amount by business unit and on a per-ton of finished product basis. This allows for identification of improvements that are independent of production changes.



# ENERGY

## FOSSIL FUEL

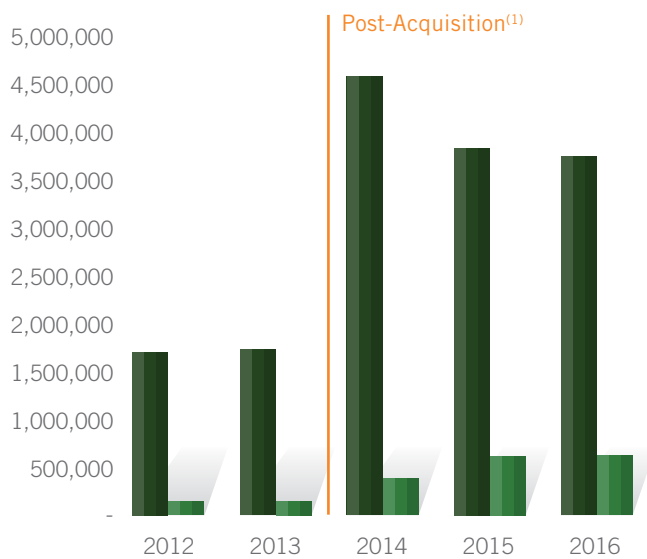
The mineral processing operations at the Performance Minerals, Refractories and Performance Materials facilities use a variety of fuels in fixed process applications (dryers, kilns and boilers) and for mobile equipment. The fuel usage data from these facilities has been converted to a common basis (million BTUs of energy) and is presented in Figures 2 and 3. Note that there are no fuel-using operations (other than a negligible amount for forklifts and space heating equipment) at the Paper PCC plants.

As shown in Figure 2, the amount of process fuel used (measured in terms of million BTUs) decreased slightly

(2%) in 2016 versus 2015 while mobile equipment fuel increased slightly (<1%). The decrease in process fuel usage is generally commensurate with lower production volumes while the slight increase in mobile equipment fuel can be attributed to a slightly higher mining volume. Figure 3 also shows a slight increase in the amount of fuel used per unit of production. This was up because overall production was down in 2016 compared to 2015, while the fuel usage only decreased slightly. Additionally, MTI's 2014 Sustainability Report did not include the effect of contractor fuel use in our Performance Materials business unit. As a result, the years 2014 and 2015 are not directly comparable in terms of energy use and emissions.

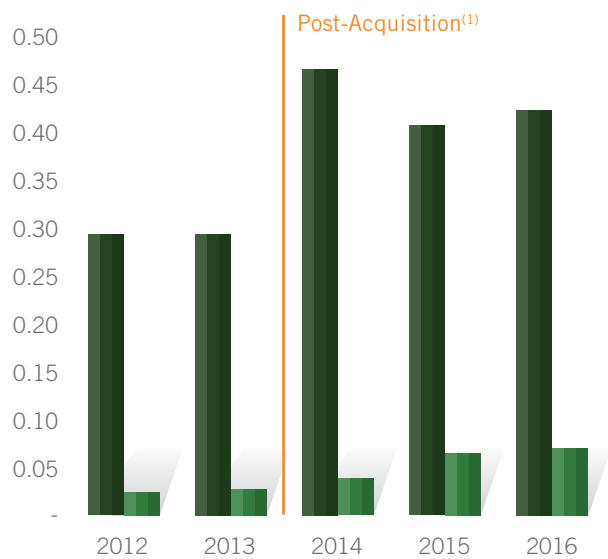


**FIGURE 2**  
Total Fuel Use  
(Million BTUs)



■ Process Fuel Use  
■ Mobile Equipment Fuel Use

**FIGURE 3**  
Fuel Use per Unit Production  
(Million BTUs per Ton Production)



MTI's 2014 Sustainability Report did not include the effect of contractor fuel use in our Performance Materials business unit. As a result, the years 2014 and 2015 are not directly comparable in terms of energy use and emissions.

<sup>(1)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.



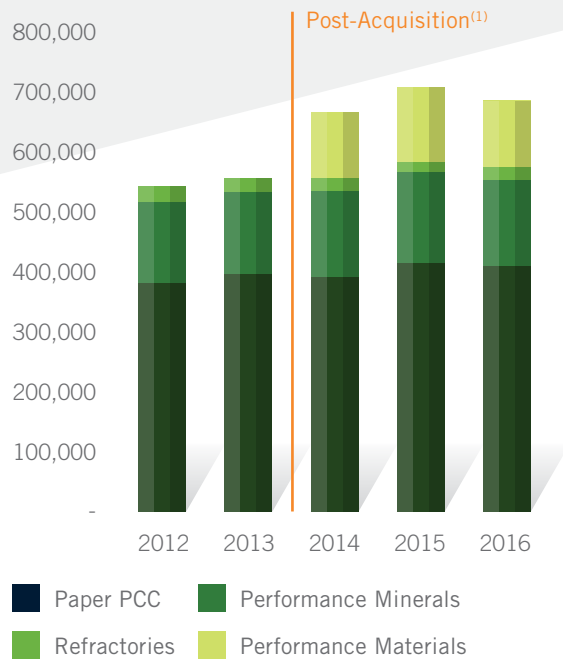
**THE MAJORITY OF THE PRODUCTION OPERATIONS RECORD ANNUAL ELECTRICAL USAGE.**

**ELECTRICITY**

The majority of the production operations record annual electrical usage. Where data is missing, the electrical use has been estimated using ratios of electrical use to production rates. Figure 4 presents the electrical usage for all production operations. The electrical usage by the non-production facilities (offices, labs, etc.) is considered negligible.

As can be seen in Figure 4, the total electrical usage in 2016 decreased by 3% from 2015. This can be generally attributed to reduced production volumes as well as improved energy efficiency.

**FIGURE 4**  
Electricity Use (MWH)



<sup>(1)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.



# WATER AND WASTEWATER

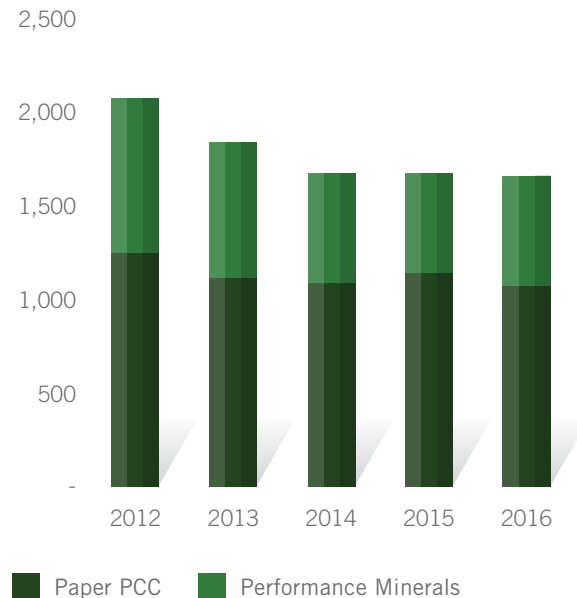
Figure 5 summarizes the amount of process water used and discharged by the Performance Minerals and Paper PCC operations. These business units use water for process and cooling purposes. None of the other business units use significant amounts of water. Together, the Refractory and Performance Materials operations use less than 1 percent of the water used by Performance Minerals and Paper PCC. Therefore, these operations are not included in these graphs.

The amount of water used overall decreased in 2016 by 3 percent from 2015. The amount of water used in the PCC plants decreased, but was offset by a slight increase in the Performance Minerals plants. The difference in water use and wastewater for Paper PCC is due to the fact that much of the water used in the PCC process is either transferred to the customer with the final product (typical filler PCC products contain 80 percent water; typical coating products contain approximately 20 percent water)

or is lost via evaporation. The process wastewater from the onsite PCC plants is discharged to wastewater treatment plants operated either by the host paper mills or by local municipalities. Cooling water from PCC plants is managed in a variety of ways, including return to the host mill for use in their systems, direct discharge of clean cooling water to surface water and discharge of cooling tower blow-down to treatment operations. Water that is returned to the host mill for reuse is not considered wastewater.

The majority of the water used by the Performance Minerals' facilities is associated with the production of Specialty PCC and talc. The wastewater from these operations is discharged to surface water after treatment. A portion of the water used by Performance Minerals is reused, drains to groundwater through settling ponds or is lost through evaporation.

**FIGURE 5**  
Wastewater Gallons per Ton of Production  
(Gallons per Ton Production)





# AIR EMISSIONS

---

## GREENHOUSE GAS EMISSIONS FROM MTI PROCESSES

Figures 6 and 7 summarize the greenhouse gas (GHG) emissions resulting from the production processes (dryers, kilns, boilers and calciners), mobile equipment and the offsite production of the electricity used by MTI facilities. The mineral processing operations at the Performance Minerals, Refractories and Performance Materials facilities use a variety of fuels in process dryers, kilns and for mobile equipment. In addition, the calcination of limestone to lime (Adams, Massachusetts and Lifford, UK) and magnesium carbonate (Kutahya, Turkey) releases carbon dioxide to the atmosphere.

The Performance Minerals, Refractories and Performance Materials facilities also use a variety of fuels for in-plant mobile

equipment, such as front-end loaders and haul trucks. The greenhouse gas emissions from these sources have been calculated from the mobile equipment fuel usage and emission factors that provide the mass of greenhouse gas emissions per unit of fuel. Note that the fuel used by contract haulers at the mining operations is also included in the estimate of mobile equipment greenhouse gas emissions.

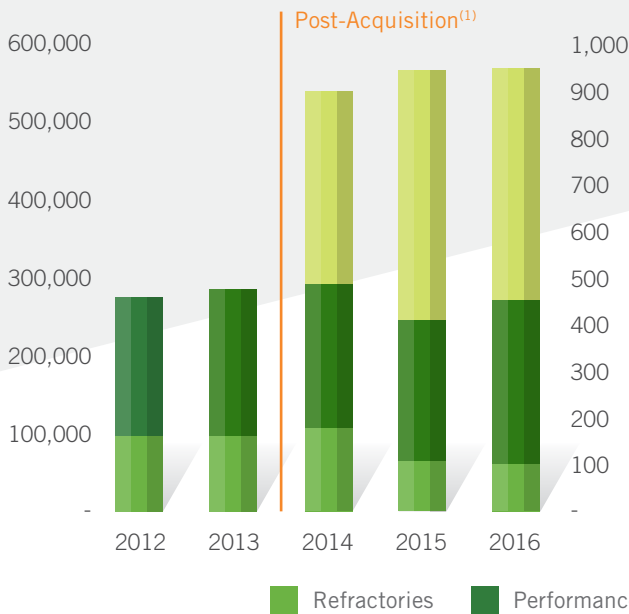
There are no significant combustion processes (dryers, kilns, etc.) or mobile sources at the Paper PCC customer locations. Therefore, these operations are not included in Figures 6 or 7.

A third source of the greenhouse gas emissions resulting from MTI operations is the offsite production of purchased

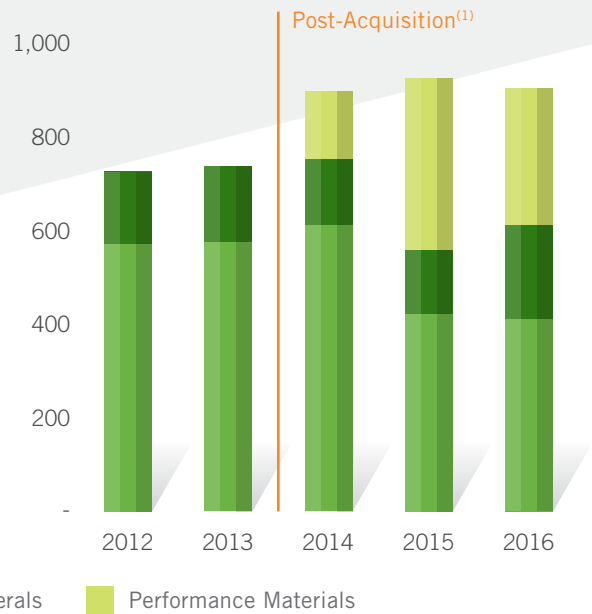
electricity provided by public utilities. Greenhouse gas emissions from offsite power plants were only calculated for the Performance Minerals, Refractories and Performance Materials facilities. The Paper PCC facilities typically use electricity generated by the host paper mill. These facilities increasingly use co-generation systems and/or burn biomass materials (such as wood bark) to produce electricity. As a result, the emission factors for each of these facilities must be gathered on an individual site basis and will change significantly year-to-year based on the mill's fuel mixture. At this time, MTI is unable to obtain site-specific greenhouse gas emission factors from the Paper PCC host paper mills that supply these operations with electricity.



**FIGURE 6**  
Greenhouse Gas Emissions  
(Tons of Carbon Dioxide Equivalents)



**FIGURE 7**  
Greenhouse Gas Emissions per Ton of Product  
(Pounds of Carbon Dioxide Equivalents Emitted Per Ton of Product)

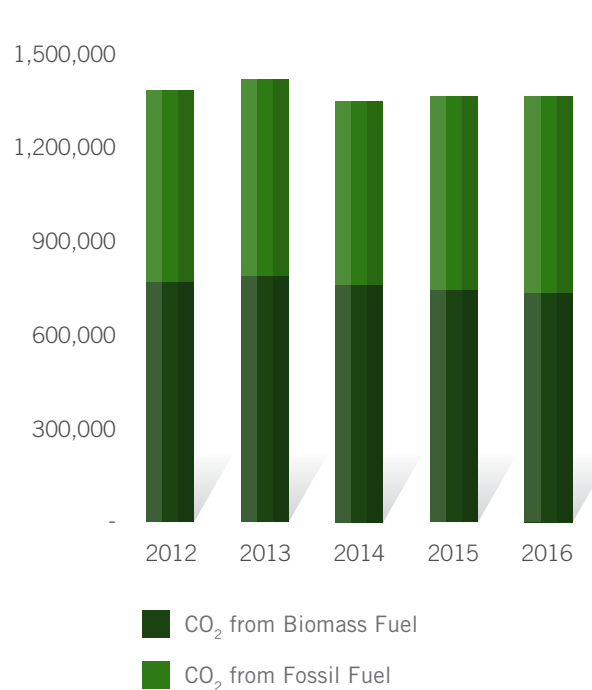


<sup>(1)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.

Figure 6 presents total greenhouse gas emissions resulting from the processes and the mobile equipment found at the Performance Minerals, Refractories and Performance Materials facilities as well as the emissions resulting from electricity production for these facilities. Figure 7 presents the process and mobile equipment data on a production basis. The data presented show a very slight (<1%) increase in GHG emissions from 2015 to 2016. Reductions in indirect GHG due to less electrical usage were offset by increases in process and mobile fuel usage.

MTI's Paper PCC operations provide a significant benefit by permanently sequestering a portion of the fossil fuel based carbon dioxide emissions produced by the host paper mills where the PCC plants are located. MTI has estimated the total amount of carbon dioxide removed from the paper mill emission sources (primarily the pulp mill lime kilns and recovery boilers) which is then converted to PCC. Figure 8 illustrates the amount of carbon dioxide absorbed from biomass and fossil fuel sources. This chart is based upon production data and the sources of carbon dioxide at our host paper mills.

**FIGURE 8**  
Carbon Dioxide Absorbed by Paper PCC Operations  
(Tons of Carbon Dioxide Absorbed)

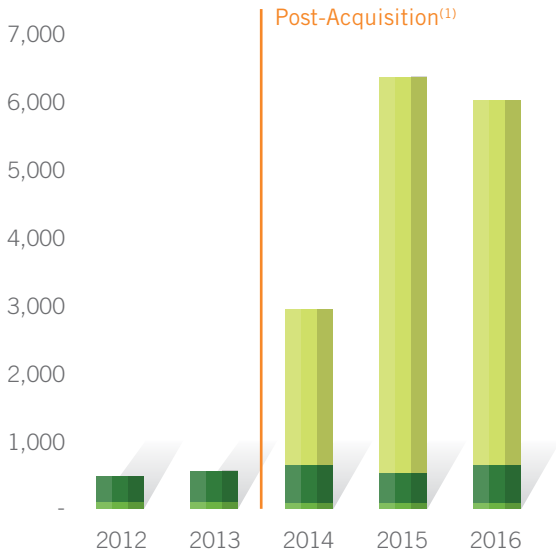


## EMISSIONS OF AIR POLLUTANTS

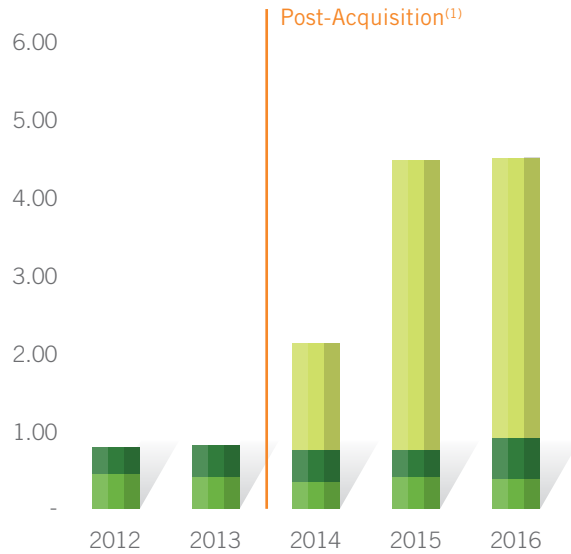
Total emissions are provided in Figures 9 and 10 for both stationary combustion sources and mobile sources. Many of the Performance Minerals, Refractories and Performance Materials facilities report emissions of nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO) and volatile organic hydrocarbons (VOCs) to the local authorities. These data have been used where available. If no plant estimates are available, emissions have been calculated using total fuel usages and The United States Environmental Protection Agency (EPA) emission factors. Since there are no significant combustion processes (dryers, kilns, etc.) or fuel usage by mobile equipment at the Paper PCC facilities, these sites are not included in these graphs.



**FIGURE 9**  
**Air Pollutant Emissions**  
 (Tons of Air Pollutant Emitted per Year)



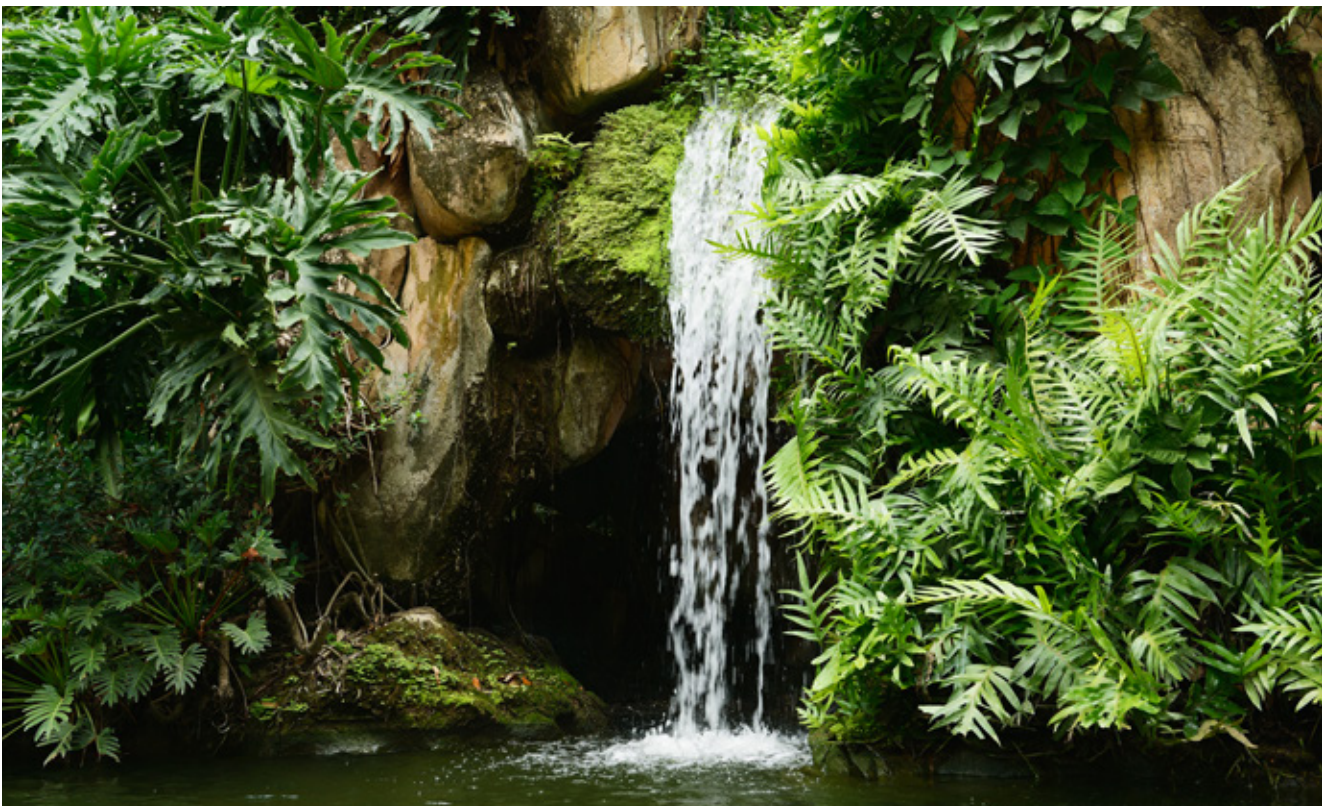
**FIGURE 10**  
**Air Pollutant Emissions per Ton of Production**  
 (Pounds Emitted per Ton of Product)



- Refractories
- Performance Minerals
- Performance Materials

MTI's 2014 Sustainability Report did not include the effect of contractor fuel use in our Performance Materials business unit. As a result, the years 2014 and 2015 are not directly comparable in terms of energy use and emissions.

<sup>(1)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.



# PROCESS WASTE

The total amount of process waste and the amount of waste per ton of production by each business unit is provided in Figures 11 and 12.

MTI has limited the definition of wastes to include only process wastes that are sent to final treatment or disposal, either offsite or onsite. MTI does not include maintenance wastes (such as used oil), packaging wastes or office trash in this section, as there are no records of these materials. MTI also does not consider unprocessed mining materials that are returned to the mine site, to be process waste. These materials have not been chemically altered and are typically not regulated substances. Finally, we are not

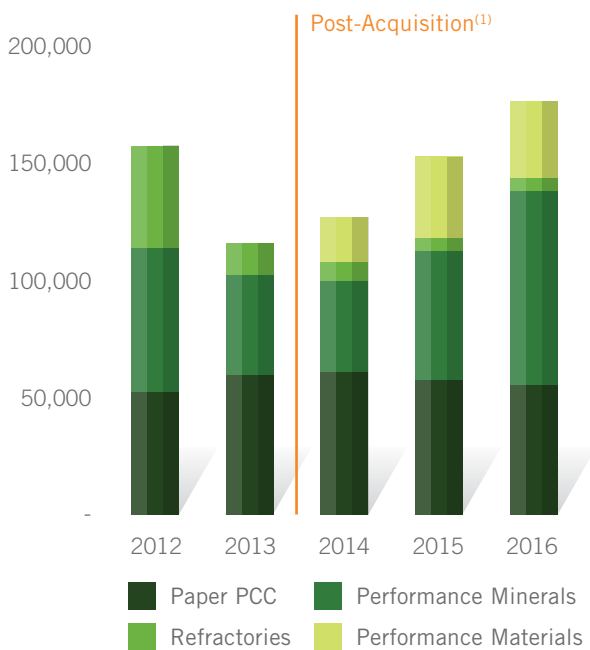
including materials that are recycled in offsite applications in the quantities of process wastes. The primary example of this is the alkaline screenings (“grit”) produced by several PCC plants, which is used as a replacement for agricultural limestone. Since this material is a product rather than a waste, it is excluded from the calculation of process waste volumes.

Many Paper PCC locations reuse the alkaline screenings, commonly referred to as grit, as a substitute for agricultural lime or other applications where the alkalinity is beneficial. Options for grit use depend on local conditions such as the need for agricultural lime at nearby farms, the distance from the grit source to potential

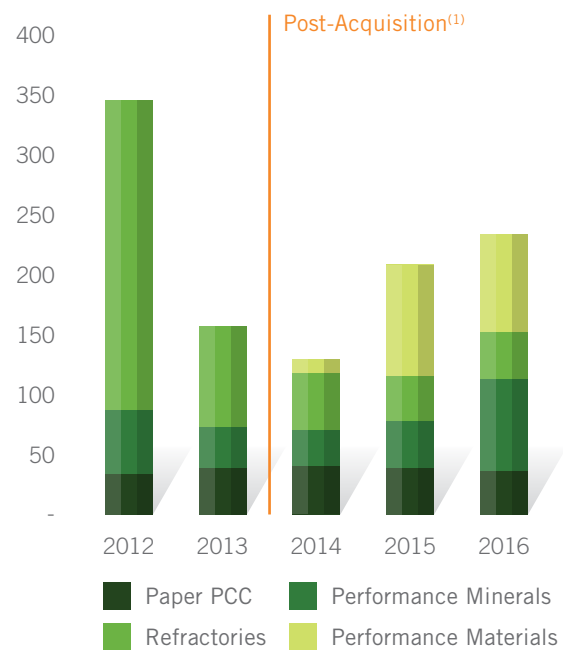
market, local regulations, the nature of the lime and the PCC grit and other factors. Figure 13 compares the amount of grit that is reused to that which is landfilled.

Waste generation increased notably in Performance Minerals, as changes in customer preference eliminated the opportunity to recycle lime kiln waste dust material at the Adams, Massachusetts location, which had to be landfilled instead.

**FIGURE 11**  
Process Waste  
(Tons of Waste Landfilled)



**FIGURE 12**  
Waste per Ton of Production  
(Pounds of Waste Landfilled per Ton of Production)

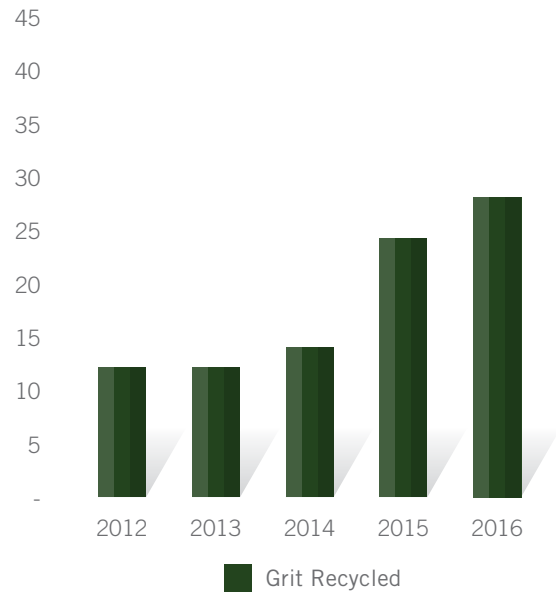


<sup>(1)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.





**FIGURE 13**  
Tons of PCC Grit Recycled Per Ton of Production



# ENVIRONMENTAL INCIDENTS & COMPLIANCE

---

MTI has implemented procedures to ensure consistent and prompt reporting of all situations that may have significant environmental impact. The MTI process requires sites to report release events (spills), even if there is no immediate environmental impact. This is an effort to continuously improve our processes and prevent releases by analyzing events that may have had the potential to impact the environment (near misses).

The EHS Lead Team reviews each environmental incident on a monthly basis to identify risks and to track improvement. When there is a release event at a facility, a root cause analysis investigation is conducted, with a target completion within one week of the event to ensure

that the information and circumstances are quickly captured. Further, the facility documents the investigation and develops corrective actions based on the root cause(s) identified. The facilities employ a number of root cause analysis techniques, including Fishbone diagrams, 5 Whys, Cause Mapping and TapRoot®.<sup>(1)</sup>

Significant release events or events that have learnings across the company will have an Environmental Alert developed and provided to employees through company bulletins to help prevent future occurrences. Specific information about situations that may affect similar operations is passed directly to these sites to ensure that preventative measures are implemented. Table 3 summarizes

the number of release events that were actually reportable to an outside agency. Table 4 summarizes the number of release events that were captured internally in the MTI process that had the potential for environmental impact (near misses).

A summary of the environmental (ENV) and safety (S&H) sanctions and citations issued by various regulatory agencies is presented in Figures 14 and 15. The majority of the citations are from the U.S. Mine Safety and Health Administration (MSHA) which has jurisdiction over the twelve operating U.S. mining operations. MSHA conducts multi-day inspections of each of the mining operations at least twice each year.

<sup>(1)</sup>TapRoot® is a registered trademark of System Improvements, Inc.



**TABLE 3**  
Significant Spills from MTI Locations

Year	2012	2013	2014	2015	2016
# of Spills <sup>(1)</sup>	7	5	5	10	6

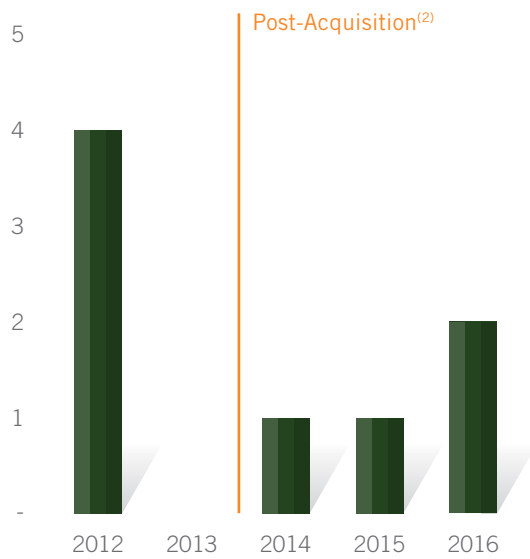
**TABLE 4**

Year	2012	2013	2014	2015	2016
Environmental Incidents <sup>(1)</sup>	24	16	35	46	56

<sup>(1)</sup>The increase from 2014 to 2015 reflects the full year capture of AMCOL for 2015, as compared to a partial year in 2014.

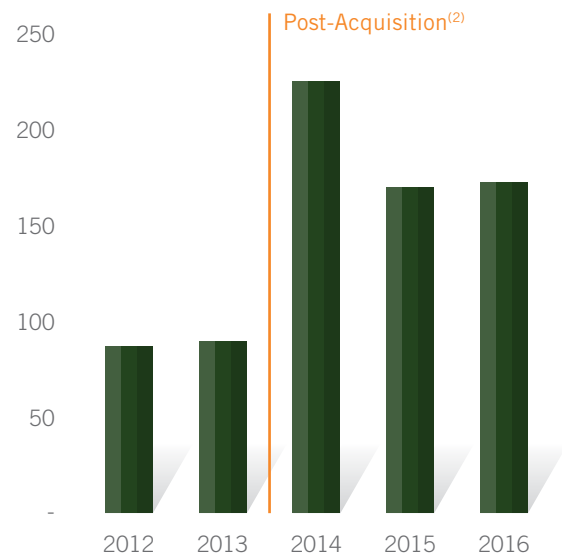
**FIGURE 14**  
Compliance Data

(# of Notices of Violations - ENV)

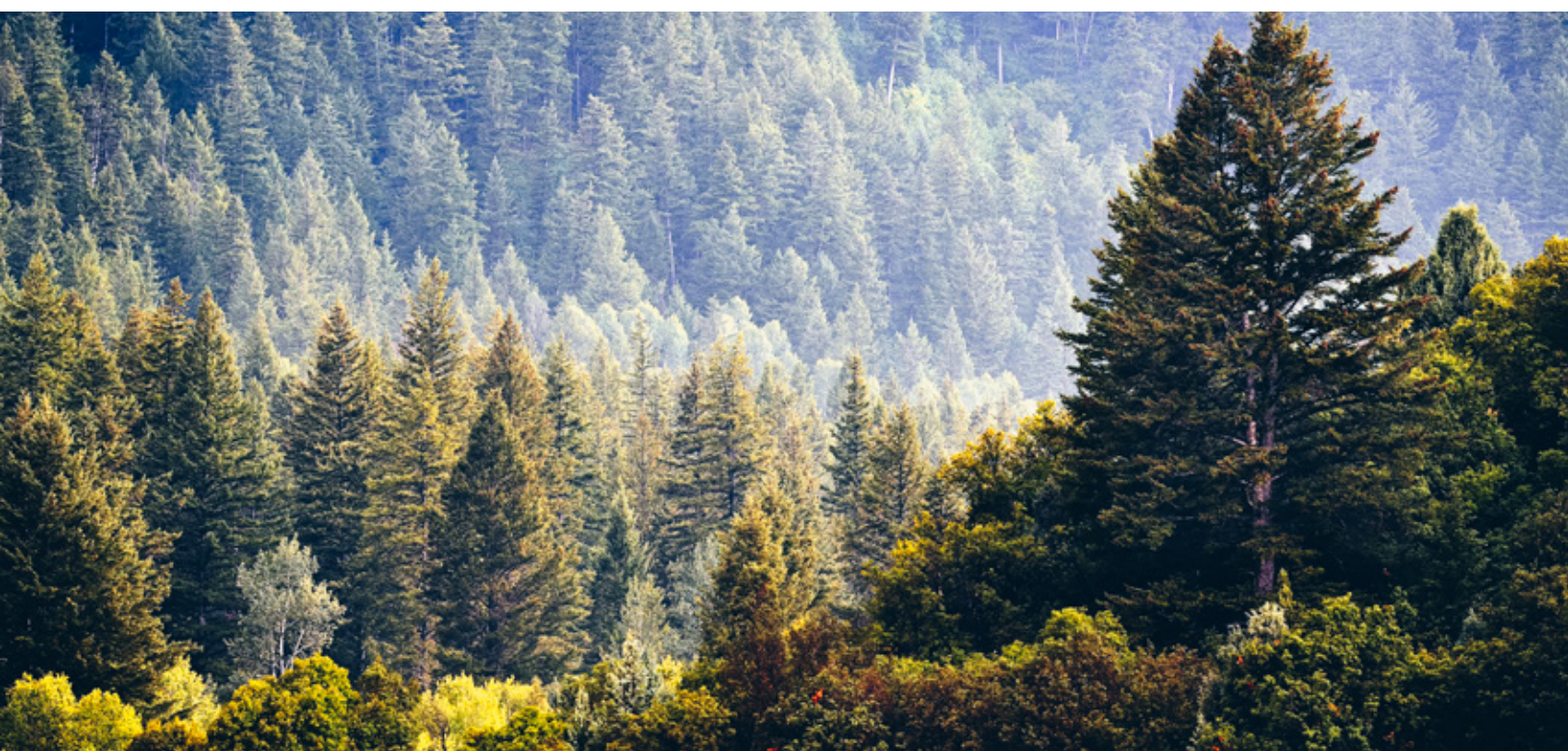


**FIGURE 15**  
Compliance Data

(# of Compliance Violations - S&H)



<sup>(2)</sup>In May 2014, MTI acquired AMCOL, a leading international producer of specialty materials and related products and services, with approximately \$1 billion in revenue. The data above for 2014 includes only the partial year impact from the AMCOL operations. Therefore, 2015 represents a new baseline year for future comparisons.



# MINIMIZING ENVIRONMENTAL IMPACT

MTI has always been sensitive to the environmental impact of our activities at the operating facilities and the services and products provided to our customers. Two of the company's Value Statements exhibit this concern:

**WE MANAGE OUR OPERATIONS, OUR CAPITAL, AND OUR BUSINESS OPPORTUNITIES IN A SUSTAINABLE MANNER. WE SERVE AS GOOD STEWARDS OF NATURAL RESOURCES, AND WE EMPLOY SOUND ENVIRONMENTAL PRACTICES TO PROTECT THE COMMUNITIES IN WHICH WE OPERATE.**

Each of the business units that make up MTI continues to implement measures to minimize the environmental impact of our operations, products and services as well as those of the customers we supply. Examples of the activities to reduce environmental impact for MTI and our customers include:

- Developing products and processes for waste management and recycling, reduced energy consumption and improved sustainability of the papermaking process (see Figure 8 and NewYield® discussion on pages 4 and 5 in particular).
- Developing unique calcium carbonate and talc products used in the manufacture of novel biopolymers.
- Deploying value-added formulations of refractory materials that not only reduce costs but improve performance and energy efficiency for the customer.
- Continuing to develop proprietary Enersol® products that enhance crop growth currently affected by poor soil conditions and overuse of fertilizers.
- Pursuing environmental remediation opportunities for our Geosynthetic Clay Liners (GCLs) globally.
- Performance Materials provides a range of GCL solutions for remediation of submerged contaminated sediments by capping these sediments most commonly in river bottoms. The cap reduces mobility of the contaminants and interaction with aquatic organisms.
- The company's GCLs are also widely used in both lining and capping landfills to protect groundwater.
- Offering innovative off-shore water treatment technology to the global oil and gas industry.
- Deploying Operational Excellence principles into all aspects of the organization, including system infrastructure and lean principles.





**MTI HAS ALWAYS BEEN  
SENSITIVE TO THE  
ENVIRONMENTAL IMPACT OF  
OUR ACTIVITIES  
AT THE OPERATING FACILITIES AND OF THE  
SERVICES AND PRODUCTS PROVIDED TO  
OUR CUSTOMERS.**

# SOCIAL

## LABOR PRACTICES AND DECENT WORK

Minerals Technologies Inc. provides a business environment and promotes a culture that encourages all employees to contribute to our success. MTI values the differences in employees' backgrounds and skills.

MTI has prospered for years because employees of diverse backgrounds and interests have flourished here. We have long been committed to the recruitment and advancement of the most talented and qualified people. We recognize that MTI's ability to provide the highest caliber of products and services is enhanced by a workforce that reflects the diversity of the communities and countries in which we work.

MTI is an equal opportunity employer, committed to the hiring, advancement and fair treatment of individuals without regard to race, color, religion, sex, sexual orientation, gender identity, age, national origin, ethnicity, disability or veteran status.

As of December 31, 2016, we employed 3,583 persons, of whom 1,876 were employed outside of the United States.

## WORKING WITH COMMUNITIES

MTI has a long history of working with the communities in which we operate to find solutions to an array of issues. The company has worked with both the federal Bureau of Land Management (BLM) and local high school and college students in Lucerne Valley, California, to preserve the habitat for five endangered carbonate plants as well as indigenous herds of big horn sheep on the company's property.

In addition to MTI's recognized excellent practice of working with Wyoming farmers and ranchers in ongoing reclamation of land used for bentonite mining, the company has been very active in preserving the habitat of the greater sage grouse, which has been under consideration for listing as an endangered species.

For further information on some of these activities, see page 45, Sowing the Seeds of Corporate Responsibility.

## RAW MATERIAL AND PROCESS SAFETY

MTI sites conduct a detailed environmental, health and safety review of all new chemicals proposed for use at a facility. In addition, process or operational changes are evaluated to identify potential safety risks during the design phase. As a result of these reviews, the sites are able to implement proactive control and prevention measures to address potential concerns.

## ETHICS AND INTEGRITY

It is and has always been the policy of Minerals Technologies Inc. to conduct our business activities in a lawful and ethical manner. As a "corporate citizen" of the countries in which we do business, we have a responsibility not only to obey the law, but also to promote high standards by conducting our affairs in a clearly ethical manner. MTI has implemented corporate policies concerning legal and ethical behavior in various specific areas. These policies were established in the firm belief that it is both right and in the interests of the company, its employees, its shareholders, industry in general, consumers and the public, to act in accordance with them.

Integrity is, and must continue to be, the basis of all our corporate relationships. All MTI employees are expected to understand and follow the corporate policies reflected in our Company's Summary of Policies on Business Conduct ("Code of Conduct"). The policies are designed to maintain and enhance MTI's integrity and reputation as an outstanding corporate citizen. All employees are required to annually certify their understanding and compliance with these policies.

MTI's commitment to doing business with integrity means avoiding corruption in any form, including bribery, and complying with the anti-corruption laws of every country in which we operate. Our Anti-Bribery Policy establishes the limitations we must adhere to when interacting with officials of various governments around the world and prohibits unrecorded funds or assets, false or artificial entries in books or records, and misappropriation of assets of the company and its subsidiaries. The company has had no actions, nor has it been fined, for any incident of corruption.

Our commitment to anti-corruption also applies to the use of third-party intermediaries and other business partners. We have accordingly implemented a third-party due diligence program under which prospective partners and intermediaries must be screened and approved before engaging them. This review includes due diligence on the prospective party, as well as an assessment of the transaction, geography and other risk factors. All third-parties approved under this screening process and engaged by MTI must certify their agreement to abide by our Anti-Bribery Policy.

We respect the principles of freedom of association, the right to collective bargaining, non-discrimination and equal opportunity, along with the elimination of forced or child labor. The company has not identified any operations that pose a significant risk for incidents of child labor, or forced or compulsory labor.

The company engages in a robust program of compliance training of its employees. This program provides

regular in-person and web-based training to designated employees on the Code of Conduct and its underlying policies, covering various compliance topics such as anti-discrimination, compliance with anti-corruption laws and regulations, and antitrust matters.

On doubtful matters, employees are encouraged to seek and receive advice in advance of taking action. Employees can obtain advice concerning these

policies from the persons to whom they report, from the General Counsel of MTI, or from their designated representative. Employees and others can report concerns about any potential breaches of MTI's policies confidentially and anonymously. This can be done through local channels as well as through a global hotline, operated by an independent provider.

**THE POLICIES ARE DESIGNED  
TO MAINTAIN AND ENHANCE  
MTI'S INTEGRITY AND  
REPUTATION**

**AS AN OUTSTANDING CORPORATE CITIZEN.**

## MTI HAS LONG SUPPORTED RESEARCH EFFORTS TO EVALUATE THE HEALTH AND SAFETY IMPACT OF THE MINERALS THAT FORM THE BASIS OF OUR INDUSTRY.

---

### PRODUCT STEWARDSHIP

MTI has long supported research efforts to evaluate the health and safety impact of the minerals that form the basis of our industry. MTI continues to support the work of the North American Industrial Minerals Association and the American Chemical Council's Crystalline Silica Coalition to improve the basic science and understanding of the health effects of exposure to minerals, crystalline silica and similar materials which are found in all naturally occurring substances. MTI also supports efforts by these organizations and ASTM International to improve the analytical methods used to define and measure levels of crystalline silica and other substances in mineral products. Accurate measurement and identification methods are essential tools used to assist health agencies and industrial organizations develop standards for safe levels of exposure to mineral products.

### REGULATORY APPROVALS

MTI manufactures products for applications that require approvals from regulatory bodies for their use in direct and indirect contact applications. Many mineral products are approved for applications in food, pharmaceuticals, nutritional supplements, medical devices, as well as in the manufacturing of materials that come into contact with these consumer products. Where applicable, MTI's products are strictly monitored for compliance to regulatory requirements, such as those of the U.S.

Food and Drug Administration (FDA), United States Pharmacopeia (USP), European Pharmacopeia (EP), Japanese Pharmacopeia (JP), Clean Water Act, California Proposition 65, European Directives, Food Chemical Codex, CONEG Model Legislation (Heavy Metals), Chemical Inventory Lists, NAFTA, and many other regulations.

### PRODUCT CLASSIFICATION AND LABELING

The classification and labeling of chemicals by types of hazard is a key element in protecting workers from chemical exposures. The basis for harmonization of rules and regulations on chemicals is the UN Globally Harmonized System of Classification and Labeling of Chemicals (UN GHS).

In order to meet the UN GHS requirements, the European Union developed the Classification, Labeling and Packaging (CLP) and Registration, Evaluation, Authorization and Regulation of Chemicals (REACH) regulations. All MTI business units have fully complied with the requirements of the EU regulations.

In the United States, the Occupational Safety and Health Administration (OSHA) is acting as the lead agency in meeting the UN GHS requirements. In 2012, OSHA revised its long-standing Hazard Communication Standard to fully align with the UN GHS.

### CUSTOMERS

MTI has in place a process for monitoring customer loyalty and overall satisfaction. This system is designed to listen to the voice of the customer and identify opportunities for improvement related to our products and services. The satisfaction surveys are designed to capture relevant information related to how MTI is meeting customer expectations, as well as gaining a better understanding of the customer's future needs. Through the effective analysis of the data received, our main goal is to identify value-added solutions for our customers. Below are some key characteristics of our system:

- Customer surveys are issued electronically.
- Surveys are issued on a monthly basis.
- Surveys are issued to multiple contacts within a customer to ensure that the opinion of different functions is properly captured.
- Account managers are directly responsible for follow up with customers.
- The survey results are evaluated on a quarterly basis and summary reports are reviewed with senior management



**THE SATISFACTION SURVEYS  
ARE DESIGNED TO CAPTURE  
RELEVANT INFORMATION**

**RELATED TO HOW MTI IS MEETING  
CUSTOMER EXPECTATIONS, AS WELL AS  
GAINING A BETTER UNDERSTANDING OF  
THE CUSTOMER'S FUTURE NEEDS.**



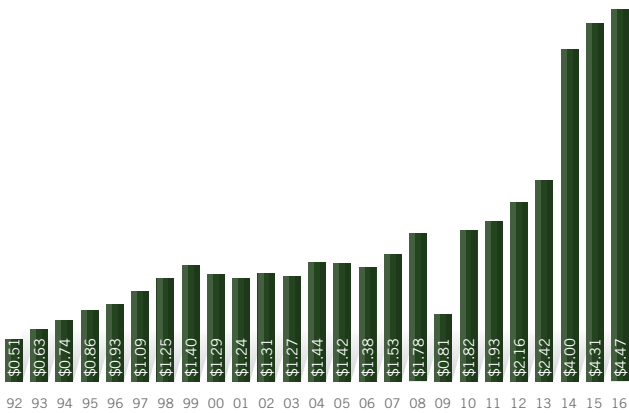
# ECONOMIC

MTI understands the importance of the economic value we provide for our shareholders, customers, employees and those communities in which we operate. In 2016, thanks to a dedicated work force, we reported our seventh consecutive year of record earnings.

Following are some highlights of our financial performance for 2016:

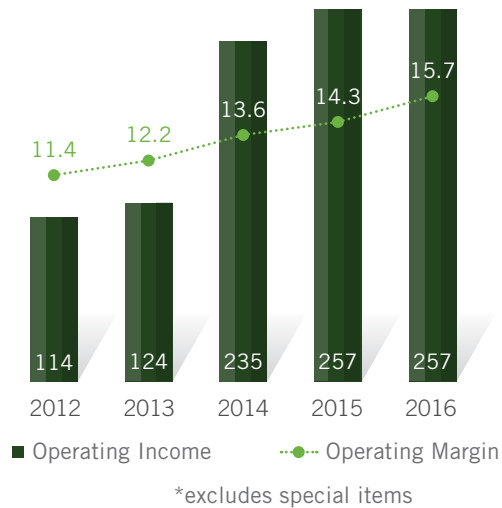
- Diluted earnings per share of \$4.47, excluding special items.
- Operating income of \$257 million, excluding special items.
- The company paid approximately \$7 million in dividends to shareholders in 2016.

**FIGURE 16**  
EPS Historical Trend\*  
(\$ per share)

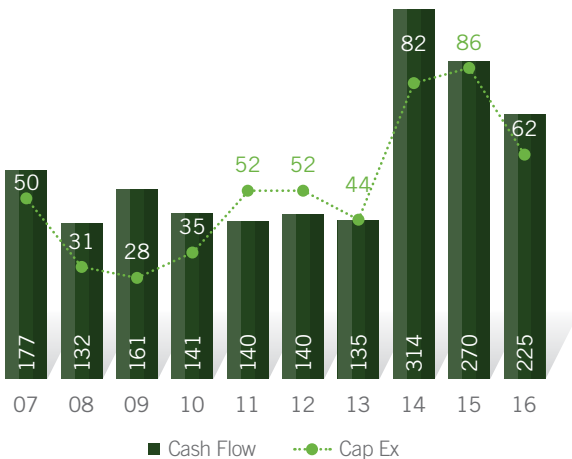


\*EPS from continuing operations, excluding special items  
Adjusted for 2012 Stock Split

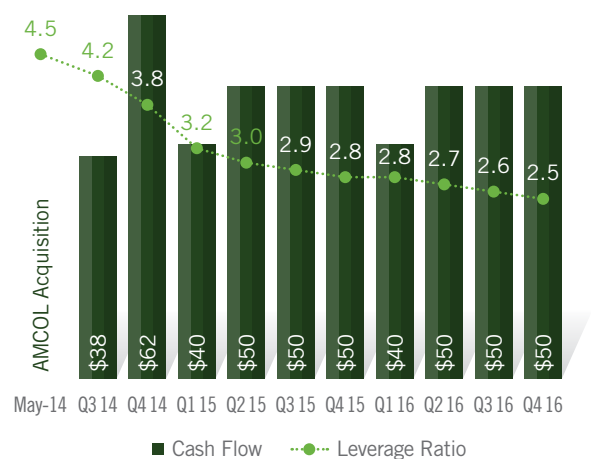
**FIGURE 17**  
Operating Income/Margin\*  
(\$ in millions)



**FIGURE 18**  
Financial Performance Trends  
Cash Flow from Operations/Cap Ex (\$ in millions)



**FIGURE 19**  
Debt Repayment  
(\$ in millions)



- Debt Repayment of \$480 Million over past 10 quarters
- 2.5x Net Leverage Ratio at end of 2016 ->\$1.08B Gross Debt
- Total Liquidity at \$400 Million -> \$200 Million Cash + \$200 Million Credit Facility

# FINANCIAL IMPLICATIONS, RISKS AND OPPORTUNITIES DUE TO CLIMATE CHANGE

---

A portion of the company's businesses are affected by regulations designed to combat Climate Change. In Europe, lime manufacturers (a major supplier of raw materials for MTI) and pulp and papermaking (the primary customer for MTI's Paper PCC business unit) are regulated under a cap and trade scheme which has been in place since 2005.

In the U.S., the Environmental Protection Agency (EPA) has issued a number of regulations dealing with climate change. The EPA requires the reporting of greenhouse gas emissions from major existing operations. The only MTI facility which has been required to report its greenhouse gas emissions is the Performance Minerals plant in Adams, Massachusetts. The EPA has also issued regulations that require facilities to obtain approvals before installing projects that result in significant increases of greenhouse gas emissions. No MTI facility or customer has been required to comply with this directive.

Additionally, it was in direct response to a customer environmental challenge that MTI's Paper Research and Development team developed the NewYield® Integrated Process Technology. NewYield® allows MTI to produce PCC products in a manner that reduces or eliminates the requirement to use calcined lime as a raw material. The first facility that used this technology became operational in 2015.



## MTI, SUN PAPER AND TSINGHUA UNIVERSITY FORM ONE OF SIX NEW ECOPARTNERSHIPS ANNOUNCED IN BEIJING DURING THE 2016 U.S.-CHINA STRATEGIC AND ECONOMIC DIALOGUE



In June 2016, Minerals Technologies took a major step toward providing China with solutions to that country's environmental issues when it participated in the China-U.S. Climate Leaders Summit held in conjunction with the eighth annual U.S.-China Strategic and Economic Dialogue in Beijing. During that convocation, MTI formed an EcoPartnership with the Sun Paper Group and Tsinghua University's School of Environment to pilot innovation with its NewYield® process technology aimed at reducing soil and ground water pollution by converting a waste stream from the papermaking process into a useable filler pigment for paper.

The partnership signing, sponsored by the U.S. State Department and China's National Development and Reform Commission (NDRC), was witnessed by John Kerry, the U.S. Secretary of State, and Yang Jiechi, China State Councilor.

The U.S.-China EcoPartnership program was established in 2008 to help address environmental challenges shared by both the U.S. and China. The program was created to highlight U.S.-China environmental cooperation pilot projects.

The signing of the EcoPartnership is part of MTI's China Marketing initiative to promote the company's portfolio of environmental-related products that offer solutions to customers. Some of the products MTI will promote and develop in China are NewYield®, Resistex® geosynthetic clay linings (GCLs) for landfills and waterproofing, and the Enersol® crop enhancement technology.

The China Marketing initiative involves developing a marketing plan for all the MTI businesses that produce environmentally related products and introducing these products to influential people in the various bureaus of the Chinese government and industry so they see what MTI has to offer. The initiative

is designed to build a foundation of knowledge to set the stage for product positioning that will allow MTI to sell products for the long term in China.

China has tremendous environmental issues—from air emissions, to polluted waterways, to contaminated soils—that provide MTI with a major opportunity. The country continues to develop environmental regulations, and the most recent five-year plan developed by the NDRC includes enforcement of those regulations. The China Marketing Initiative is working to have government agencies formulate policies and regulations to specify MTI products as solutions to a number of environmental problems.

**THE SIGNING OF THE ECOPARTNERSHIP IS PART OF MTI'S CHINA MARKETING INITIATIVE TO PROMOTE THE COMPANY'S PORTFOLIO OF ENVIRONMENTAL-RELATED PRODUCTS THAT OFFER SOLUTIONS TO CUSTOMERS.**

In Shandong Province alone—one of the more polluted provinces in China—there are more than 380 coal-fired power plants that produce a waste called coal ash that presents an opportunity for such products as MTI's Resistex®. There are also numerous red mud ponds in the province that require similar remediation. Red mud is a waste byproduct of alumina production, which is used to make aluminum, a major industry in China.

Throughout China there are also numerous rivers that require remediation, and therefore present a significant opportunity for both MTI's Specialty GCLs and industrial wastewater businesses. There also appears to be a significant need for the company's Enersol® family of products to enhance crop growth currently affected by poor soil conditions and overuse of fertilizers.

Through the EcoPartnership, Minerals Technologies, Sun Paper and Tsinghua University will demonstrate the capability to repurpose essentially 100 percent of the waste stream generated in the papermaking process, providing a roadmap for the Chinese pulp and paper industry to reduce the adverse impact on soil and groundwater. The partnership will work to pilot the new technology, innovate ways to localize the technology to China, evaluate the results of the technology deployment, recommend policy and regulatory action, and assess the steps necessary to drive change throughout the Chinese pulp and paper industry.

**THROUGH THE ECOPARTNERSHIP, MINERALS TECHNOLOGIES, SUN PAPER AND TSINGHUA UNIVERSITY WILL DEMONSTRATE THE CAPABILITY TO REPURPOSE ESSENTIALLY 100 PERCENT OF THE WASTE STREAM GENERATED IN THE PAPERMAKING PROCESS, PROVIDING A ROADMAP FOR THE CHINESE PULP AND PAPER INDUSTRY TO REDUCE THE ADVERSE IMPACT ON SOIL AND GROUNDWATER.**

Besides NewYield®, MTI also exhibited three additional families of technologies aimed at reducing environmental impact at the two-day Climate Leaders Summit. These included solutions for containment and remediation of pollutants; eco-friendly buildings; and enhancement of crop yields. The exhibits included geosynthetic clay linings, groundwater treatment, solidification and stabilization, and sediment remediation for commercial, industrial and infrastructure construction. For eco-friendly buildings, the exhibits focused on green roof systems, geothermal drilling solutions and advanced waterproofing. MTI also

showed the benefits of the Enersol® crop enhancement product line to improve plant health, soil bioavailability and crop yield.

In addition to MTI, the following U.S. companies and institutions were awarded EcoPartnerships that were signed with Chinese counterparts while in Beijing: Caterpillar Inc., the University of Southern California, Chemical & Metal Technologies, the U.S. Geological Service and UniEnergy Technologies.



# MAKING A DIFFERENCE IN INDIA

---

Start with a vision, develop the mission, implement the strategy, but most importantly, add employees who care. In our PCC business at both Ballarsha and Saila Khurd, India, these forces came together to transform concrete and dirt into places of greenery.

“In a manufacturing world of concrete and steel, it’s important for our employees to work at a place they like to come to,” said Ram Chandran, India, General Manager. “Having a pleasing workplace for our employees is important to us, our families, customers and community. It’s wonderful that our employees took the initiative and did it themselves.”

“The transformation has been quite remarkable over time,” said Guru Amirapu, PCC Regional Operations Manager. “The employees came up with their own plans, and we worked together to help carve out time and funds for the projects.”

The project began with a discussion at the India Safety Council on how to both decrease the carbon footprint and decrease waste. Many of the employees live and work in the town, where family

and community are important. Working for a company that enhances the quality of life for all, and reduces the environmental footprint is a tremendous source of pride. The teams at Ballarsha and Saila Khurd started converting these discussions into actions. While the Saila Khurd team, located next to a coal yard, wanted to increase the greenery around them, the Ballarshah team focused on converting scrap into signage. The result was some great team work and increased greenery.



# SOWING THE SEEDS OF CORPORATE RESPONSIBILITY

---

Minerals Technologies is the world's leading producer of bentonite clay. Bentonite's unique chemical structure gives it a diverse range of capabilities, enabling it to act as a thickener, sealant, binder, lubricant and absorption agent. In layman's term, it is referred to as the clay of a "thousand uses." The company's principal markets include metalcasting, pet products, oil and gas well drilling, iron ore pelletizing, industrial specialties and agriculture. With mining operations throughout North America and subsidiary mining operations throughout the world, MTI must operate in a responsible and environmentally sensitive manner. The former AMCOL mining units have always

done a great job working with Federal, State, and local government, as well as land owners, to minimize mining impacts and reduce disturbance of the land while preserving habitat and returning the land to a better condition.

The unique bentonites that Minerals Technologies mines are located in the western United States and cover a vast area. "It's an awesome responsibility," said Lyndon Bucher, Environmental Affairs Supervisor, "to make sure the needs of the business are met, but also knowing we need to protect the environment for the future generations."

Based on past mining experience and knowledge of surrounding underground strata, exploration crews continually locate and evaluate bentonite deposits through test drilling. Deposits are generally comprised of several layers of different types of bentonite, with each having valuable but somewhat different properties suited to bentonite's various uses.

When a future mine site is selected, Minerals Technologies' environmental specialists conduct vegetation, hydrology, soils and wildlife studies. These studies enable our reclamation team to work with area farmers and ranchers in enhancing their lands once mining has been





completed. New ponds have been added for grazing livestock, drainage patterns have improved and vegetation has grown where little had grown before. The new ponds also help enhance the local wildlife by providing food and drinking water through some of the arid times.

Once permits have been secured, mining is conducted through a process known as ongoing reclamation. Using this technique, topsoil and subsoil are sequentially replaced as each new series of mine pits is opened. These shallow pits—typically measuring one to two acres in size—are opened with the aid of heavy earth-moving equipment. As the overburden—or the layer of earth directly over the bentonite—is exposed, bulldozers and scrapers work together to uncover the bentonite beds. When a pit is fully exposed, final samples are tested to ensure clay quality. A grid is also established to isolate specific clay types within a particular pit.

As mining progresses, the bentonite is extracted and topsoil and subsoil are replaced to create a suitable bed for reclamation seeding. When all of the pits have been backfilled, the soil layers are contoured to match surrounding topography. In the fall or early spring, our environmental specialists again enter the field. During this changing of the seasons, native grasses and a nurse crop of wheat are planted to help vegetation and ground cover for smaller animal species to reestablish more quickly. Although the sage grouse has received a lot of attention over the last few years, it is amazing how bio-diverse the area is. “For all of us who work at Minerals Technologies, it is imperative that we pay attention to all the species of animals and plants to establish a reclaimed land that benefits all,” said Don Eisenhour, Vice President, Mining and Exploration.

Lyndon Bucher and Don Eisenhour know that each new mine requires additional permits, and to that end, if the

reclamation activity is not executed well, and the mining impacts become too large, then the permits become more difficult to secure.

Similar to the manufacturing operations, MTI uses the principles of Operational Excellence to the reclamation activities.

Environmental concerns are an important part of all mining in the western U.S. and complying with environmental regulations is a top priority.

“Many of our employees live close to the mining operations and really care how we mine and restore the land in a responsible manner,” said Don Eisenhour. “I am very proud of what Minerals Technologies has achieved in land reclamation and habitat restoration over many years, and as a company we remain committed to achieving excellence in this area. The biggest compliment we can receive is people acknowledging that they had no idea the area was once mined.”



# SUMMARY

---

MTI and its stakeholders are reaping the economic, safety and environmental benefits of the OE and safety changes that have been implemented since 2007. The continuing improvements in safety, environmental impact and productivity are evidence of the efforts of all of our employees. Looking ahead, we are excited about the potential of developing new processes to produce mineral products for our customers that result in additional environmental and process improvements.

We welcome any questions, comments or suggestions from those of you who have read this report and followed the progress MTI has achieved in the past few years.

## INVESTOR RELATIONS

Minerals Technologies Inc.  
Corporate Communications  
622 Third Avenue, 38th Floor  
New York, New York 10017-6707 USA  
Phone: +1-212-878-1831  
Email: [investor.relations@mineralstech.com](mailto:investor.relations@mineralstech.com)  
Website: [www.mineralstech.com](http://www.mineralstech.com)





## **INVESTOR RELATIONS**

**622 THIRD AVENUE, 38TH FLOOR  
NEW YORK, NEW YORK 10017-6707 USA  
PHONE: +1-212-878-1831  
EMAIL: [INVESTOR.RELATIONS@MINERALSTECH.COM](mailto:INVESTOR.RELATIONS@MINERALSTECH.COM)  
WEBSITE: [WWW.MINERALSTECH.COM](http://WWW.MINERALSTECH.COM)**