A Message from JM’s Chief Executive Officer

The JM Experience:
We are committed to delivering positive and powerful experiences, because we are successful only when our employees and customers thrive.

Walter may be best known for his success as an investor, but his investing prowess is rivaled by his contributions as a leader of people. Warren’s wisdom helps to inspire JM’s efforts to care for our planet, people and communities, knowing that such investments inevitably lead to greater profits.

Following Warren’s counsel, all of JM is working diligently to build a company we want to leave for the next generation. We are increasing the sustainability of our products and operations, and we are hiring and training tomorrow’s leaders. Preparing for the future is not instantaneous or easy; it requires significant investment in innovation, research, facilities, equipment and — most importantly — our people. Over the past decade we have reinvested billions into our business and stressed the importance of safety throughout our global operations. These investments make JM more productive, innovative, competitive and sustainable.

While we reflect on our 160-year history, we acknowledge that the future will require all employees to act as stewards of the business. Guided by our core values and informed by science, we will take a business approach to sustainability that creates long-term stakeholder value. By embracing opportunities and managing risks deriving from economic, environmental and social developments, I am confident that JM will continue to thrive as the Employer of Choice and the Supplier of Choice for many years to come.

Mary K. Rhinehart
Chairman, President & Chief Executive Officer
A MESSAGE FROM JM’S CHIEF SUSTAINABILITY OFFICER

THE LONG VIEW: A PERSPECTIVE FROM JM’S VICE PRESIDENT OF R&D AND CHIEF SUSTAINABILITY OFFICER

Sustainability is the result of ambitious, and at times, arduous evolution. At JM, sustainability is powered by the desire to innovate, to push the boundaries of what can be, and to build upon the shoulders of what is. JM has a rich history of approaching sustainability in this manner, and it has allowed us to reach another milestone: 160 years in business.

JM was founded in 1858, a time when the world economy was enjoying the benefits of the first industrial revolution and the introduction of the mechanized factory. During the second industrial revolution, JM entered the fiberglass insulation business, and by the third industrial revolution, JM had become the world’s leading developer of nonwoven fiberglass mat after acquiring Schuller, a German fiberglass business.

In the U.S., JM began conducting research into fiberizing in the mid-1950s and then patented a unique method of fiberizing molten glass into insulation products. This new process eliminated an energy-intensive step in the production of insulation-quality fiberglass and was a significant technological breakthrough.

In the early 2000s, JM introduced Formaldehyde-free™ building insulation to the market, becoming the only manufacturer to produce a complete line of such products. Since that time all our major competitors have followed our lead. Launching formaldehyde-free insulation demonstrated JM’s leadership commitment to creating healthier living environments.

Today, building and transportation energy efficiency have become key levers for addressing many global challenges, including climate change. Composites are replacing heavier alternatives such as steel and aluminum in products ranging from bicycles to automobiles and airliners. JM has applied its materials science and advanced engineering expertise to develop numerous new products and technologies for the transportation, building, recreation and renewable energy markets.

As we enter the fourth industrial revolution, Industry 4.0, technologies are causing disruption on one hand and creating opportunities on the other. Digitalization, automation and artificial intelligence are converging and pointing toward the company of the future. New technologies will enable our people, machinery and production to become more flexible and faster to respond to market demands.

In a world where the speed of technology continues to accelerate, I am confident that a proactive versus reactive approach to both innovation and sustainability will prevail. JM employees across the globe are working to confront global challenges and complex problems related to building resilience, sustainability and livability.

We have the opportunity to design high-performance and cost-effective products that provide environmental and social lifecycle benefits while enhancing the end-user experience. These challenges will test our capabilities and require more innovation than our industry has delivered in the past.

We firmly believe that innovation and sustainability are inextricably linked — and critical for the future. On a global scale, JM has the capital and the scientific and engineering expertise to help address some of the world’s complex issues, like energy efficiency and lifecycle durability. We will continue to take a business approach that creates long-term value for our stakeholders while contributing toward sustainable development. We have never viewed sustainability as an end state, but rather a journey. And as a 160-year-old company, we are still at the beginning of that journey.

Dr. Tim Swales
Vice President of R&D and Chief Sustainability Officer

A MESSAGE FROM BERKSHIRE HATHAWAY

COMMITTED TO BUILDING A SUSTAINABLE FUTURE

For over a decade and a half, Berkshire Hathaway has been the proud owner of Johns Manville. Being owned by Berkshire Hathaway provides JM with a valuable competitive advantage: financial strength. The benefits of financial strength is that JM may remain focused on what it does best: delivering high-quality, high-performance products that provide environmental and social lifecycle benefits while enhancing the end-user experience. These challenges will test our capabilities and require more innovation than our industry has delivered in the past.

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For 160 years, JM has played an important role in shaping the way we live. The ability to thrive with such longevity requires a willingness to continually learn and adapt in order to build a sustainable future. JM’s strong performance reflects their commitment to long-term growth and living by their core values of People, Passion, Perform and Protect.

Strengthening a business year after year is no easy task. It requires ethical decision making, responsible investing and an unrelenting drive to increase productivity, promote safety and ignite sustainable innovation. It demands the development of new products as well as a workforce capable of meeting ever-changing customer needs. These efforts create success and contribute to our society in a positive, meaningful way.

In the years ahead, Berkshire Hathaway has full confidence that Johns Manville will continue delivering powerful JM Experiences to its stakeholders. As always, JM’s core values of People, Passion, Perform and Protect will propel this experience. That is how JM has become a business that lasts, and that is how JM will remain a business built for the future.

Warren E. Buffett
Chairman of the Board
Berkshire Hathaway Inc.

Gregory E. Abel
Vice Chairman — Non-Insurance
Business Operations
Berkshire Hathaway Inc.
2016/2017 HIGHLIGHTS

CAPITAL INVESTMENT

$2 Billion Invested

Capital invested over the past 10 years to modernize and maintain plants and equipment as well as pave the way for continued growth.

SAFETY

LOST TIME INJURIES

-50%

From 2016 to 2017, JM had 50 percent fewer lost time injuries and our lost time incident rate decreased by 57 percent.

JM TOTAL 2017 SAFETY INCIDENT RATE \(^1\) VERSUS U.S. AVERAGE \(^2\)

1.45 JM 3.3 NATIONAL AVG. \(^3\)

In 2016, 76 percent of JM facilities had no lost time injuries and 25 percent had no recordable injuries.

In 2017, 84 percent of JM facilities had no lost time injuries and 29 percent had no recordable injuries.

- Lost Time Rate: Number of injuries resulting workplace beyond the day of injury or onset of illness that the employee was away from work because of an occupational injury or illness, per 200,000 work hours.

- Occupational Safety and Health Administration, a U.S. agency charged with enforcing safety and health legislation. Total Case Incident Rate (TCIR): Number of injuries and illnesses x 200,000/employee hours worked.


- Numbers have been restated from prior reports to ensure consistent methodology.

EMPLOYEE TRAINING

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<thead>
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<th>2016</th>
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<tbody>
<tr>
<td>Employee Development</td>
<td>152,000 Hours</td>
<td>67,000 Hours</td>
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<tr>
<td>Safety and Environmental</td>
<td>56,000 Hours</td>
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<tr>
<td>Total Training Hours</td>
<td>168,000 Hours</td>
<td>134,000 Hours</td>
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</table>

In addition to extensive safety and environmental training, JM employees receive training in IT and software, languages, leadership & management, personal development, regulatory & compliance, technical skills, product knowledge and production equipment. A special focus on frontline leadership training in the plants resulted in a higher number of employee development hours in 2018.

HEALTH AND WELLBEING

2020 HEALTH AND WELLBEING GOAL: Support employee health and wellness such that overall employee biometric results are maintained or improved, and expand programs offered to address mental as well as physical wellbeing.

PROGRESS: JM continues to enhance health and wellbeing resources for employees and their families across the globe.

- 13K Services rendered by JM’s wellbeing/Employee Assistance Program (EAP) provider.
- 52% Percentage of U.S. employees participating in on-site biometric screening events.
- 32 Locations with on-site biometric screening events.

SOCIAL IMPACT

CHARITABLE CONTRIBUTION TRENDS \(^4\)

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<thead>
<tr>
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<th>2016</th>
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<tr>
<td>Total</td>
<td>$477,000</td>
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<tr>
<td>Capital grants</td>
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<td>Employee giving</td>
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SCHOLARSHIP CONTRIBUTION TRENDS \(^5\)

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<tr>
<td>Total</td>
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<tr>
<td>Capital grants</td>
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<td>$11,000</td>
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<tr>
<td>Employee giving</td>
<td>$10,000</td>
<td>$11,000</td>
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COMMUNITY INVESTMENT

2020 COMMUNITY INVESTMENT/VOLUNTEERISM GOAL:
Increase employee volunteerism at JM by 20 percent (based on a 2015 baseline).

PROGRESS: GOAL ACHIEVED (2 YEARS EARLY)
• Goal Achieved: 200 community service events annually by 2020
• Goal Achieved: Volunteer a total of 11,100 hours annually by 2020
• Goal Achieved: 3,670 volunteers participate annually by 2020

VOLUNTEERING TRENDS YEAR-OVER-YEAR (2016/2017)

- 24% PROJECTS
- 13% VOLUNTEERS
- 17% VOLUNTEER HOURS

VOLUNTEERING TRENDS INCREASE OVER BASELINE YEAR (2015)

- 60% PROJECTS
- 34% VOLUNTEERS
- 27% VOLUNTEER HOURS

ENVIRONMENTAL MANAGEMENT SYSTEM

JM FACILITIES CONFORMING TO ISO 14001 \(^6\) AS OF 2017

36 NORTH AMERICA
6 EUROPE
TOTAL 42

GREENHOUSE GAS INTENSITY (GHG)

MANUFACTURING RATE CHANGE \(^7\)
4.8%

GHG INTENSITY CHANGE \(^8\)
-2.5%
Johns Manville, a Berkshire Hathaway (NYSE: BRK.A; BRK.B) company, is a leading manufacturer and marketer of premium-quality products for building insulation, mechanical insulation, industrial insulation, commercial roofing, roof insulation and fibers and nonwovens for commercial, industrial and residential applications.

JM serves markets that include aerospace, automotive/transportation, appliance, commercial/residential construction, HVAC, pipe and equipment, filtration, waterproofing building, flooring, interiors and wind energy. JM has three strategic business units: Engineered Products, Insulation Systems and Roofing Systems.

In business since 1858, JM holds leadership positions in many of the key markets we serve. JM products are sold to customers in 83 different countries. JM is headquartered in Denver, CO, and operates 43 manufacturing facilities located in the United States, Canada, Germany, Slovakia and China. The company achieved sales of approximately $3 billion in 2017. Aggregate worldwide employee wages and cost of employee benefits totaled nearly $695 million in 2017.1

1. JM global employee wage and benefit information calculated using exchange rate data as of 12/31/2017. Exchange rate per $1 USD = 1.255 CAD; .833 EUR; 6.504 CNY.
Being the Supplier of Choice means delivering the JM Experience every day through our procurement practices. We are committed to cross-functional collaboration, which results in better demand planning and inventory management. This helps JM achieve cost savings while delivering ongoing benefits to our customers.

JM procures over 50,000 materials and technical products from nearly 13,000 suppliers worldwide and transports thousands of products to customers all over the globe. JM spends over $1.5 billion per year on purchasing materials and goods and services on three continents. Purchased goods include sand, soda ash, borates, chemicals, recycled glass cullet and renewable carbohydrate-derived binders used to manufacture premium-quality building materials and specialty products. Although JM does not have a formal policy giving preference to local suppliers, we competitively bid local suppliers within a manufacturing plant’s geographic area. In 2017, JM sourced approximately 91 percent of its global spend locally. We also obtain numerous services from suppliers such as utility providers. JM partners with an energy management firm on a variety of services to achieve a stable, cost-effective operational energy program.

Customers rely on JM to manage operations and supply chain activities in a manner that supports economic growth, respects nature and positively contributes to social wellbeing. With this in mind, we audit major suppliers to ensure they’re operating within legal limits and following agreed-upon contractual requirements. We also ensure that they’re complying with JM’s Code of Conduct. When auditing for compliance, we are especially vigilant when it comes to environmental, ethical and human rights issues.

RAW MATERIALS HIGHLIGHTS:
- 13,000 suppliers
- 91 percent of global spend sourced locally
- Supplier guidelines screen for the following:
  - Illegal Child Labor
  - Conflict Minerals
  - Ethical Behavior

LOGISTICS HIGHLIGHTS:
- JM supports Truckers Against Trafficking as a Silver Level Sponsor
- JM shortens distances between regional offices and suppliers
- JM uses intermodal transportation

MANUFACTURING HIGHLIGHTS:
- All North American and European plants implemented the ISO 14001 environmental management system
- Energy consultant used to optimize consumption and costs

DISTRIBUTION HIGHLIGHTS:
- Delivered 15,000 different JM products
- Distributed products in 83 countries

1. JM defines local as “in country” based on the “order-from address” of the supplier.
GOVERNANCE

JM is a privately held subsidiary of Berkshire Hathaway, guided by our strong values — People, Passion, Perform and Protect. These core values create the foundation for the JM Experience and guide our decision making every day. JM’s Chairman, President & CEO Mary Rhinehart reports to Greg Abel, Vice Chairman of Berkshire Hathaway. The heads of our businesses and functional areas, including our Chief Sustainability Officer, report to the CEO. The executive team is responsible for the development, approval and updating of JM’s purpose, value statements, strategies, policies and goals related to economic, environmental and social impacts. JM’s CEO is responsible for evaluating the performance of her direct reports with respect to meeting economic, social and environmental policies. JM’s Chairman, President & CEO; Chief Financial Officer; and General Counsel make up our board of directors, who regularly interact with their counterparts at Berkshire Hathaway. Two-thirds of the governing board are women and none are associated with any other protected class. The board directly oversees risk management, finance and accounting, operations, human resources and sustainability.

JM’s Sustainability Council oversees the company’s sustainability practices, sets strategic direction for sustainability goals and monitors progress against performance targets. The Sustainability Council is chaired by the Vice President, RAD & Chief Sustainability Officer and consists of the heads of our three businesses, along with key managers from functional areas. As a global company, JM’s executives, managers and employees regularly seek and receive feedback from stakeholders.

JM’s Sustainability Report Committee meets throughout the year to improve the processes for transparency and reporting, including understanding progress towards JM goals and targets. This cross-functional team is responsible for overseeing all aspects of the reporting process, including the materiality assessment and using the GRI G4 guidelines in preparing the JM Sustainability Report. Quantitative data is collected from each business unit and functional area to evaluate performance and identify opportunities for improvement.

Valuing Our Stakeholders

JM stakeholders possess great insight. Establishing dialogue with stakeholders helps JM to operate more effectively, understand market conditions and mitigate risk. By working together, we improve the JM Experience both internally and externally. G-28

As part of the sustainability reporting process, a cross-functional JM team identifies stakeholders and prioritizes their needs. Surveys are administered to gather input from across the organization and capture the perspectives of customers and suppliers. From there, in-depth discussions take place so our cross-functional team can fully understand the various points of view. JM actively monitors industry-specific information from peers as well as international platforms (such as GRI, the Sustainability Accounting Standards Board and the United Nations) to refine engagement methods and foster an increasingly inclusive sustainability culture.

Sustainability Report. Quantitative data or data adjustments were made to enhance accuracy and are disclosed as footnotes throughout the report. Significant changes were made to the report’s scope as a result.

Materiality Assessment Methodologies

Quantitative and qualitative methodologies were used to rank and prioritize material topics. Finalizing the materiality assessment involved JM’s cross-functional Sustainability Report Committee, Sustainability Council and Senior Leadership Team. Material topics relating to specific GRI aspects and corresponding performance indicators were reported to add perspective on sustainability impacts, corporate culture and our value system. Although the 2016/2017 materiality assessment did provide some new perspectives and considerations from the previous year, no significant changes were made to the report’s scope as a result.

By assessing our economic, environmental and social impacts, JM is better positioned to develop priorities and understand how various business activities influence the decisions of our stakeholders. That’s one reason why an in-depth materiality assessment is part of our sustainability reporting process. We identify the areas that are most relevant to key groups and factor them into our communication and goal-setting activities.

We strive to continually improve our materiality assessment methodology and participation. In 2017, our materiality assessment considered a range of topics derived from stakeholder input as well as source information. Sources of information included:

- Previous materiality exercises and findings;
- Insights from industry and Berkshire Hathaway company peers;
- Direct survey feedback from internal and external stakeholder groups;
- Sustainability reporting standards and guidance.

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Valuing Our Stakeholders

Understand Our Impacts

Understanding Our Impacts

G4-19, G4-20, G4-21, G4-27

See last paragraph on this page for further details on materiality methodology.

<table>
<thead>
<tr>
<th>Material Topics</th>
<th>Internal Stakeholders</th>
<th>External Stakeholders</th>
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<tbody>
<tr>
<td>Ethics</td>
<td>Employees</td>
<td>Customers</td>
</tr>
<tr>
<td>Compliance</td>
<td></td>
<td></td>
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<tr>
<td>Customer Health &amp; Safety</td>
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<tr>
<td>JM Brand/Reputation</td>
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<tr>
<td>Economic Performance</td>
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<tr>
<td>Product Responsibility</td>
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<td></td>
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<tr>
<td>Innovation &amp; Technology</td>
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<td></td>
</tr>
<tr>
<td>Environmental Stewardship (Energy, Emissions, Waste, Water, etc.)</td>
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<td></td>
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<tr>
<td>EHS Wellness &amp; Benefits</td>
<td></td>
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<tr>
<td>Community</td>
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</tr>
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</table>

Topic of Material Concern to JM Employees

Topic of Material Concern to Stakeholder Group

Employees

• Face-to-face communication, emails, telephone calls, mailings, newsletters
• Quarterly and annual meetings
• Conferences, events, industry trade associations
• California Transparency in Supply Chain Act of 2010 and JM’s Code of Conduct
• Design, manufacturing and distribution
• Surveys, audits and inspections
• Employee and customer marketing communications materials

Employees

• JM Green Teams and the JM Sustainability Report
• Lifecycle assessments and regulatory inspections/compliance activities
• Training, education and development programs
• Corporate sponsorships, volunteer projects, open house events and community update meetings

Employees

GOVERNANCE

Employees

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Employees
Preparing JM for the future requires a dedicated and dynamic workforce with superior operating capabilities, decisive leadership and specialized skills. Competition for top talent is strong, especially in industries focused on product innovation and new technology. With this in mind, JM’s goal is to attract, develop and retain the best possible employees. By providing a collaborative and inclusive work environment, complemented with recognition for outstanding performance, strong engagement and support for work-life balance, JM is able to maximize employee satisfaction and wellbeing.

DIVERSITY, INCLUSION AND EQUALITY
An inclusive culture powered by a diverse workforce improves our decision making, creativity and performance. By inviting individuals from all demographics to be part of our team, we better empower employees to deliver the JM Experience. Building an inclusive, high-performing culture requires employee development, training, mentoring and hiring the best talent for the job. We are always innovating and developing our employees through ongoing feedback channels as well as formal and informal mentoring networks. These practices have resulted in the promotion of more women to top business and manufacturing leadership roles.

As a mature business, JM’s workforce is aging. Strong economic conditions have resulted in a job market that is especially tight in the trade and technical fields. As our more experienced employees retire, JM’s recruiting and retention efforts will continue to evolve allowing the company to embrace further equality, varied backgrounds, different skill sets and the changing needs of a future-focused workforce.

ETHICS
JM is driven by our strong values and takes an uncompromising stance on ethics, non-discrimination and business conduct. Managing operations with honesty and integrity are hallmarks of JM’s Code of Conduct. Every JM employee, including managers and other leaders, is responsible for following the ethical and legal requirements outlined in the Code and for reporting suspected violations of the Code.

Every salaried employee must be annually certified or re-certified on the JM Code of Conduct. All new hourly and salaried employees are required to certify JM’s Policies and Code of Conduct as part of their on-boarding process. In dealing with potential suppliers, JM employees are required to adhere to the confidentiality commitments set forth in both JM’s Code of Conduct and any applicable non-disclosure/confidentiality agreements. Employees are not permitted to disclose any JM non-public information to potential suppliers or other third parties unless there is a fully-executed non-disclosure agreement in place protecting such information.

In 2016 and 2017, JM globally deployed online training courses to salaried employees focused on corruption, conflicts of interest, anti-bribery, ethics and general compliance. JM also provides in-person training on a variety of compliance topics to groups of employees around the globe. One hundred percent of JM’s three businesses and corporate functions are part of our internal auditing team’s annual risk assessment, which includes interviews with senior management and covers internal controls and business risks. It also includes targeted questions to identify potential fraud and corruption. The results of the assessment are shared internally as well as with the management of Berkshire Hathaway.

JM’s Legal department also conducts periodic compliance risk assessments. There were no confirmed incidents of or legal enforcement actions taken related to anti-competitive behavior. Furthermore, JM received no fines or non-monetary sanctions under laws and regulations related to accounting fraud, workplace discrimination or corruption.

HUMAN RIGHTS
JM supports the tenants and principles of the United Nations Global Compact regarding the protection of human rights, the environment, labor and corruption. Our human rights policy, noted under the California Transparency in Supply Chains Act of 2010, states that JM will not knowingly engage a supplier that directly, or indirectly through a third party, employs legal child, forced or compulsory labor in any way. Once again in 2016-2017, there were no incidents reported or legal actions taken regarding child or forced labor.

JM demonstrates its support for human rights in our daily operations by:

• Providing safe and healthy working conditions for employees and contractors;
• Ensuring non-discrimination in personnel practices;
• Providing decent work and producing quality products that improve lives;
• Adhering to the highest standards of ethical behavior in our business conduct, activities and relationships;
• Conforming to environmental, health and safety standards, as well as applicable labor laws;
• Implementing positive management practices that provide a workplace where employees feel they can work with leadership to find mutual solutions;
• Recognizing third parties’ rights to represent our employees, where applicable, and dealing with elected representatives in a respectful and business-like manner.

JM requests sourcing information from suppliers when purchasing raw materials containing 3TG metals. This helps JM disclose to stakeholders when and why we must use conflict minerals in our products. JM’s Product Stewardship team also requests and utilizes updated annual reports from suppliers on health and safety, labor and corruption. Our human rights policy, noted under the United Nations Global Compact regarding the protection of human rights, the environment, labor and corruption. Our human rights policy, noted under the California Transparency in Supply Chains Act of 2010, states that JM will not knowingly engage a supplier that directly, or indirectly through a third party, employs legal child, forced or compulsory labor in any way. Once again in 2016-2017, there were no incidents reported or legal actions taken regarding child or forced labor.

In 2017, 62 percent of our global workforce was represented under collective bargaining agreements. Between 2016-2017, none of JM’s operations or suppliers were identified as prohibiting, violating or putting at significant risk the right to exercise freedom of association and collective bargaining.
**Journey to Safety**

Behavior in a safe manner is an ongoing expectation at JM. We believe it’s a philosophy that should be practiced both on the job and at home. We ask that employees not only look out for themselves, but also for each other.

To maintain our high standards, JM employees participate in extensive safety training. In fact, in 2017 alone, JM employees received approximately 67,000 hours of safety and environmental instruction.

**Safety Strategy**

Our ultimate objective is to minimize potential safety risks to protect people and assets and to better position JM for future growth. The following actions have been taken to enhance the safety of our employees and contractors:

- Conducting both internal and independent assessments of compliance, and continuously tracking the health and safety performance of each facility while complying with applicable laws and regulations.
- Providing leadership within our business segments to establish effective safety and occupational health standards and procedures.
- Every JM facility has a health and safety leader.
- Every JM facility continually monitors for occupational hazards and implements appropriate corrective actions.
- JM regularly reviews the overarching safety policy, programs and procedures to ensure they are effective.
- Holding every employee responsible for implementing our health and safety policy and practices to protect themselves and others from potential workplace hazards.

**2016 and 2017 Initiatives Included:**

- Implementing a safety culture improvement process including safety perception surveys, on-site assessments and workshops with joint management and employee teams to develop corrective actions to address any gaps. To date, 16 plants have initiated the safety culture process. JM will continue implementing the process at the remaining locations over the next few years.
- Leveraging JM’s Environmental, Health and Safety Management System to provide a consistent framework for reducing risks. From 2016 to 2017, most locations began identifying and implementing the process at the remaining locations over the next few years.
- Establishing Safety Mentors for all new hires.
- Mentoring and supporting other JM plants on safety best practices.
- Implementing a “Good Catch” system for employees to identify and correct hazards.
- Building back-up cameras on all stand-up lifts as an added protective layer.
- Launching regular meetings of plant managers with shop-floor personnel to discuss safety items.
- Introducing educational programs to increase awareness of the impact of poor ergonomic habits, both on and off the job.
- Developing leadership training for middle management where safety is strongly integrated using the Crucial Conversations framework.
- Introducing the JM Ergonomics Program to train front-line employees to identify and reduce hazards that commonly lead to ergonomic injuries such as strains, sprains, carpal tunnel syndrome and other musculoskeletal disorders.

**Safety Awards and Recognition**

The 2016 JM Annual Health & Safety Excellence Award was presented to the Trnava, Slovakia, plant. The plant had several accomplishments including:

- Introducing the JM Ergonomics Program to train front-line employees to identify and reduce hazards that commonly lead to ergonomic injuries such as strains, sprains, carpal tunnel syndrome and other musculoskeletal disorders.
- Developing leadership training for middle management where safety is strongly integrated using the Crucial Conversations framework.
- Implementing cross-functional management safety walks with a focus on communication and education.
- Launching regular meetings of plant managers with shop-floor personnel to discuss safety items.
- Introducing educational programs to increase awareness of the impact of poor ergonomic habits, both on and off the job.

The 2017 JM Annual Health & Safety Excellence Award was presented to the Tucson, Arizona, plant. The plant had several accomplishments including:

- Implementing a “Good Catch” system for employees to identify and correct hazards.
- Building back-up cameras on all stand-up lifts as an added protective layer.
- Launching regular meetings of plant managers with shop-floor personnel to discuss safety items.
- Introducing educational programs to increase awareness of the impact of poor ergonomic habits, both on and off the job.

**JM Safety Metrics — 2017**

<table>
<thead>
<tr>
<th>Country</th>
<th>Total OSHA Recordable Injury Rate</th>
<th>OSHA Recordable Injuries Rates</th>
<th>OSHA Occidental Illness Case Rates</th>
<th>OSHA Lost Day Injuries Case Rates</th>
<th>Fatality Case Rates</th>
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<tbody>
<tr>
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<tr>
<td></td>
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<td>Total JM</td>
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<td>1.26</td>
<td>4.56</td>
<td>1.41</td>
<td>2.51</td>
</tr>
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**JM Total OSHA Incident Rates vs U.S. National Rates**

- U.S. National
- JM

<table>
<thead>
<tr>
<th>Year</th>
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<td>2016</td>
<td>2.3</td>
</tr>
<tr>
<td>2017</td>
<td>1.45</td>
</tr>
</tbody>
</table>

**Notable Plant Safety Milestones Included:**

- Bremen, IN: 20 years without a lost time injury; seven years without an OSHA recordable injury.
- Lewiston, ME: 15 years without a lost time injury
- Rockdale, IL: 10 years without a lost time injury
- Scottsboro, AL: 10 years without a lost time injury
- Oklahoma City, OK: five years without a lost time injury
- Innisfail, Alberta: one year without a recordable injury in 2017
- Belgrade, MT: one year without a recordable injury in 2017
- Penbryn, NJ: one year without a recordable injury in 2017

**2020 Safety Goal:** Continuously improve performance leading to our vision of zero injuries by:

- Reducing the three-year rolling average number of yearly injuries by 30 percent
- Reducing the three-year rolling Lost Time Injury Rate (LTIR) by 30 percent

**Progress:** JM is making strides in its three-year rolling average LTIR (down 10 percent) and showing a modest reduction in the yearly number of total injuries.
We believe that the workplace has the power to improve the health and wellbeing of employees, leading to greater fulfilment on the job, at home and in communities. In 2017, 32 on-site biometric screening events took place at U.S. locations. JM promoted two corporate wellness challenges, various webinars and several lunch and learn sessions. In addition, six JM locations had flu shot clinics. Over 13,000 services related to health, wellbeing and mental health were conducted by JM’s Employee Assistance Program provider.

COMMUNITY

JM’s efforts in the community are driven by our employees’ passion to assist, respond and serve, focusing on the causes that matter most to our employees and customers. Our goal is to have a positive impact in the areas where we live and work. We have a strong history of employee volunteerism that has only gotten stronger over the past few years. In fact, since 2015, we’ve seen a 60 percent increase in employee-driven volunteer projects.

GENERAL COMMUNITY SUPPORT

JM improves quality of life in our communities by supporting those in need during times of hardship and crisis. Examples include:

• Supporting United Way with corporate and local financial contributions;
• Providing food and water to disadvantaged and underprivileged individuals and families;
• Cleaning up waterways and yards and providing minor home repairs for elderly, handicapped and low-income individuals.

HEALTH & WELLBEING

As an established employer, JM’s corporate citizenship contributes to overall community health and wellbeing. Examples include:

• Supporting victims of Hurricane Harvey and Hurricane Irma through the American Red Cross Relief Fund;
• Participating in events that support those with Multiple Sclerosis, Alzheimer’s disease, cancer, arthritis and more.

EDUCATION

Public education plays an important role in preparing children for future opportunities. JM employees support students in a variety of ways:

• Tutoring grade school students in reading;
• Donating school supplies and other necessities;
• Advising high school students on career opportunities;
• Providing scholarships to help further educations.

At JM, we are committed to innovation in everything we do. Even though many of our businesses are in mature industries, the speed of change continues to tick at an even more rapid rate. Developments in robotics, machine learning, digital fabrication, the Industrial Internet and data analytics are routinely inspiring us to increase our pace.
SAFETY DATA SHEETS (SDSs)

WHAT ARE SAFETY DATA SHEETS?

SDSs contain information related to identified hazards and chemical composition, as well as instructions for safe handling and storage. SDSs also provide guidance on issues including first aid, firefighting, accidental release and disposal. All SDSs are prepared in accordance with OSHA’s Globally Harmonized System of Classification and Labeling of Chemicals. In addition to SDSs, JM develops and maintains Safe Use Instructions (SUIs) for its products that don’t require an SDS by law. SUIs contain health and safety information for development of appropriate product handling procedures to protect the users of our products.

WHY ARE SAFETY DATA SHEETS IMPORTANT TO JM?

SDSs are designed to ensure proper use while communicating potential hazards to workers in occupational settings. They help JM promote product stewardship, occupational health and safety and sustainability.

ADDITIONAL RESOURCES

To further promote the safe use of JM products, SDSs are available on our website: jm.com/en/building-materials/industrial-insulation/technical-resource-library.

LIFECYCLE ASSESSMENT (LCA)

WHAT IS LIFECYCLE ASSESSMENT?

Lifecycle Assessments (LCAs) are used to evaluate the potential environmental impacts of a product, material or process across its full lifecycle from the sourcing of the raw materials to production, distribution, use and end-of-life.

WHY IS LCA IMPORTANT TO JM?

JM uses an LCA as a tool to gain a clear understanding of the environmental impacts of products over their lifespan as well as to further promote sustainability throughout the product portfolio. LCAs are valuable in reducing or removing hazardous or toxic materials in favor of more sustainable alternatives. JM’s business divisions identify the need for LCAs and environmental product declarations based upon direct requests from customers or through participation with industry associations.

ADDITIONAL RESOURCES

JM has participated in the following industry-level LCA initiatives:

• Glass Fiber Europe for continuous filament glass fiber products
• European Alliance for SMC/BMC for lightweight composites
• American Composites Manufacturing Association for lightweight composites
• European Union Composites Industry Association ECO Impact Calculator

HEALTH PRODUCT DECLARATIONS (HPDs)

WHAT ARE HEALTH PRODUCT DECLARATIONS?

Health Product Declarations (HPDs) disclose all ingredients used in building products and potential health effects of a product throughout its lifecycle.

WHY ARE HPDs IMPORTANT TO JM?

HPDs ensure that stakeholders have the information they need when specifying building materials. HPDs contribute to being awarded LEED v4 credit and support JM’s commitment to customer health and safety. JM contributed toward the launch of the HPD Open Standard and HPD Collaborative as a Pilot Manufacturer in 2012. HPDs for JM insulation batts, rolls and mineral wool products are in the process of finalization.

ENVIRONMENTAL PRODUCT DECLARATIONS (EPDs)

WHAT ARE ENVIRONMENTAL PRODUCT DECLARATIONS?

Environmental Product Declarations (EPDs) are reports that communicate the energy consumption and energy savings of a product throughout its lifecycle, from the raw material acquisition to the disposal of the product once it’s been removed from the application. All JM EPDs are prepared in accordance with ISO 14025 and are independently certified by UL Environment.

WHY ARE EPDs IMPORTANT TO JM?

EPDs are a transparency tool enabling customers and stakeholders to comprehensively understand the sustainable attributes and implications of JM products. EPDs provide designers and specifiers with technical information they can use to determine the net environmental impact of the materials specified in their building designs. As JM moves toward creating greener buildings, EPDs are crucial in determining the most energy efficient and environmentally preferable products to specify. They are also a necessary component for many energy efficiency certifications, like LEED v4 credits. JM assists select customers with understanding the environmental implications of their products by providing lifecycle impact assessment information on specific materials.

ADDITIONAL RESOURCES

JM has participated in the following industry environmental product declarations:

• Single Ply Roofing Industry for single ply roofing membranes
• Asphalt Roofing Manufacturers for bituminous roofing
• Polysioanuratinle Insulation Manufacturers Association for polyiso insulation and sheathing
• North American Insulation Manufacturers Association for mineral wool insulation products

JM product category EPDs are available for:

• Duct Wrap Insulation — Microlite® ED FSK duct wrap made with our Formaldehyde-free™ bio-based binder that is manufactured from rapidly renewable plant-based materials.
• Mechanical Insulation Boards — 1000 Series Spin-Glas®; 800 Series Spin-Glas®; Precipitator Spin-Glas®; Micro-Flex®; and Permacote® Linacoustic® R-300.
• OEM Insulation Board — WhisperPanes® Wallboard; Equipment Spin-Glas® board; and RS Series Spin-Glas® insulation.
• Pipe Insulation — Micro-Lok®; Micro-Lok® HP; Micro-Lok® HP Ultra; and Micro-Lok® HP plain.
• Duct Liner Products — Linacoustic® RC and Permacote® Linacoustic® RC-HP.
• HVAC Equipment Insulation — Micromat® and Micromat® RX.

THE JM PRODUCT LANDSCAPE

A LANDSCAPE OF INNOVATIVE, SUSTAINABLE PRODUCTS

JM products may not always be seen, but their value is certainly felt every day across the globe. Whether in the buildings where we live and work, or transportation moving people and products around, JM innovation is empowering a more sustainable way of life. To demonstrate usage cases and the sustainable benefits of our products, JM has created an interactive experience called the JM Product Landscape available at jm.com/productlandscape. By clicking on various locations within the landscape, you can access specific product applications and learn more about JM innovation and sustainability in action.
INNOVATION AND TRAINING FOR THE FUTURE

Exploring and adopting new technologies is key to promoting innovation and ensuring sustainability. Research and development of next-generation materials, new technologies and digital transformation will require an evolving set of human skills and technological acumen. For example, enterprise resource planning tools have been an enabling force for turning JM’s business processes including accounting, sales, production, human resources and finance in an integrated environment. These software tools have helped JM deliver more efficient, effective products and services. Coined by Kevin Ashton of Proctor & Gamble in 1999, the Industrial Internet of Things will require the development of new technological infrastructures to link our enterprise resource planning with JM’s factory operations and suppliers. At every stage, JM will continue to link its people with the best technology possible to increase productivity and enhance employee satisfaction.

A strong job market, shifting customer demands and technological advances are driving the need for continuous and specialized learning and development programs for our employees to do their jobs and help JM grow. With this in mind, JM is sponsoring an innovative, multi-year Manager as Coach learning series for all managers of the company. The training began with our senior leadership and continues throughout JM’s operating footprint. Research shows that managers who are active and effective coaches can have a profound impact on employee engagement, productivity, retention and organizational results.

JM continues its apprenticeship program in Germany. Each year, approximately 15 apprentices join the JM program and gain hands-on experiences in areas such as business administration, logistics, mechanical craftsmanship and electrical work. After three years, apprentices may be offered employment at one of JM’s facilities throughout the world.

In addition, JM made its North American internship program a top priority in 2017. Those leading the initiative set out to enhance the quality of JM’s internship candidates and provide the JM Experience to interns and managers. A post-program survey indicated that all of the interns felt their onboarding process was effective, with 80 percent saying it was very or extremely effective. About 90 percent said interns felt their onboarding process was effective, with 80 percent saying it was very or extremely effective. About 90 percent said interns felt their onboarding process was effective, with 80 percent saying it was very or extremely effective.

As buildings account for approximately 40 percent of energy consumption and one-third of greenhouse gas emissions, insulation is a key component to controlling energy consumption in both residential and commercial construction on a day-to-day basis. Our HVAC, Mechanical and Building insulations are designed to accomplish this by insulating many applications both inside and outside the building envelope.

For OEMs, JM takes an application-specific approach when designing and engineering our insulation products. Whether the focus is on land, sea or airspace, we consistently deliver the quality solutions our customers require.

Likewise, our industrial products are key to ensuring both process control and worker safety in high-temperature applications. They are engineered to withstand the demands of industrial settings, covering needs ranging from space constraints to corrosion under insulation to hydrophobic moisture control.

JM’s insulation systems help control energy consumption, promote occupant comfort and support end-user safety by improving thermal and acoustical control. Our complete line of commercial, residential, OEM and industrial solutions has the versatility to meet the broad range of insulation requirements in the diverse markets we serve.

INNOVATION AND TRAINING FOR THE FUTURE

NEW PRODUCTS

At JM, innovation and sustainability work together to enhance our R&D process. We see innovation and sustainability as catalysts that drive the development of solutions that add value to global markets. We consider finite resources, macro-trends, energy requirements and lifecycle implications in the development of new and better products for customers and consumers. Within the transportation sector alone, light weighting requires alternative materials to replace metals. JM fulfills these needs by improving weight-to-strength ratio in vehicles and start/stop batteries in hybrid automobiles. JM products are always evolving, serving the needs of a rapidly changing world.

INSULATION SYSTEMS

Compression Pack® pipe-in-pipe aerofoil insulation system for the subsea market.

Thermo-1200™ water-resistant calcium silicate insulation.

ERGONOMICS AND TRAINING FOR THE FUTURE

JM’s Roofing Systems business has the industry’s most complete offering of commercial roofing components including membranes, cover boards, rigid insulation and accessories. Our products are single-source supplied, providing enhanced responsibility and dependability.

JM recently began the expansion of a second TPO (thermoplastic polyolefin) production line at the company’s Scottsboro, Alabama, manufacturing facility. The new TPO production line brings JM’s total investment in commercial roofing over the past ten years to over $200 million. Together with putting money back into the American economy and bringing more than 175 jobs to the manufacturing sector, JM’s continued investments allow growth in the industry and extend our areas of roofing expertise and available products.

JM’s Engineered Products business produces a wide range of fibers and technical nonwovens for building and construction, filtration, energy storage and composites at 13 production sites in the United States, Germany, Slovakia and China.

The dynamic field of Glass Reinforced Plastics (GRP) laminates in Europe, JM introduced Evalith® FF 0.25/1, a glass mat that has been successfully used to enhance the performance of stiff and lightweight components for recreational vehicles. Light weight and long-term durability are important product characteristics for OEM suppliers who need cost-effective solutions for next-generation automotive components.

Recently in the U.S., JM introduced several uncoated glass mat facers for gypsum wall boards. These new uncoated facers have greater mechanical performance and better handiability at significantly lower cost than mineral coated facers. These new products utilize the upgraded glass mat capabilities at JM’s Waterville, Ohio, facility.

JM expanded its glass fiber operations in Waterville, Ohio, and Etowah, Tennessee, by successfully re-starting furnaces with increased capacity to serve customers in the composites and engineered thermoplastic field and to support market growth in the United States.

In mid-2016, JM opened a new 136,000-square foot distribution center in Grand Prairie, Texas. The distribution center houses JM PVC and TPO membranes; polyisocyanurate insulation and cover board products; and roofing accessories and fasteners. The center enhances our ability to control service, ensure quality and reduce lead time. In fact, since it has opened, JM has reduced lead time on its products from as long as five days to as little as next-day.

Earthen "local" refers to individuals either born in or who have the legal right to reside in the same country in which JM conducts operations. The practice applies to employees at all levels, including our senior management, as 100 percent of our CEO’s direct reports were hired locally.

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OPERATIONAL EXCELLENCE

From driving greater productivity in our plants to delivering more efficient service in our capital projects, JM is committed to operational excellence. At our manufacturing locations, we rely on leading best practices to increase machine availability, yields and value. We are always looking for better ways to turn inputs into quality products; this forward-thinking approach is critical to our long-term success.

JM’s Manufacturing Council takes a strategic view of our entire manufacturing value chain by developing solutions to common challenges. They oversee the Operational Excellence (OpEx) team, which delivers training and best practices to our plants and administrative offices worldwide. Using LEAN tools and Kaizen-based methods, the OpEx team contributes to a mindset of continuous improvement that helps result in better outcomes.

For example, the Pipe Insulation department in Defiance, Ohio, used LEAN manufacturing tools to dramatically improve first-pass yields while increasing the life of furnaces by more than 50 percent. Production output and pipe throughput pounds are running at record levels, and product quality is consistently strong.

Other examples of operational excellence include:

- Roofing Systems and Information Technology teams developed and launched a mobile app for commercial roofing field reps that automates many of the manual steps of the roof inspection process, making it more timely and efficient.
- Employees at our Spartanburg plant in South Carolina adopted an execution model that increased first-pass yields by 7 percent from a production line that manufactures polyester nonwoven mat for roofing, filtration and geotextiles.
- A Roofing Systems team completed a debottlenecking capital project that increased TPO membrane output by 20-30 percent, allowing JM to better serve the fastest-growing segment of the low-slope roofing market.
- The first phase began during the second half of 2016 with work on the building exterior and window replacement. Phase two includes renovations to the office space in the Customer Service, Transportation and Engineering areas along with a new thermal lab and fitness center. Phase three — which accounts for the biggest capital investment — includes laboratory and administrative area renovations and updates to the cafeteria. As part of this overall project, sustainable improvements will be made to common areas, conference rooms, office furniture, lighting, technology and HVAC.

These renovations are part of JM’s goal to be the Employer and Supplier of Choice. As we plan, we consider options to improve the sustainability of our facility and implement them if they make good economic sense. We also want to improve work processes and space utilization to maximize collaboration and offer an enhanced customer experience. There’s no doubt that a thriving, innovative and state-of-the-art technical center will help attract and retain the best and brightest talent. Ultimately this project is designed to demonstrate our core values and help us perform at a superior level.

JM took advantage of favorable market conditions in 2016-2017. In addition to strong global growth, the industries we serve experienced high capacity utilization and input cost inflation. Increases in housing starts, remodeling, commercial construction and reroofing benefited our businesses, as did industrial production and material substitution. But our focus on product design and differentiation, innovation, sales growth and exceptional customer service is where we really add value. These practices, along with a commitment to operational excellence and responsible investing, will help drive even better performance in 2018.
EMPLOYEE PERFORMANCE

2020 EMPLOYEE DEVELOPMENT GOAL: Provide greater emphasis on employee development by delivering a 5 percent increase in average employee training hours over a 2015 baseline. Ensure that salaried employees who have been employed at JM for at least six months have documented development plans in place.

PROGRESS: JM continues to emphasize employee training at all levels and locations. Our new performance management philosophy supports these efforts companywide with a focus on accountability, ongoing conversations and effective feedback. In addition, JM remains committed to ensuring that all salaried employees have documented development plans in place.

As JM strives to be the Employer of Choice, we continually look for ways to enhance employee engagement. One way we do this is by ensuring our people processes effectively serve their purpose. In the past, our performance management program emphasized process rigor and accountability with scheduled performance reviews. However, we began to find that day-to-day interactions with forward-focused development discussions were much more successful. With this in mind, JM rolled out an updated program with comprehensive training modules that underscore the benefits of frequent employee-manager dialogue.

Our Frontline Leadership Program is a good example of initiatives that helps employees perform at their best. Now implemented within our plants in North America and Slovakia, the program offers training modules designed to expand the skill sets of facility managers and supervisors. Initiatives like these not only prepare employees for increasing levels of responsibility, they help improve morale by reinforcing best practices and fostering increased communication.

GLOBAL MARKETS, LOCAL PRESENCE

The growing need to address pollution, infection control and overall air quality is expanding the market for air media. JM’s air media is a voluminous, non bio-persistent glass microfiber filter media used in HVAC applications at airports, hospitals, shopping centers, hotels and more. To meet increasing demand and maintain its position as the leading supplier of air media, JM launched a new production line at its Wertheim, Germany, plant in 2016. We also produce air media at JM’s Defiance, Ohio, plant.

Flame-retardant properties are increasingly in demand for the building and construction markets, and in the transportation industry for ships, buses and trains. Many of these industries require products with non-combustibility and/or low smoke development in the event of fire. JM recently entered the compact laminate and high-pressure laminate/continuous-pressure laminate (HPL/CPL) market with two different glass fiber nonwoven product families produced at our Wertheim facility. These nonwovens also offer flame-retardant and low-smoke properties for plywood and MDF boards.

PRODUCT STEWARDSHIP

JM is committed to incorporating ethical and responsible product stewardship criteria into our business strategies. As we design and manufacture new building materials and engineered products, our focus is on how well the materials will perform over their lifecycle, protecting human health and the environment.

JM takes a precautionary approach to help ensure that we comply with environmental laws and regulations while considering the environmental challenges of both today and the future. This approach also informs the way our products are made, influencing the selection and removal of chemical inputs to better meet the needs of the marketplace while maintaining cost and end-use effectiveness.

JM Engineered Products introduced a new sustainable white Formaldehyde-free™ binder for nonwovens containing bio-based raw materials. The color is a key feature for applications like ceiling tile front facers, a quality difficult for competitors to replicate.

The Eco Impact Calculator calculates the environmental impact of a composite product from cradle to gate and can be used throughout Europe by all composite manufacturers to generate an Eco Report, without in-depth know-how of lifecycle assessment processes. The Brussels-based Association of the European Composites Industry (EUCIA) developed the tool with the help of Ernst & Young Climate Change and Sustainability Services. JM is a member of EUCIA.

CUSTOMER HEALTH AND SAFETY

JM’s scientists and engineers continually strive to design products that use resources efficiently, while improving the health, well-being and productivity of building and vehicle occupants. In addition, our procurement departments continually seek to supply less harmful materials in a variety of products. This includes recycled glass cullet, renewable carbohydrate-derived binders, low sulfur fuels and soy bean-based de-dusting oils.

As a company, we commit to never knowingly making or selling any product that cannot be manufactured and used safely when appropriate work and installation practices are followed. During new raw material reviews with R&D, JM’s Product Stewardship function provides guidance on the selection of new materials based on the relative health and safety impacts of the different materials under consideration.

As part of our commitment to product stewardship, JM discloses comprehensive information about the safe use and disposal of its products. This includes communicating potential hazards to employees, customers and other parties. JM has implemented the OSHA Hazard Communication Standard (HCS), which aligns with the provisions of the Globally Harmonized System (GHS) of Classification and Labeling Chemicals. The primary benefit of the HCS is increased quality and consistency of information provided to workers, employers and chemical users by adopting a standardized approach to hazard classification, labels and safety data sheets.

Under the HCS, when a hazard is present, pictograms are used to quickly convey hazard types. Actionable and standardized information on storage and handling requirements allows for more consistent employee training, as well as a safer working environment. JM has even exceeded HCS requirements by providing Safe Use Instructions for those products that do not require an SDS.

PRODUCT IMPACT INFORMATION

Types of Information Available

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</tr>
<tr>
<td>Safe use of the product or service</td>
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<tr>
<td>Disposal of the product or service</td>
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</tr>
<tr>
<td>The sourcing of components within the product or service</td>
<td>✗</td>
</tr>
<tr>
<td>Other</td>
<td>✗</td>
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</tbody>
</table>

Approximately 30 JM products are GREENGUARD and GREENGUARD GOLD Certified and may display this mark on product packaging.

As a company, we commit to never knowingly making or selling any product that cannot be manufactured and used safely when appropriate work and installation practices are followed. During new raw material reviews with R&D, JM’s Product Stewardship function provides guidance on the selection of new materials based on the relative health and safety impacts of the different materials under consideration.
JM maintains a strong commitment to environmental compliance and performance. Continuous improvement in our environmental management programs is an integral part of our business strategy. Every day, JM employees seek ways to reduce and eliminate waste and be responsible stewards of natural resources.

In 2016, the JM Annual Environmental Excellence Award was presented to the Etowah, Tennessee, plant for reducing its air permit deviation rate (APDR). Between 2012 and 2016, they reduced APDR by 98 percent. Corrective actions included improving abatement equipment reliability, data integrity, monitoring systems and training.

In 2017, the JM Annual Environmental Excellence Award went to the Innisfail, Alberta, plant in Canada for its environmental achievements. JM’s Innisfail plant has been in operation since 1977. The facility has expanded over the years to meet market demands and improve environmental performance. Operational enhancements have included steps to increase recycled content and recycled water, and actions to reduce waste and manufacturing emissions. The plant has the highest recycled content in its fiberglass products of any JM manufacturing facility, and one of the lowest rates of scrap sent to the landfill. Recently Innisfail installed a new manufacturing dust collection and recycling system to accommodate growth, while further reducing emissions and equipment failures.

From 2016 to 2017, JM did not have any significant monetary penalties for noncompliance with environmental regulations. In aggregate, the sum of all penalties paid during both years were well below JM’s defined significance levels. JM did have 17 notices of violation between 2016 and 2017.

In 2016, our Waterville, Ohio, plant experienced a process water release into a tributary of the Maumee River which was reported to authorities, investigated and corrected. The quantity of water could not be determined.

In 2017, one spill at our Richmond, Indiana, plant triggered regulatory reporting. Less than one gallon of hydraulic oil from a failed hydraulic line on an off-road vehicle leaked onto an internal roadway. The spill was immediately cleaned; however, a small amount of oil may have reached a drain connecting to a sanitary sewer line. Because of the potential discharge to the sanitary sewer, the publicly owned treatment works was notified of the small spill and the mitigation measures. No further action was required.

A PRO-ACTIVE APPROACH ON SILICA

JM is taking proactive measures to prepare for a 2018 OSHA industrial mandate on respirable crystalline silica. The mandate covers employer responsibilities to limit worker exposure through monitoring and training, and by implementing controls where necessary.

Crystalline silica is found mainly as quartz in sand, which is the most abundant mineral found in the earth’s crust. The most common uses of silica at JM is in manufacturing glass. JM also uses silica sand at some roofing plants.

JM has 15 U.S. plants that use silica sand or silica-containing raw materials. Since employee exposure determines compliance requirements, JM conducted exposure assessments at the impacted facilities. Based on the results, controls and work practices were modified and some sites required additional employee training.

1 APDR is the relationship between the summation of monthly minutes in deviation of a limit or requirement and the number of compliance opportunity minutes included in the air permit. The deviations result from equipment malfunctions and human error.

2 JM defines significant monetary penalties at $75,000, which is a value rounded down from twice the daily maximum penalty under many environmental programs in the U.S.

3 JM tracks notices of violation (NOVs), which are strictly defined as a written document from an agency with authority alleging that an environmental law, regulation or requirement was violated, and in which they require JM to take some action, such as pay a penalty, implement some corrective action or respond with actions to prevent recurrence. A single document can have more than one NOV if more than one violation is alleged.
ENERGY EFFICIENCY

2020 ENERGY GOAL: Implement projects that result in a 5 percent improvement in energy efficiency by 2020, over a 2014 baseline.

PROGRESS: JM remains committed to promoting energy efficiency in its operations. In 2017, strong demand increased JM’s rate of manufacturing by 4.8 percent. However, energy usage increased by only 2.7 percent, and energy intensity decreased by 2 percent. This signals strong progress.

Adherence to the ISO 50001 framework for development of energy management systems (EnMS) has helped JM’s German glass and spunbond operations exceed five-year energy efficiency targets of 5 percent improvement in specific energy consumption. Glass nonwovens plants in Wartherm, Steinhach and Karlstein, Germany, achieved 10 percent improvement and spunbond operations in Bobingen and Berlin, Germany, achieved 11 percent improvement. A rigorous process of analysis and controls helped to focus on using less energy and going after the losses, like leaks in compressed air systems and control of pumps and compressors. The new target for the next five years is again, an improvement of 5 percent.

DIRECT VERSUS INDIRECT ENERGY

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Coke</td>
<td>191,213</td>
<td>145,063</td>
<td>147,035</td>
<td>1% increase</td>
</tr>
<tr>
<td>LPG</td>
<td>859</td>
<td>893</td>
<td>189</td>
<td>4.6% decrease</td>
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<tr>
<td>Natural Gas</td>
<td>10,498,407</td>
<td>19,940,111</td>
<td>11,280,582</td>
<td>2.7% decrease</td>
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<tr>
<td>Total Direct</td>
<td>10,690,479</td>
<td>11,086,067</td>
<td>11,427,806</td>
<td>3.1% increase</td>
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<tr>
<td>Electricity</td>
<td>5,950,137</td>
<td>6,075,223</td>
<td>6,188,004</td>
<td>1.8% increase</td>
</tr>
<tr>
<td>Total Indirect</td>
<td>5,950,137</td>
<td>6,075,223</td>
<td>6,188,004</td>
<td>1.8% increase</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16,640,615</td>
<td>17,161,290</td>
<td>17,615,810</td>
<td>2.6% increase</td>
</tr>
</tbody>
</table>

TOTAL DIRECT AND INDIRECT ENERGY CONSUMPTION

In gigajoules:

- Direct: 10,690,479
- Indirect: 5,950,137
- TOTAL: 16,640,615

JM’s Willows plant in California initiated a major lighting upgrade in 2016 designed to improve work conditions and energy efficiency. A new LED system replaced the inefficient lighting technology that was installed nearly ten years prior. The quality and level of light in the factory has improved with the higher lumen output per square foot and a more even distribution of light than the previous system. The annual energy savings is expected to be 6,221 MMBtu, resulting in an annual cost savings of approximately $143,000. The new lighting system is expected to last over 20 years.

In 2017, our Penbryn, New Jersey, plant and our Edison, New Jersey, plant received an Environmental Stewardship Certificate from the New Jersey Department of Environmental Protection for achieving quantifiable reductions in energy usage from efficiency improvements. Both the Penbryn and Edison plants completed major projects in 2014 installing efficient lighting systems with motion sensors. The project resulted in reduced monthly energy usage at the Penbryn facility by an average of 39 percent.

2017 PRODUCTIVITY VERSUS ENERGY OVERVIEW

- 4.8% Manufacturing Rate Change
- 2.7% Energy Usage Change
- 2.0% Energy Intensity Change

ISO 14001 CERTIFICATION


PROGRESS: By the end of 2017, all 36 of JM’s North American plants and all 6 of JM’s European plants had an EMS conforming to ISO 14001. This brought the total number of plants conforming to the standards to 42, thus achieving JM’s environmental management system goal.

In 2015, JM established a goal of implementing ISO 14001 requirements for EMS in all North American and European plants by 2020. ISO 14001 requirements enable JM to enhance its environmental performance by using a holistic approach that emphasizes continuous improvement.

In adopting ISO 14001, JM considers a variety of topics including air pollution, water and sewage issues, waste management, climate change mitigation and efficient use of resources. ISO 14001 standards also contribute to environmental performance that complies with regulations and considers outcomes of JM product and service offerings from a lifecycle perspective. ISO 14001 certification compliments other ISO certifications such as ISO 50001 for energy management systems and ISO 9001 for quality management systems.

Since 2015, the ISO 14001 standard has been steadily implemented across our manufacturing plants in North America and Europe. A total of 42 JM plants have adopted the ISO 14001 standard. Eight of these plants will be officially certified in May 2018.
EMISSIONS

At JM, we manufacture products that improve lives and benefit society. We invest in our manufacturing processes in order to deliver value to our customers and foster growth within the business. However, our processes are inherently energy intensive, using high-temperature equipment that results in the emission of combustion by-products. We use a variety of prevention and control techniques to minimize potential impacts from these waste gases and particulates. A five-year strategic permit review process helps us meet production demands while proactively managing JM’s air emissions and remaining in compliance with our operating permits.

In 2016 and 2017, JM experienced high demand for its products resulting in an increase in overall manufacturing activity. Due to the additional production, most figures related to air emissions and greenhouse gases increased. However, despite our manufacturing productivity increasing by nearly 5 percent, JM saw a reduction in greenhouse gas intensity by a rate of 2.5 percent. Additionally, various air pollutants changed due to JM’s intensity by a rate of 2.5 percent. Additionally, various air pollutants changed due to JM’s activities. Due to the additional production, most figures related to air emissions and greenhouse gases increased. However, despite our manufacturing productivity increasing by nearly 5 percent, JM saw a reduction in greenhouse gas intensity by a rate of 2.5 percent. Additionally, various air pollutants changed due to JM’s activities. Due to the additional production, most figures related to air emissions and greenhouse gases increased. 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AWARDS

"Best Conversion to AD Supplier-HVAC" Award, Affiliated Distributors (AD)
Colorado Environmental Leadership Program, Gold Leader
Global Gypsum Innovation of the Year - Johns Manville
DuraCore M300
Insulate America, Inc. Supplier of the Year
Kansas Department of Public Health and Environment Pollution Prevention Award, McPherson, Kansas plant.
Occupational Safety & Health Administration Voluntary Protection Program STAR status — 11 JM U.S. manufacturing facilities
Partner of Choice, David Weekley Homes
Strategic Supplier Awards, Distribution International Plants
Theodore H. Brodie Distinguished Safety Award, National Insulation Association
2017 N.B. Handy Supplier of the Year Award

APPROVALS

Dade County, Florida Product Approvals
Florida Building Code
FM Global (Factory Mutual)
International Code Council Evaluation Service (ICC-ES) approval for JM’s entire line of foam sheathings products
UL (Underwriters Laboratories)

CERTIFICATIONS

Customs-Trade Partnership Against Terrorism (C-TPAT)
ECOLOGO Certification
EPA ENERGY STAR® Partner
ENERGY STAR® Certification for JM’s APTM Foil-Faced Sheathing
EPA SmartWay® Certification for JM’s carrier fleet in Hazle Township, Pennsylvania
GREENGUARD Certifications for numerous fiberglass insulation products
GREENGUARD Gold Certification for JM’s entire line of Formaldehyde-free™ fiberglass building insulation
GREENGUARD AND GREENGUARD GOLD JM Corbond III and JM Corbond MCS SPF
GREENGUARD JM Corbond oxv SPF
CA-1350 VOC Emissions School, Office and Family Residence
ISO 14001 Environmental Management System — 42 plants total
ISO 50001 Energy Management System — five manufacturing facilities across Germany
SCS Certified Indoor Air Quality — Indoor Advantage Gold + Formaldehyde-free™
SCS Certified — Recycled content for fiberglass insulation products
SCS Certified — U.S. Environmental Protection Agency Region 9 and Alameda County, State of California Specifications for Environmentally Preferable Insulation
UL certification for DuraCore® 300 chopped strands used to reinforce wallboards in the building industry

ALLIANCE AND PARTNERSHIPS

Advanced Energy Economy
The Alliance to Save Energy
American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
The American Composites Manufacturers Association (ACMA)
Asphalt Roofing Manufacturers Association (ARMMA)
Association of the Nonwovens Fabrics Industry (INDA)
ASTM International
California Efficiency and Demand Management Council (CEDMC)
Center for Environmental Innovation in Roofing (CEIR)
Center for the Polyurethanes Industry, American Chemistry Council (CPI)
Conservation Colorado
Cool Roof Rating Council (CRRC)
Construction Specifications Institute (CSI)
European Alliance for Thermoplastic Composites (EATC)
Electricity Consumers Resource Council (ELCON)
EPDM Roofing Association (ERA)
European Pultrusion Association (EPTA)
European Disposables and Nonwovens Association (EDANA)
Federation of Reinforced Plastics (AVK) in Germany
Foam Sheathing Committee
Glass Alliance Europe, the European Alliance of Glass Industries
Glass Manufacturing Industry Council (GMIC)

GlassFibreEurope, the European Glass Fiber Producers Association
Heating, Air-conditioning & Refrigeration Distributors International
Housing Innovation Alliance
Industrial Energy Consumers of America (IECA)
National Insulation Association (NIA)
National Women in Roofing (NWIR)
North American Insulation Manufacturers Association (NAIMA)
Polyisocyanurate Insulation Manufacturers Association (PIMA)
Reliable Energy Codes Alliance
SMC/BMC Alliance in Europe
Single Ply Roofing Industry (SPRI)
Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA)
Southwest Energy Efficiency Project (SWEFP)
Spiral Duct Manufacturers Association (SPIDA)
TECH-FAB Europe
U.S. Department of Energy, Building America Program
U.S. Environmental Protection Agency (EPA) ENERGY STAR Partner
U.S. Environmental Protection Agency (EPA) SmartWay Transport Partner
U.S. Green Building Council (USGBC) Gold Member

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The 2016/2017 JM Sustainability Report marks JM’s sixth report detailing enterprise-wide sustainability initiatives and economic, environmental and social impacts. G4-17

At JM, we see publishing a sustainability report as a progress marker and a comprehensive resource where stakeholders can learn more about key priorities, global operations and corporate culture.

Following the publication of the 2015 JM Sustainability Report in Spring 2016, the decision was made to transition from an annual reporting schedule to a biennial schedule. However, each year JM continues to monitor sustainability progress and continually engages its stakeholders as part of corporate and sustainability initiatives. JM identifies high-priority internal and external stakeholders utilizing a variety of mechanisms.

Detailed information on JM’s approach to stakeholder engagement and materiality from ongoing stakeholder dialogue is available on pages 12 and 13 of this report. JM’s sustainability reports are available on our website at www.jm.com/en/sustainability/.

The content of this publication reflects information and metrics gathered during the reporting period of Jan. 1, 2016 through Dec. 31, 2017. Where possible, we have included additional company and product information to provide context regarding our business approach and long-standing sustainability efforts. Where JM oversees wholly owned operations and joint ventures, data from these organizations are included in this report. G4-17

JM created this report in accordance with GRI sustainability reporting guidelines in an effort to provide an appropriate level of transparency. GRI is a widely recognized reporting standard for organizations focused on measuring and managing the economic, environmental, social and governance implications of their business. JM does not currently seek external assurance services for the report and there is no formal internal policy in place requiring such assurance. External assurance options are evaluated and discussed as part of the reporting process.

JM’s 2016/2017 Sustainability Report was developed ‘in accordance’ with the GRI G4 Guidelines Core option. It has undergone review by GRI’s Materiality Disclosures Service to confirm the correctness of the locations of the G4 Guidelines Materiality Disclosures. For a full list of GRI General Standard Disclosures, Materiality Disclosures and Specific Standard Disclosures reported in 2016 and 2017, please refer to the GRI Index found on pages 36 and 37. Visit www.globalreporting.org for more information.

Looking Ahead

JM’s 2016/2017 Sustainability Report communicates our corporate commitment to sustainability. It provides a two-year snapshot of JM’s performance and approach to conducting business in a responsible way that respects our stakeholders, the environment and our communities.

2018 marks an important milestone at JM: our 160th year in business. JM has come a long way from a small, New York City basement to a global leader shaping the way we live and work in an ever-changing built environment. JM has maintained its place as an industry leader because of the dedication of our people and our steadfast commitment to operating our business responsibly. As with all companies, JM’s continued success will depend upon our ability to improve, adapt and uphold trustworthy relationships, keenly focused on delivering the JM Experience. We understand that even greater effort and time must be dedicated to driving performance, fueling growth and preparing for the opportunities that will arise. A crucial component enabling JM to achieve our objectives is empowering our people and applauding their sense of purpose. The bonds and collaboration between employees and managers cultivate an even stronger culture, transfer of knowledge and inspired view of what we can achieve together.

Our People are supported by our values. These ideals inspire the way we live and work.

We are People champions
Our employees and customers are at the core of everything we do. We strive to see the world through their eyes.

We perform at a superior level
We are committed to delivering profitable growth and a sustainable competitive advantage.

We protect today to ensure tomorrow
Protecting our customers, employees, families and the world around us is our responsibility.

We pursue fresh ideas and embrace new approaches to elevate how we work and deliver value.

We are Passion champions
Our Passion is in going the extra mile to elevate how we work and deliver value.