

Lubrizol



inspiring
sustainability

improving
lives

2017 SUSTAINABILITY REPORT

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inspiring sustainability, improving lives

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▶ About This Report

This Lubrizol sustainability report was issued in November 2018 and includes performance data through the end of calendar year 2017. Given the fall 2018 publication date, some of the activities in this report began or continued into 2018, which we have explained where applicable. This report also reflects the results of our first formal, all-company materiality assessment conducted by a third party during the first half of 2018. This report has been prepared in accordance with the GRI Standards: Core option, our first such report. We have not sought any external assurance for this report. Previously, we published corporate citizenship reports for 2015, 2013, 2011, 2009 and 2007.

Please visit our website, www.lubrizol.com, to find this report, our archived corporate citizenship reports and additional information regarding Lubrizol and our sustainability journey. We will update this website with relevant information, including our sustainability scorecard, as new information becomes available. Due to the timing of this first report, please look for our next GRI sustainability report to be issued in the first half of 2020, and annually thereafter. Thank you for your interest in Lubrizol and our sustainability journey.

If you have any questions or comments about our report, feel free to email us at inspiringsustainability@lubrizol.com.

MESSAGE FROM OUR

CEO and CSO



Eric R. Schnur Chairman, President and Chief Executive Officer

Julie Edgar Corporate Vice President, Innovation and Chief Sustainability Officer

Our theme of “Inspiring Sustainability, Improving Lives” defines our commitment to making the world a better place. As we celebrate our 90th anniversary in 2018, we touch the lives of billions of people every single day: more than half the vehicles on the planet rely on our technology, and more than half the consumers in the world use at least one product containing our technology. We take our responsibilities to our employees, our neighbors, our customers and those billions of consumers very seriously.

In 2017, we named our first-ever chief sustainability officer. Appointing a senior sustainability executive to work across the company was a key step for us, as we aim to bring more strategic thinking to our sustainability efforts and realize greater impact.

In 2018, we completed a formal materiality assessment to identify and prioritize the sustainability topics that are most important to our key stakeholders and where we can have real impact. This report has been prepared in accordance with the GRI Standards: Core option, which reflects the critical inputs of that materiality assessment.

OUR APPROACH

Our approach includes a broad view of sustainability, encompassing **Environmental, Social, Governance and Ethics, and Economic** (ESG+E) topics.

Environmental – Our intent is to consider the entire lifecycle of our products: from raw materials, manufacturing and supply chain, in-use impacts, all the way through end of life. Our products contribute to a cleaner, healthier planet by improving fuel efficiency, reducing emissions, making surfaces more durable, and promoting healthy, active living. We understand the potential impact our products can have on the planet, and we are dedicated to minimizing our global footprint in our own operations and enhancing our positive impact through the products we deliver to our customers.

Social – There is no higher priority than protecting the health, safety and security of our employees and communities. We expect every employee to be a safety leader – to “make safe happen.” We also invest significantly in the development and training of our people, and strive to be a diverse, inclusive and culturally intelligent organization. We are committed to being a good corporate citizen in all the communities in which we operate, through monetary support of local organizations and volunteering of our time and resources.

.....
We believe the work we are doing is truly improving the lives of our employees, our customers, those in the communities where we operate, and the end users of our products.
.....

MESSAGE FROM OUR CEO AND CSO

Governance and Ethics – A strong dedication to operating ethically and responsibly has always been essential to who we are and serves as a strong foundation for how we create value for our stakeholders. We strive for continuous improvement in our governance, ethics and compliance programs.

Economic – Focusing on sustainability is not only the right thing to do, it also presents important economic benefits for Lubrizol and our customers. Our facilities contribute to the prosperity of their communities, and our products and commitment to innovation provide sustainability benefits to many people and markets around the world. Ultimately, all our focus and activities ensure that Lubrizol continues to be a financially strong and sustainable company for decades to come.

We believe the work we are doing is truly improving the lives of our employees, our customers, those in the communities where we operate, and the end users of our products. Of course, there is always more to do to maximize our positive impact. Building on the recently completed materiality assessment, we are updating and setting new goals and metrics and aligning our focus with key global trends (including the United Nations Sustainable Development Goals and the American Chemistry Council’s sustainability principles) – all helping to build a more sustainable future.

We are proud of the progress we have made, inspired by the commitment of our employees and excited by the opportunities we have to do more.

Thank you for your interest in Lubrizol, and we look forward to your feedback on our report; feel free to email us at inspiringsustainability@lubrizol.com.



Eric R. Schnur
Chairman, President and Chief Executive Officer



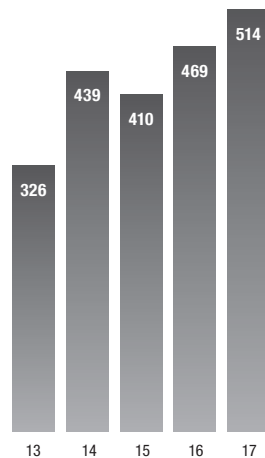
Julie Edgar
Corporate Vice President, Innovation and Chief Sustainability Officer

November 2018

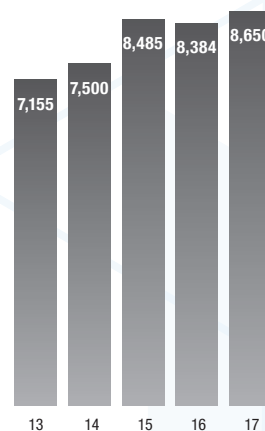
Revenues
Dollars in Billions



Capital Expenditures
Dollars in Millions



Employees



▶ Executive Summary

Headquartered in Wickliffe, Ohio, The Lubrizol Corporation, a Berkshire Hathaway company, combines our unique chemistry expertise, formulation and applications capabilities, and market insights to positively impact the lives of our customers' end users around the globe. Our products and technologies are in things you use every day – on surfaces and in fluids in the vehicles you drive, in the shampoos and soaps you use, in the healthcare products you use, in the clothes you wear, and in electronic devices and plumbing systems in your homes. In 2018, the company is celebrating its 90th anniversary.

Our business is comprised of two segments:

Lubrizol Additives (LZA) partners with customers and Original Equipment Manufacturers (OEMs) to solve consumers' toughest challenges through additives for engine oils, driveline applications, gasoline and diesel fuel, other transportation-related fluids and industrial lubricants and fluids. LZA businesses include: Driveline, Engine Oils, Viscosity Modifiers, Fuels and Industrial.

Lubrizol Advanced Materials (LZAM) delivers unique formulations that improve the performance of our customers' products, including enhanced durability in athletic apparel, nourishment in hair care products and better color quality in digital printing. LZAM businesses include: Estane® Engineered Polymers, TempRite® Engineered Polymers, Performance Coatings, Personal, Home and Health Care (PHHC), Skin Essentials and LifeSciences.

▶ Markets Served

- Coatings
- CPVC piping systems
- Engineered polymers (TPU)
- Industrial applications
- Life sciences
- Lubricant and fuel additives
- Personal and home care
- Skin essentials

Global Footprint

33

Lab/Technical Facilities

60

Manufacturing Sites

49

Sales Offices

With global sales and manufacturing networks, Lubrizol serves customers in more than 100 countries – delivering the products and services they need, where and when they need them.

Americas

17 Lab/Technical Facilities

30 Manufacturing Sites

10 Sales Offices

Europe

8 Lab/Technical Facilities

17 Manufacturing Sites

20 Sales Offices

Middle East & Africa

1 Lab/Technical Facility

2 Manufacturing Sites

3 Sales Offices

Asia Pacific

7 Lab/Technical Facilities

11 Manufacturing Sites

16 Sales Offices

SUSTAINABILITY AT LUBRIZOL

In 1928, our founders had a shared belief that good science can lead to a better life. They understood that we have a role in protecting our people and the environment, as well as being a good community member where we operate. They embedded this into our corporate philosophy from the beginning, and it continues to be the foundation for our sustainability journey today.

Lubrizol defines **sustainability** as the balance among environmental, social, governance and ethics, and economic factors (ESG+E), as we pursue objectives that add value to our business, employees and society, and protect the planet’s ecosystem. Lubrizol follows the basic principles of Sustainable Development: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”



Our commitment to “Inspiring Sustainability, Improving Lives” is centrally focused as a priority for senior management, fully integrated across our organization and embedded into the core of our business. We strive to collaboratively build systems, processes and tools to enable every employee across the globe to operate ethically and responsibly. As an organization, sustainability runs through everything we do, and we take our role as a leader in the chemical industry very seriously.

The [American Chemistry Council](#) (ACC) and its members believe chemistry plays an integral role in solving our world’s sustainability challenges. As a member of ACC, Lubrizol subscribes to the principles of [Responsible Care](#)®. ACC created the Responsible Care Management System (RCMS), which requires third-party certification of our Health, Safety, Environmental and Security (HSES) management systems across all business activities.

We have also signed on to the Responsible Care Global Charter, which affirms our commitment to apply Responsible Care principles and expectations globally. Furthermore, in 2018, ACC

Lubrizol’s Corporate Philosophy

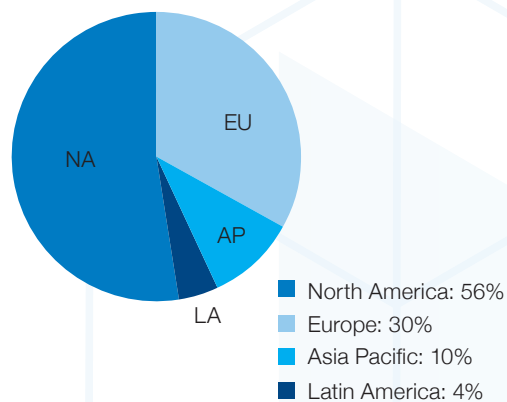
Our success in every area stems from what we believe in:

- Rewarding our shareholders by providing a high return on invested capital.
- Providing superior products and outstanding service to our customers.
- Investing in research and development to maintain and improve our technical position.
- Insisting on honesty and integrity with customers, suppliers, all third parties and with one another.
- Treating each employee with dignity and a sense of worth and supporting open communication with one another.
- Developing and promoting personnel from within our ranks on the basis of individual performance.
- Rewarding employees’ efforts through a merit-oriented compensation program.
- Maintaining the health and safety of our employees, customers and neighbors, and protecting the environment.

launched its “Chemistry: The Science Behind Sustainability” program, which includes sustainability principles for the industry. Lubrizol participated in the development of those principles and we support their implementation.

Global Employees by Region

Total Employees: 8,650



EXECUTIVE SUMMARY

CONTINUING OUR JOURNEY

In 2017, we enhanced our focus on sustainability in many ways. We named Julie Edgar our first chief sustainability officer and created a cross-functional, senior-management level sustainability steering council. Together, our corporate sustainability team and the steering council are set up to successfully determine our risks and resources, set and expand policies and expectations, create sustainability plans, strategies, tools and updated goals, and proactively determine new sustainability opportunities for Lubrizol. At the same time, we continue to value the operational and local community expertise of our individual facilities and the market insights of each of our individual customer-facing businesses.

Our sustainability agenda for 2018 and beyond is focused on driving additional engagement with our stakeholders, helping our customers meet their sustainability goals by continuing to provide innovative solutions that enhance performance and minimize environmental impact, and by addressing the issues where we have the highest potential for impact. We are continuously evaluating our progress toward our sustainability goals and we look forward to updating you on that progress and setting new goals, both immediate and long term.

Our approach to the UN SDGs

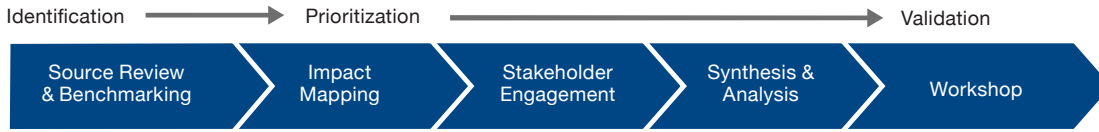
In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals (SDGs). Of the 17 SDGs, Lubrizol has identified seven of which we believe we can have a positive impact as we continue to implement and refine our sustainability program. In the months ahead, we intend to carefully study the indicators and work to determine how our business overall, our facilities and business units can specifically impact these seven SDGs by the 2030 target date.

- **3 Good Health and Well-Being:** Ensure healthy lives and promote well-being for all at all ages
- **4 Quality Education:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- **12 Responsible Consumption and Production:** Ensure sustainable consumption and production patterns
- **13 Climate Action:** Take urgent action to combat climate change and its impacts
- **14 Life Below Water:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- **15 Life on Land:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- **16 Peace, Justice and Strong Institutions:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



EXECUTIVE SUMMARY

Our Materiality Assessment Process



STAKEHOLDER ENGAGEMENT AND MATERIALITY ASSESSMENT

During the first half of 2018, we worked with a third party to engage our internal and external stakeholders in a formal materiality assessment process that was conducted in accordance with the Global Reporting Initiative (GRI) Standards. The materiality assessment was performed to ensure we are aware of, and prioritize, the issues of greatest importance to our stakeholders in the areas of environmental, social, governance and ethics, and economic performance. This assessment helps us identify issues

that matter most to our stakeholders and better support our strategic decision making, goal setting and reporting.

Our assessment process included the following steps:

- **Identification of stakeholders** – to assure we are engaging with key stakeholders, including functional leaders, employees, customers, peers, suppliers and industry associations;
- **Prioritization** – including stakeholder engagement and analysis of the information collected; and
- **Validation** – of the results with key leaders in the organization.

Lubrizol’s Material Topics

■ Environmental

- » Energy, Emissions and Climate Change
- » Product Footprint and Lifecycle Thinking
- » Waste and Recycling
- » Water Consumption and Safety
- » Air Quality

■ Economic

- » Sustainable Growth
- » Innovation, Research and Development
- » Sustainable Sourcing
- » Information Security



■ Social

- » Workplace Health, Safety and Security
- » Product Health and Safety
- » Community Involvement
- » Employee Attraction, Engagement and Retention
- » Diversity and Inclusion
- » Human Rights and Fair Labor Practices

■ Governance and Ethics

- » Corporate Governance
- » Ethics

Through more than 30 internal and external interviews, input synthesis, analysis and the validation process, we identified 17 material topics of highest priority to manage, set goals and discuss in our reporting – which form the basis of this report.

UP NEXT:

ENVIRONMENTAL SUSTAINABILITY

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► ENVIRONMENTAL

Environmental Sustainability

ubrizol views environmental sustainability from two perspectives: 1) we conduct business in a manner that protects our employees, the communities where we operate and the environment; and 2) we develop products and services that deliver efficiency, reliability or wellness, which contributes to an overall reduction in the usage of natural resources and enables our customers to advance their sustainability goals. This section focuses on the first item above; the second item is covered elsewhere in this report.

OUR APPROACH

Our commitments to environmental protection in our manufacturing, research and development (R&D), laboratory and testing facilities are based on our Health, Safety, Environmental and Security (HSES) [Policy](#), and more specifically, our policies on Environmental Compliance and Waste Management.

Under these policies, we establish standards and guidelines for environmental performance at the corporate level and require each facility to meet those expectations in an effective manner for that facility. In addition, we coordinate extensively on a regional basis to enable our sites to develop consistent protocols and share ideas. We also require that each of our facilities identifies on-site resources to manage the environmental compliance and improvement efforts.

Our corporate HSES department oversees an HSES audit program that covers all manufacturing, R&D, laboratory and testing facilities across our global footprint. Audits are scheduled at a frequency of every three to five years, dependent upon the nature of the activity and level of risk at the site. With this risk-based approach, we typically audit 20 to 30 facilities per year. Our audit teams are composed of corporate staff, in-region HSES resources and, frequently, third-party consultants. Our audit objectives are to provide facilities with an external review of their HSES compliance programs, identify any areas for improvement and collaborate with sites to document positive indicators or lessons learned. All audits result in a report that addresses findings, opportunities for improvements and best practices. Audit reports require a corrective action plan with deadlines for completion. Progress against the corrective action plan is tracked by the corporate HSES organization.

While the audit program covers all aspects of HSES, in the environmental area, the audits look at the following factors:

- Compliance with local regulations, including permit requirements;
- Alignment with corporate policies and standards;
- Day-to-day adherence to established site procedures; and
- Evaluation of systems for corrective action and emergency preparedness.

Lubrizol's RCMS and RC14001 Certified Sites
(as of December 31, 2017)

RCMS-certified sites	RC14001-certified sites
Avon Lake, Ohio	Crystal Lake, Illinois
Bayport, Texas	Houston, Texas
Bowling Green, Ohio	Midland, Michigan
Brecksville, Ohio	Painesville, Ohio
Calvert City, Kentucky	Rockton, Illinois
Clifton, New Jersey	Tehachapi, California
Deer Park, Texas	
Gastonia, North Carolina	
LaPorte, Texas	
Louisville, Kentucky	
Paso Robles, California	
Pedricktown, New Jersey	
Spartanburg, South Carolina	
Wickliffe, Ohio (plant and headquarters)	
Wilmington, Massachusetts	

In addition to our own policies and processes, we adhere to the highest environmental performance standards contained in the American Chemistry Council's (ACC) Responsible Care® initiative. Under ACC's Responsible Care Management System (RCMS), third-party certification of our HSES management systems across all business activities is required.

In 2017, Lubrizol embarked on a journey to upgrade its Responsible Care management systems to the new RC14001: 2015 standard. The RC14001 standard brings a new level of accountability and responsibility that will drive further HSES performance improvement. This emphasis on accountability aligns with our Operations Reliability Management System (ORMS) initiative as well as the strategic direction of the company. Many of our global locations, outside of the U.S., were already certified to ISO14001, a similar standard to RC14001. These two standards are both internationally recognized, which brings broader external validation of our HSES management systems. In 2017, Lubrizol achieved a multi-site certification for RC14001.

SUSTAINABILITY SPOTLIGHT

Lubrizol France commits to sustainable development for the long term

Our operations in France, which include three manufacturing facilities (Le Havre, Mourenx and Rouen), are at the forefront of addressing environmental sustainability. Since 2005, Lubrizol France employees have been receiving sustainable development training. In 2008, Lubrizol France issued its first carbon emissions report and created its first sustainable development plan, which focused the Lubrizol regional team on three key topics – recycling, the environment and energy.

We are currently working to reduce water consumption despite increased production levels. In addition, where possible, the facilities use industrial water, rather than drinking water, for their operations. Similarly, in recent years, we have shifted the energy mix away from heavy fuel oil and domestic heating oil to greater reliance on natural gas and steam. More than 90% of the facilities' waste is recovered through recycling, reprocessing and incineration (which provides a new source of energy). Our French facilities also work together regionally on audits, training and the sharing of success stories and best practices.

Lubrizol France is active in protecting biodiversity. We provide financial support to local associations working to protect the natural heritage of the river Seine's estuary, which is near a wetlands nature reserve of significant ecological importance.

ENVIRONMENTAL: ENVIRONMENTAL SUSTAINABILITY

TRACKING PROGRESS AGAINST OUR ENVIRONMENTAL GOALS

In 2013, we introduced long-term environmental reduction goals for waste, energy and greenhouse gas (GHG) emissions associated with our global manufacturing operations, and testing and R&D facilities. We used the annual average per unit of production from 2008 to 2012 as our baseline. Our 2020 target is a 10% reduction in:

- Energy use;
- Greenhouse gas emissions;
- Waste generated; and
- Waste disposal directly to the environment (e.g., waste to landfill).

We track and report on our progress annually and have seen varied results that fluctuate with business and operating conditions. We are not satisfied with our current level of performance. As we prepare to set new goals, we will incorporate our learnings from our current goals to establish consistent approaches to managing performance that will enhance our ability to track and report progress.

Environmental Data Summary

MT = Metric Tons

2015 2016 2017

Global Greenhouse Gas Emissions

MT of CO ₂ Emissions per MT of Production	.257	.262	.262
Total GHG (MT CO ₂ eq x 1000)	699	748	745
Percent Change (MT CO ₂ eq/MT Prod) from 2008-2012 Average	No change		

Global Energy Use

Gigajoules/Production MT	5.01	4.91	5.08
Total Energy Consumption (Gigajoules x 1,000,000)	13.6	14.0	14.4
Percent Change (GJ/MT Prod) from 2008-2012 Average	11.5% increase		

Global Waste Generation

MT Waste Generated per MT of Production	0.050	0.047	0.045
Total Waste Generated (MT x 1000)	136	134	129
Percent Change (MT Waste/MT Prod) from 2008-2012 Average	5.7% reduction		

Global Waste to Landfill

Waste Disposed to Landfill per MT of Production	0.0175	0.0168	0.0176
Total Waste Disposed to Landfill (MT)	47,490	47,974	49,930
Percent Change from 2008-2012 Average	8.1% reduction		

Environmental Data Summary

MT = Metric Tons

2015 2016 2017

Global Water Usage

Cubic Meters Water per MT of Production	2.11	1.89	2.07
Total Water Usage (Cubic Meters x 1000)	5,716	5,382	5,877
Percent Change from 2008-2012 Average	26.0% reduction		

Global Air Emissions

NOx (MT)	461.0	465.0	320.9
SOx (MT) reported as SO ₂	222.7	188.1	220.7
VOC (MT)	383.3	460.9	460.6
Particulate Matter (MT)	49.6	53.6	58.3
CO (MT)	547.5	585.4	588.8

Hazardous Air Pollutants (HAPs) US Only

Total Air Release (MT)	73	73	68
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Raw Material Utilization Rate

Percent Utilization (MT Material Produced/MT Raw Material Used)	96.5%	96.3%	96.7%
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Compliance

Number of Notices of Violations Exceeding \$100,000 Issued by U.S. Federal or Foreign National Agencies	0	0	0
Number of Notices of Violations Exceeding \$100,000 Issued by Local Agencies	0	0	0

To view our full sustainability scorecard, visit [this link](#).

UP NEXT:
ENERGY, EMISSIONS AND CLIMATE CHANGE

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▶ ENVIRONMENTAL

Energy, Emissions and Climate Change

The innovative solutions pioneered at Lubrizol have enabled customers around the world to increase energy efficiency, lower their carbon footprint and curb GHG emissions for themselves and end users.

We are also working to increase energy efficiency and lower GHG emissions across our own global operations.

OUR APPROACH

We recognize that understanding and measuring the energy demands of our business is critical to our ability to address concerns about GHG emissions and air quality. Our teams across the globe are continuously exploring technologies and programs to make our business run more efficiently and lessen our environmental impact. We seek to identify and implement solutions that not only provide environmental benefits, but also lead to cost savings and improved productivity. These efforts include:

- The use of cleaner-burning natural gas for heat or transportation;
- Recapturing energy that can be used for heat; and
- Upgrading the efficiency of production and office equipment and lighting.

Further, Lubrizol believes climate change is a significant challenge to an environmentally sustainable future and that the business community has a critical role in helping to reduce the negative impacts of climate change.

Lubrizol is committed to achieving measurable reductions in GHG emissions by focusing on the following areas:

- Reducing the intensity of GHG emissions from our own operations;
- Helping our customers reduce their own GHG emissions through the use of our solutions; and
- Partnering with customers and suppliers to reduce GHG emissions in our shared value chain.

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Lubrizol believes climate change is a significant challenge to an environmentally sustainable future and that the business community has a critical role in helping to reduce the negative impacts of climate change.

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ISO 50001 CERTIFICATION FOR ENERGY MANAGEMENT

Three of our facilities have achieved ISO 50001 certification, a voluntary consensus standard that enables organizations in all sectors to use energy more efficiently through the development of an energy management system (EnMS). ISO 50001 provides a framework for organizations to:

- Develop a policy for more efficient use of energy;
- Fix targets and objectives to meet the policy;
- Use data to better understand and make decisions about energy use;
- Measure the results; and
- Review how well the policy works, and continually improve energy management.

As a result of implementing the EnMS and following through on energy efficiency opportunities that are identified, our ISO 50001-certified facilities have realized significant improvements:

- **Ritterhude, Germany:** Beginning in 2016, the installation of new air compressors has reduced overall energy usage and utility expenses. Replacing heating pumps throughout the facility has saved several thousand kilowatt hours of energy each year.
- **Hamburg, Germany:** To improve energy efficiency in the plant, the team implemented regular testing of its steam traps. The results were a more efficient manufacturing process and decreased demand for natural gas.
- **Songjiang, China:** The thermoplastic polyurethane (TPU) plant has implemented several energy efficiency initiatives: improving the efficiency of the cooling water system; recycling process heat to use in the HVAC system, which saves natural gas; and improving the efficiency of the TPU steam pipeline.

IMPROVING OUR OWN OPERATIONS

The more we do in this area, the more a culture of energy efficiency and an ability to manage our carbon footprint permeate through the organization. Our facilities around the world are working proactively to mitigate our demand on global energy resources. Typical solutions include: increasing equipment efficiency so we use less energy; switching energy sources to cleaner-burning natural gas; reclaiming energy that we can use for heat; and installing energy-efficient LED lighting at many plants, warehouses

and offices. We have also installed solar panels at our facility in Mumbai, India.

Other examples include:

- In **Painesville, Ohio**, we switched our material handling tow motors from natural gas to electric and began packaging more products in-house instead of transporting them for drumming elsewhere. We also installed boilers that have reduced our natural gas consumption.



Solar panels at our facility in Mumbai, India.

- At our **Hazelwood, U.K.**, R&D center, we have installed regenerative dynamometers throughout the lab, which converts mechanical energy from machines into electrical energy for use at the facility, leading to a reduced demand on utilities.
- In **Spartanburg, South Carolina**, a new and more efficient vacuum pump lowered demand on local utilities, with a subsequent cost savings that provided a three-year return on the initial investment.
- Our plant in **Rouen, France**, lowered its power requirements by 2,700 megawatts per year by recapturing steam condensate. More information on this project is available in the [Water Consumption and Safety](#) section.

SOLUTIONS THAT ENABLE ENERGY EFFICIENCY FOR ALL

Lubrizol's tireless pursuit of innovation has been helping customers and end users increase energy efficiency and reduce GHG emissions for years, while maintaining superior performance and reliability. We have a long track record of developing products that enable fuel economy and lower emissions across many transportation applications. For example, our investment in the development of additive technology that enables Gasoline Direct Injection (GDI) engines has resulted in an approximate 100 million MT CO₂ reduction over the past six years, and also improves the durability of these engines.



: GDI engine additives enable enhanced fuel economy and lower emissions across many transportation applications for many modern passenger cars.

Other recent innovations include:

- **Lubrizol Additives:** We provide additives that address the lubrication needs of emerging, GHG-reducing technologies such as electric vehicles, hybridization and stationary natural gas engines. Lubrizol is also at the forefront of the development of new testing protocols that are more productive and relevant for these emerging applications.
- **Home Care:** Our Noverite™ polymers enable significant reductions in water and energy consumption for our customers during laundry detergent processing.
- **Skin Essentials:** Pemulen™ polymeric emulsifier is capable of cold processing, which can lower the amount of heat and energy needed to produce finished skin cream by approximately 30% for our customers.
- **Performance Coatings:** Permax™ – our water-based resins – reduce volatile organic compound (VOC) emissions by 50% to 90% compared with conventional solvent-borne epoxy primer products.

For more information, refer to the [Product Footprint and Lifecycle Thinking](#) and [Innovation, Research and Development](#) sections.



: Our Pemulen™ polymeric emulsifier application reduces heat and energy use for our customers.

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PRODUCT FOOTPRINT AND LIFECYCLE THINKING

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► ENVIRONMENTAL

Product Footprint and Lifecycle Thinking

Our business is inherently oriented toward environmental responsibility. We view chemistry as an enabler that our businesses use to create products that contribute to a cleaner, healthier planet, aligning with our mission to improve lives by delivering efficiency, reliability or wellness. Specific examples are products that enable improved fuel efficiency, reduced emissions, more durable surfaces and those that help support and promote healthy, active living. In our materiality assessment conducted in 2018, Product Footprint and Lifecycle Thinking was identified as one of our most significant material topics.

CORPORATE FOOTPRINT

In 2016-2017, we worked with a third party on an updated assessment of our corporate environmental footprint. Using 2010 as a baseline, we found that, from 2010 to 2014, our CO₂ emissions dropped 6% while revenue increased 28% over the same time period. Similarly, we reduced our resource footprint, as measured by the barrels of oil used in production, by 15.5%.

This update also showed that, for GHG emissions, raw materials constitute approximately 80% of our footprint, while site emissions account for approximately 17% and transportation for 3%. As a result, improvements in our business' sustainability

profile are likely to be made through raw material choice and supplier engagement, as well as site initiatives such as energy efficiency and waste minimization.

Through our analysis, we determined that the vast majority of our footprint impacts come from a few number of raw materials that we use in large quantities. In addition, although the impact of our sites is relatively small compared with the raw materials, we can identify which sites have the most impact. This will help us determine where we can have the most impact on our corporate footprint in the future.

PRODUCT FOOTPRINT

Through our product stewardship efforts and lifecycle thinking, we are dedicated to minimizing our global footprint and enhancing the positive impact our products can have on the planet and in people's everyday lives. We seek to do this by:

- Considering impacts both upstream to suppliers and downstream to customers and end-use consumers;
- Using environmental lifecycle assessments (LCAs) to drive product design innovations;
- Creating naturally derived products where feasible; and
- Encouraging supplier environmental transparency and traceability.

We are making a positive difference across all of our businesses and in various product lines. Examples include:

- We provide solutions that enable customers to improve their processing operations, which helps them reduce resource consumption and energy and water use, and increase productivity and reliability.
- Our additives for driveline, engine oils, fuels and industrial lubricants offer performance benefits in fuel efficiency, durability, reliability and reduced emissions – all of which contribute to more environmentally sustainable transportation and industrial markets.
- We produce a wide variety of engineered polymers, performance coatings and compounds that improve the performance of our customers' products. Benefits to end users include greater product durability and reliability (which result in less waste), and improved health and wellbeing.

Evaluation of our corporate and product footprint and the integration of lifecycle thinking are growing in importance for Lubrizol.



Our additives provide reliability, energy efficiency and fuel economy for a wide variety of vehicles.

BUSINESSES AND PRODUCTS DRIVE POSITIVE LIFECYCLE IMPACT

Several of our businesses are taking a lead role in applying lifecycle thinking to their product development and marketing strategies.

For example, our **CPVC piping systems** business has completed an ISO-compliant, peer-reviewed lifecycle assessment of its BlazeMaster® fire sprinkler systems, which are the most specified non-metallic fire sprinkler systems in the world. Thirteen environmental impact categories were examined across the lifecycle of both our CPVC-based product and the steel alternative.

In 12 out of 13 environmental impact categories, BlazeMaster CPVC pipe and fittings outperformed steel. Notably, BlazeMaster CPVC pipe and fittings were found to have half the climate change impact of steel. In addition to traditional LCA impact categories, water depletion and energy consumption were evaluated and found to be lower for BlazeMaster CPVC products in comparison to steel.

This business also makes FlowGuard Gold® materials for use in pipe and fittings and Corzan® industrial systems, which enable our customers to dramatically expand access to clean water and modern plumbing worldwide.



In an ISO-compliant, peer-reviewed lifecycle assessment, our BlazeMaster® fire sprinkler systems were found to have half the climate change impact of steel.

Our **Estane**® TPU business is creating specialty technologies that enhance processing efficiency, utilize recycled content and support leading global brands' post-consumer recycling programs. We are continuing to find ways to utilize more environmentally benign chemistries, including solvent-free solutions. Lubrizol, along with many of our key global customers in the apparel and footwear market, is a member of the Sustainable Apparel Coalition.



Our **Estane**® solutions enhance processing efficiency, utilize recycled content and support leading global brands' post-consumer recycling programs.

Our **Personal, Home and Health Care** (PHHC) business is focused on developing solutions that deliver high performance and reduce environmental impact for ourselves, our customers and end users. Sustainability benefits are organized into three categories: nature-based, lower environmental impact and third-party certified (which includes Ecocert/COSMOS, EPA Safer Choice program and Roundtable on Sustainable Palm Oil).

We call the PHHC sustainability benefits in our ingredients **Compass Benefits**, which include:

- Products that improve resource utilization and manufacturing efficiency for Lubrizol and its customers;
- Reduced or eliminated use of formaldehyde in various hair and skin care products;
- Increasing use of naturally occurring, plant-based ingredients for cosmetics; and
- Development of formulations that enable laundry products to clean with less water and energy.

For more information on PHHC's sustainability efforts and its Compass program, see the [Innovation, Research and Development](#) section.

SUSTAINABILITY SPOTLIGHT

Looking Forward

Evaluation of our corporate and product footprint and the integration of lifecycle thinking are growing in importance for Lubrizol. Given our role in the value chain, these topics provide opportunities for significant collaboration with our suppliers and customers. As end users seek to learn more about how products are made and what happens when they've reached the end of their useful life, we will work to continue to increase our transparency and positive impact. We will update our corporate footprint and product footprint processes to increase the scope of inputs and enhance data integrity. We will also update our environmental goals as the existing goals sunset in 2020, to continue to drive improved performance in these areas.

UP NEXT:
WASTE AND RECYCLING

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▶ ENVIRONMENTAL
Waste and
Recycling

Lubrizol is committed to reducing the amount of waste, both hazardous and non-hazardous, from our operations, and reusing and recycling materials when possible. We are thorough and consistent in classifying and assessing wastes and in auditing our facilities' waste reduction and waste management efforts. Successful waste management and recycling programs not only reduce environmental impact, but also provide cost and efficiency benefits for Lubrizol and our customers.

We apply the highest standards and a continuous improvement mindset to our waste and recycling efforts. We are committed to meeting or exceeding all applicable laws and regulations. Facilities are expected to choose the most responsible option for waste management. In some cases, this means going beyond compliance even if it is not the most cost-effective option, as we have done, for example, by prohibiting deep well injection in the U.S.

Our Waste Management Policy requires that all Lubrizol facilities, subsidiaries and affiliates worldwide (including manufacturing facilities, R&D facilities, warehouses and engine testing facilities) manage their regulated and industrial wastes safely and in accordance with corporate standards and all local applicable

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Lubrizol received ACC's Waste Minimization, Reuse and Recycling Award for substantial achievements in minimizing waste during 2017.
.....

laws and regulations. Our facilities are responsible for ensuring that materials are properly classified, identifying ways to reduce their waste volume and selecting appropriate waste disposal facilities.

Lubrizol also participates in the ACC's [Responsible Care](#)[®] initiative, which includes provisions for responsible product design and development that consider product use and safe disposal, as well as promote minimization of waste and conservation of critical resources at every stage of the product lifecycle. Consistent with Responsible Care, these principles are applied globally.

.....
In 2017, more than 60% of our hazardous waste went to energy recovery and recycle/reuse.
.....

Our waste reduction efforts are focused in two primary areas:

1.
Reducing the overall amount of waste we generate by becoming more efficient in our operations and evaluating the waste and energy implications of new products and processes

2.
Reducing the waste we send to landfills through elimination, reuse and recycling

Lubrizol's corporate vice president of operations oversees the Waste Management Policy, and facility line management and health, safety and environmental site representatives are responsible for its daily administration. Our corporate HSES team provides additional support and oversight. Employees at each location are trained and qualified to perform analyses of waste disposal practices.

PERFORMANCE UPDATE

We continued to make progress in 2017 and into 2018 in reducing waste and promoting reuse and recycling. Our 2020 corporate environmental goals are compared with a baseline derived from an average of 2008 to 2012 data. In 2017, compared with the baseline, we achieved a 5.7% reduction in overall waste (non-hazardous and hazardous) generated per unit of production and an 8.1% reduction in waste to landfill per unit of production. As in other areas, we track and report on our progress annually and know that results will fluctuate with business and operating conditions.

We are also encouraged by our improving raw material utilization rates (material produced/material used) – up to 96.7% in 2017. Given the size of our organization, even a tenth of a percent increase in raw material utilization marks a meaningful improvement in how efficiently we are using materials. See the [Environmental Data Summary](#) section for our raw material utilization rates over the last three years.

In early 2018, Lubrizol received ACC's Waste Minimization, Reuse and Recycling Award for substantial achievements in minimizing waste during 2017.

FACILITIES MOVING FORWARD WITH WASTE REDUCTION

Lubrizol facilities around the world are working to develop and document waste reduction projects to help us meet or exceed our company goals. They have the flexibility to implement programs to meet their specific needs and resources, including partnering with other companies and local community organizations on reuse and recycling programs. Our facilities also are becoming increasingly skilled at collecting data, enabling us to better track and measure our progress.

Here is a sampling of successful programs occurring at our facilities around the world:

- At our **Mumbai, India**, manufacturing facility, a portion of the wastewater is used for gardening onsite, in accordance with local regulations.
- Our **Mumbai, India**, office delivers double impact with its plastics recycling program – by reducing its waste and donating the proceeds from the recycled material to a pediatric hospital to serve local families in need. We partner with RaddiConnect, a waste management service that is Mumbai's first recycling-based fundraising platform for non-governmental organizations (NGOs). (In Hindi, "Raddi" means scrap, waste or garbage.)
- The **Clifton, New Jersey**, plant is focused on recycling large items such as polyethylene drums.
- In **Louisville, Kentucky**, we have reduced packaging waste by switching from 50-pound bags to super sacks for some raw materials.
- Our **Wilmington, Massachusetts**, plant has eliminated all landfill waste by working with our vendors to send any hazardous waste to waste-to-energy plants or incinerators, and installed a trash compactor on-site to make energy from plastic and other non-hazardous waste.
- Our **Painesville, Ohio**, facility reviews off-specification and obsolete materials (typically bulk items) to determine if they can be sold as a product instead of disposed of as waste. We have also increased our recycling of used fuel oil.

SUSTAINABILITY SPOTLIGHT

Bayport, Texas, facility turns hazardous waste into useful byproducts for customers

Lubrizol's Bayport, Texas, additives facility has significantly reduced its hazardous waste and greenhouse gas emissions by converting waste streams from two of its processes into useful ingredients for customers' products.

In one instance, a process used to produce a viscosity modifier created an oil byproduct that was initially managed as a hazardous waste due to ignitability. Historically, this material's disposal method was burning it for energy recovery because of its high British thermal unit (BTU) value. Using waste streams as fuel substitutes is often considered an efficient and effective way to manage wastes of this type.

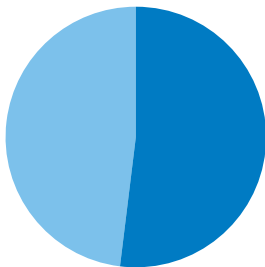
In 2018, Lubrizol found a buyer to purchase the byproduct stream and use it as a raw material in the manufacture of one of the buyer's products. As a result, Lubrizol eliminated an estimated 400,000 gallons of hazardous waste annually. Because the material is no

longer burned as a fuel for energy recovery, Lubrizol has reduced an estimated 4,800 tons/year of CO₂ (greenhouse gas) emissions.

In the other case, a raw material used in producing an antioxidant that is used in engine fluids was being recovered but it could not be reused. The spent raw material was originally managed as a hazardous waste due to ignitability and had to be sent to a permitted hazardous waste facility where it was used as a fuel substitute and burned for energy recovery.

Even though recovering heat value from using the waste stream as fuel is an efficient and effective way to manage the waste, Lubrizol found a customer that was able to use the spent raw material as an ingredient. As a result, we reclassified the material as a product that is now sold to a customer, thereby eliminating an estimated 1.5 million gallons of waste annually. Because the material is no longer burned as a fuel for energy recovery, Lubrizol has reduced an estimated 16,000 tons/year of CO₂ emissions.

Non-hazardous vs. Hazardous Waste

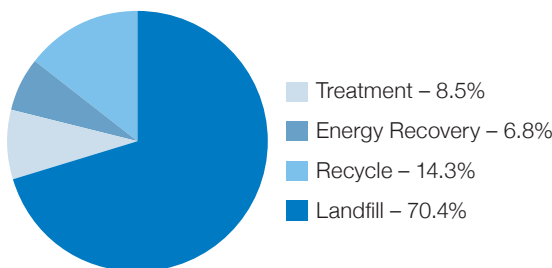


- Non-hazardous Waste – 52.1%
- Hazardous Waste – 47.9%

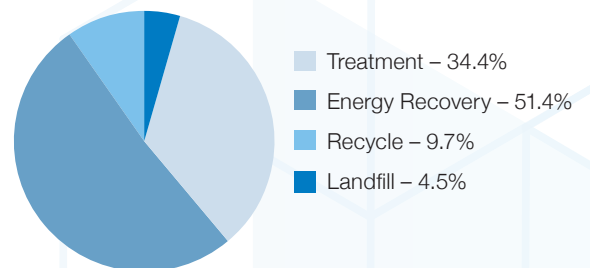
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Non-hazardous Waste by Disposal Method



Hazardous Waste by Disposal Method





▶ ENVIRONMENTAL

Water Consumption and Safety

Water is among the world’s most cherished, shared resources, and we recognize our responsibility for protecting it. Our facilities have implemented a wide variety of locally managed projects and initiatives to ensure compliance with regulatory requirements and address water scarcity concerns. This requires having a close working relationship with local water protection officials and municipal supply and discharge departments.

Water consumption, including current usage and conservation planning, is managed locally by trained employees at each of our facilities. Usage rates are tracked globally and reported on an annual scorecard by our HSES team. In addition to managing consumption, some of our larger facilities track the usage of water used for steam, and, where possible, seek to recapture it as

.....
Our water usage in 2017 was 2.07 cubic meters of water per metric ton of production, representing a 26% reduction in water usage compared with our baseline.
.....

condensate and direct it back into steam production. This helps to limit the need for new water to be brought into our systems, optimizes the efficiency of our steam heat and limits the amount of water discharged. In addition, some of our facilities are utilizing rainwater or brown water to replace potable water in certain applications.

Our water usage in 2017 was 2.07 cubic meters of water per metric ton of production, representing a 26% reduction in water usage compared with our baseline, which is based on the average water consumption between 2008 and 2012. We do not currently have a corporate water use reduction goal, but we are working to establish one as part of our refreshed goals.

In areas where water scarcity is a concern, sites have the flexibility to further manage their consumption. For example, our Paso Robles, California, plant recycles 300,000 gallons of its own treated wastewater each year and uses it for cooling. The project not only conserves the amount of water used, it lessens the amount of treated water flowing into the city’s sewer system. Recycled water accounts for about 35% of the total wastewater the plant discharges annually.

ENVIRONMENTAL: WATER CONSUMPTION AND SAFETY

Protection of waterways is also an important part of our efforts. Our facility in Wickliffe, Ohio, installed oil/water separators to prevent storm water from carrying oil releases to Lake Erie. Also in Northeast Ohio, The Lubrizol Foundation supports Drink Local. Drink Tap. – a nonprofit organization that inspires individuals to recognize and solve water issues through education, events and providing safe water access to people in need.

Our PHHC business has embraced our corporate commitment to **United Nations Sustainable Development Goal 14: Life Below Water** as part of its strategic plans. This includes providing formulations that enable our customers to use less water in their manufacturing processes. In addition, at the end-user level, we ensure that our polymers will not harm the environment in wash-off applications for hair and skin care, cosmetics, bath and shower solutions, and detergents.

WATER STEWARDSHIP ACROSS GLOBAL FACILITIES

We expect each of our facilities to meet requirements for water management, conservation and discharge in line with their local regulations. We also take proactive measures to ensure future compliance and provide extra layers of water stewardship where we can.

Here are three examples from across our global footprint:

- Rouen, France:** This plant implemented a plan to recover condensate from its steam system. The five-step process measures and adjusts acidity and hardness, and detects organic and material particles to deliver water that is appropriate for industrial processes. Condensate recovery increased from 30% prior to the project to 60% after its implementation. The project saves an estimated 48,000 cubic meters of water and 2,700 megawatts of power a year. It also improves the quality of water used in the production of steam, thereby decreasing the amount of maintenance needed on our boilers.

60% condensate recovery with new system in Rouen facility

- Durban, South Africa:** In an effort to contribute to the sustainable management of scarce water resources in this region, our facility installed rainwater-harvesting tanks with a total annual capacity of 30,000 liters. Rainwater runoff is collected from warehouse roofing and directed into large tanks. This water can then be sent to the boiler for heating, or for applications such as toilet flushing. This project reduces overall demand, means fewer chemicals are needed for water treatment and replaces the use of high-quality drinking water for low-grade applications.
- Zhuhai, China:** A changing regulatory environment for our Zhuhai facility in China's Guangdong Province was causing significant increases in wastewater disposal costs. Additionally, its existing wastewater treatment system was proving to be inflexible and, in some cases, causing delays in production. In response, the plant implemented more in-house water treatment capabilities, which has enabled the facility to process wastewater for disposal to the municipal government without having to involve a third-party processor.

30,000 liters of rainwater – harvesting capacity in Durban facility

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▶ SOCIAL

Workplace Health, Safety and Security



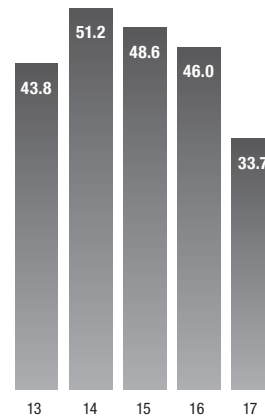
Maintaining the health and safety of our employees, customers and neighbors, and protecting the environment are part of our corporate philosophy. Every day, we work on building a culture of safety and accountability in which every employee is empowered to be a safety leader in the workplace.

OUR APPROACH

We are on a “Journey to Zero,” which we define as zero accidents, zero errors and zero harm. This journey requires us to leverage programs and processes that are already successful and to introduce enhanced levels of accountability and consistency across our organization. Our challenge, and our opportunity, is to make our many areas of excellence become the standard way we do business.

We have a long history of publicly reporting our safety statistics through the American Chemistry Council’s (ACC) [Responsible Care®](#) program and on our Sustainability Scorecard. In 2017, our recordable injury rate was 1.33 incidents per 100 full-time employees, which was higher than the last several years. Our lost-time incident rate was 0.60 per 100 full-time employees, which was also higher than in recent years. Our process safety incident rate was 0.11 and process safety incident severity rate was 0.28. There were no fatalities during the 2015-2017 reporting period.

Lubrizol’s Health, Safety and Security Expenditures
Dollars in Millions



Our safety statistics in recent years highlight the need for improvement. They also reflect our culture of reporting and transparency. The safety of our people is paramount; our conservative approach to injury reporting enables us to use the data collected to improve safety. We have recently launched several focused initiatives to increase our accountability and commitment to safety. Much of this section is devoted to explaining what we are doing to improve performance and drive a high level of consistency across our organization.

ESTABLISHING AND STRIVING TO MEET HIGH STANDARDS

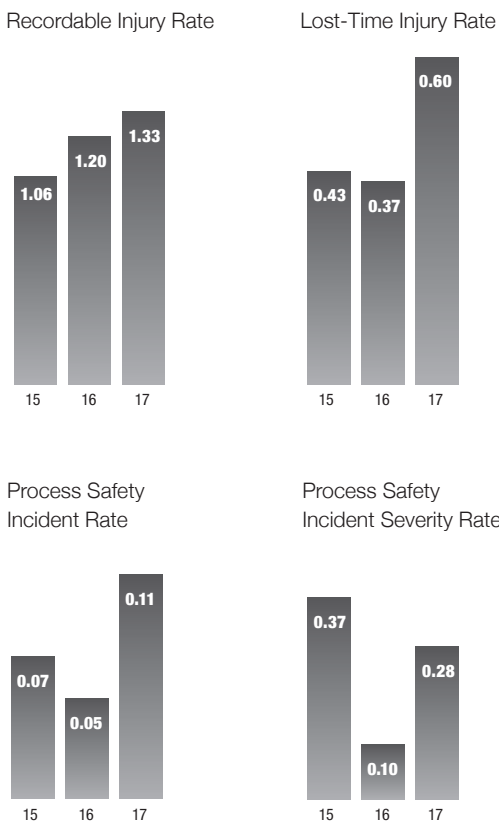
Lubrizol aims to comply with all applicable standards for workplace health, safety and security, in line with our corporate Health, Safety, Environmental and Security (HSES) [Policy](#) and other related policies in Health and Safety and Process Safety. We recognize our responsibility to protect our employees, customers, suppliers, contractors, visitors and facilities, as well as the environment and the communities in which we operate.

We work to fulfill this responsibility by identifying, evaluating, prioritizing, mitigating and, if possible, eliminating risks. We set clear and measurable goals that are reviewed and supported by management, and we rely on our employees to proactively identify, reduce and manage risks. Our facilities have measurable safety goals to promote continuous operational improvement and safe business practices. We perform regularly scheduled HSES assessments in our plants, and all employees receive safety training. We also work with contractors to ensure they operate under the same high safety standards that we expect of ourselves.

Open and ongoing communications are essential to address concerns, report progress, create understanding, share knowledge and build confidence in our operations. Senior leaders consistently discuss safety performance in their global communication meetings; many management meetings open with a safety moment to highlight a specific safety topic; global messaging in the form of safety posters and newsletters is translated into many languages; and both routine and ad hoc global or regional calls are scheduled to discuss incidents and share best practices.

Our focus on safety doesn't stop at our manufacturing plants. We are also highly engaged in promoting safety in our office settings, while traveling for work and off-the-job. In 2017, office safety became a critical area of focus, engaging employees working in office settings to actively participate in safety improvement activities. Our efforts include office safety committees, minimizing distractions while walking, and installation and training for automated external defibrillators. We also issued a new policy that prohibits the use of mobile devices, both handheld and hands-free, while driving on company business.

Global Safety Statistics
Per 100 Full-Time Employees



Maintaining the health and safety of our employees is a critical component of our corporate philosophy. Our safety statistics in recent years reflect our conservative approach to injury reporting – **and** highlight the need for continuous improvement. We are committed to driving safety excellence across our global operations through our “Journey to Zero” vision and “Make Safe Happen” initiative.

In addition to regulatory compliance and meeting our internal standards, we also align our efforts with industry best practices, most notably the ACC's Responsible Care® initiative. We have signed on to the Responsible Care Global Charter, which affirms our commitment to apply Responsible Care principles and expectations globally. For more information on Responsible Care and our HSES audit program, refer to the [Sustainability at Lubrizol](#) and [Environmental Sustainability](#) sections.

RISK-BASED APPROACH IDENTIFIES PRIORITIES

Reliable HSES and compliance is one of the five pillars of our Operations Reliability Management System (ORMS), which we have established as our roadmap for performing as a highly reliable, market-driven technology company that delivers valuable solutions for all stakeholders.

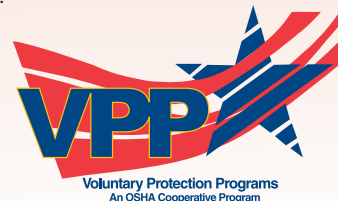
The following elements form the foundation of ORMS:

- Management leadership, commitment and accountability;
- Risk identification and management;
- Organizational capacity and culture of reliability;
- Business systems and processes; and
- Continuous improvement.

SUSTAINABILITY SPOTLIGHT

Wickliffe is a Star

Our Wickliffe, Ohio, facility is a Star site in OSHA's Voluntary Protection Programs (VPP). Through these programs, OSHA recognizes facilities that have implemented effective safety and health management systems and maintain injury and illness rates below national Bureau of Labor Statistics averages for their respective industries. In VPP, management, employees and OSHA work cooperatively and proactively to prevent fatalities, injuries and illnesses through a system focused on: hazard prevention and control; worksite analysis; training; and management commitment and employee involvement.



Utilizing this risk-based approach, we have developed targeted programs in a number of key areas, including the cardinal rules of safety: lockout/tagout, hot work, working from heights and confined spaces. We have moved to standardize our approach to protecting against falls from heights. Our process includes hazard identification, quick fixes if necessary, long-term engineering controls where possible, and sharing of incidents and best practices across the company.

In the area of process safety, we strive to incorporate process safety parameters into our products and the design of the manufacturing environment. Regional process safety teams are charged with developing the competencies and knowledge sharing among the manufacturing plants.

The program focuses on four areas:

- Conducting robust risk identification and management;
- Ensuring that employees are properly trained to operate the equipment, to recognize hazardous or non-routine circumstances and to know what to do in an emergency;
- Implementing ongoing process hazard analysis; and
- Conducting audits and sharing results with all global facilities.

SUSTAINABILITY SPOTLIGHT

Together, we 'Make Safe Happen'

In Lubrizol's Journey to Zero – zero accidents, zero errors and zero harm – we want safety to be at the forefront of everything we do. To increase knowledge, awareness and accountability for ensuring safety and doing the right thing, in 2017, we launched the "Make

Safe Happen" safety communications strategy to promote safety awareness globally. It consists of targeted posters that focus on our cardinal rules of safety, a corporate newsletter with safety articles written by our global colleagues, a series of videos from executive management, key leaders and employees representing our global locations, and more. The posters and newsletters are translated into several languages and posters can be found throughout our sites (manufacturing, labs and offices). The program is designed to equip everyone at Lubrizol to be leaders in our effort to improve workplace health and safety.

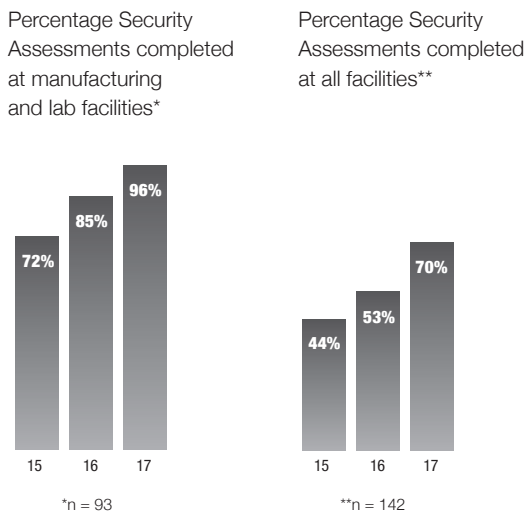


In security, we take a comprehensive, proactive approach that includes regular assessments, incorporation of new technology, training, and close working relationships with law enforcement agencies in many communities. We maintain affiliations with ASIS International, the world's largest membership organization for security management professionals. In the U.S., we comply with legislative requirements and the Department of Homeland Security's Chemical Facility Anti-Terrorism Standards (CFATS). Our global security initiative is designed to exceed ACC protocols.

CELEBRATING SAFETY EXCELLENCE IN OUR FACILITIES

We are proud of the many individual successes in health and safety achieved by our facilities around the world. In 2017, 31 of our manufacturing facilities had no lost-time accidents, and 21 of those facilities also had no recordable injuries. Our U.S. facilities received 19 ACC Facility Safety Awards in 2017.

Global Security Statistics



In 2017, 31 of our manufacturing facilities had no lost-time accidents, and 21 of those facilities also had no recordable injuries. Our U.S. facilities received 19 ACC Facility Safety Awards in 2017.

Among the facilities with strong programs that continued in 2017 are:

- Mourenx, France:** This facility, which has 15 employees, has never had a recordable incident since it was established in 1991. Management and employees at this facility attribute their success to continuous improvement in systems and procedures, careful monitoring of safety indicators, and strong engagement in safety training programs.
- Deer Park and Bayport, Texas:** Our LZA Texas manufacturing facilities reduced recordable injuries by approximately 70% from 2016 to 2017 by focusing on reducing risks and enhancing training and individual accountability. The facilities have dedicated training managers and established specific training areas for new operators to get hands-on experience.
- LaPorte, Texas:** In 2017, this LZAM facility celebrated seven years without a recordable injury. Its success is due in large part to having an engaged and empowered workforce that utilizes a continuous improvement program to improve equipment reliability and quality excellence. Employees and contractors also participate in programs such as Behavioral Based Performance (BBP), Continuous Hazard Recognition Process (CHRP), Picture the Hazard (PTH), and focus on maintaining high standards for housekeeping.
- Sant Cugat, Spain:** In 2017, this facility reached five years without a recordable injury and 12 years with no lost-time accidents. The facility received the COASHIQ (Commission of Safety and Hygiene in the Workplace of Chemical Industries of Spain) award for Safety Excellence in Safety Management.

- **Songjiang, China:** Starting in 2015, this facility posted three straight years of zero recordable injuries. Keys to success include behavior-based safety program implementation, daily inspections and safety talks, and a focus on leading indicators such as review of near-misses and job safety analyses. Our operations in China received the 2017 Responsible Care Chairman’s Award from the Association of International Chemical Manufacturers (AICM).
- **Zhuhai, China:** To help new employees and reinforce safe work habits, we built a training center that includes process equipment. The training is focused on improving employees’ practical capabilities on specific operations, including compliance with cardinal rules relating to lockout/tagout, hot work, working from heights, confined spaces and loading dock safety.
- **King of Prussia, Pa.:** Our Paratherm™ heat transfer fluids business moved into a new facility in 2016. From the beginning, the new facility updated safety and security procedures, improved labeling and signage of potential safety hazards, improved chemical management, enhanced training on possible chemical incidents and man-down scenarios, implemented an emergency management system, and introduced CPR and defibrillator training.

At Lubrizol, we recognize safety doesn’t just happen on its own – we must make it happen. Although we have made progress in improving workplace health, safety and well-being, we realize more work needs to be done. It will always be one of our highest priorities and is now highlighted as a shared accountability for all executive council members.



Our Painesville, Ohio, facility invested in a variety of safety improvements, including installing state-of-the-art automated packaging equipment. In early 2018, the Ohio Chemistry Technology Council recognized the facility with its highest honor, The Eagle Award for Excellence in Environmental, Health, Safety & Security Performance. Accepting the award on behalf of Lubrizol were Greg McCullough, David Tripp, Aaron Ujcic, Eric Choby and Bill Brueggeman.

SUSTAINABILITY SPOTLIGHT

Painesville, Ohio, facility invests in safety innovation

In 2017, we completed approximately \$70 million of investment, implemented in phases over a four-year period, at our Painesville, Ohio, facility. The improvements included:

- Construction of a new 150,000-square-foot shipping warehouse and a 30,000-square-foot state-of-the art drumming facility;
- Repurposing of an existing warehouse to serve as the site receiving warehouse;
- Installation of two storm water retention ponds;
- Construction of a new access road dedicated for truck traffic; and
- Remodeling of the security truck gate.

The impact on health, safety and security is significant. For example, the creation of a second entrance to the site is expected to reduce in-plant traffic by nearly 6,000 miles a year. We dramatically reduced drum handling by facility personnel by installing state-of-the-art automated packaging of 55-gallon drums and 330-gallon totes.



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PRODUCT HEALTH AND SAFETY

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▶ SOCIAL

Product Health and Safety



Our deep commitment to health and safety is inherent in our products. Our focus is on the safe, intended use of our products throughout their lifecycles. Through our product stewardship efforts and lifecycle focus, we understand the potential effects our products can have on the planet and on human health.

Regulatory compliance and continual improvement of product-related health, safety and environmental performance is a top priority for us. This allows us to provide our stakeholders with information necessary to enable the safe, intended use of our and their products. Our Product Safety Management Procedure sets a framework for how we manage and implement our product safety and compliance obligations. It satisfies related product safety management practices associated with the ACC Responsible Care® Product Safety Code.

Consistent with our Product Safety Policy, we aim to develop, produce and market our products in a manner that continually reduces risk to our customers, employees, end users and the environment. We provide support to all stakeholders in the supply chain to foster the safe handling of our products for their intended use.

Our approach is to:

- Employ a management system to evaluate and communicate product safety throughout all stages of product development, marketing and use;
- Comply with all regulatory requirements for product safety testing and labeling;
- Proactively communicate product hazards and material handling recommendations to all stakeholders;
- Continually assess raw materials, products and labeling to minimize product risk;
- Apply consistent product safety standards across all geographic regions; and
- Maintain open and constructive dialogue with internal and external stakeholders regarding safe product use.

Our product health and safety effort is led by the product safety and compliance group, which is divided into three main functional areas – product compliance, toxicology and hazard communication. The group has centers in the U.S., Asia Pacific, Europe and India. These activities are further supported by business-specific product stewards.

SOCIAL: PRODUCT HEALTH AND SAFETY

Preventing and mitigating risk is most efficient and effective at the earliest possible stage. We recently brought forward an initial toxicology assessment to the front end of our new product development process. This allows us to be more efficient in product development by identifying potential hazards earlier in the development lifecycle. Throughout the development process, we continue to focus on hazard identification, risk assessment and risk management of raw materials, chemical intermediaries, and products processed and manufactured.

We have specific protocols in place for many other aspects of product development, including bringing new components and products to the marketplace; efficiently registering chemicals to global chemical inventories to allow us to import into or manufacture in countries having chemical control regulations; and performing a final regulatory compliance review to ensure that the new product is in compliance for its intended use in the jurisdictions where we plan to sell it.

Through this careful approach and with close oversight, specifications are defined for the intended use and durability of every product. These specifications are then designed by Lubrizol scientists in a manner that ensures they meet the requirements of value chain stakeholders.



Following a 10-year REACH registration process, we met the May 31, 2018, deadline to register all our chemicals, which amounted to approximately 260 substances, at an overall investment of more than \$50 million.

INNOVATIVE TOOLS AND PROCESSES DRIVE PRODUCT HEALTH AND SAFETY

In accordance with government regulations and customer requirements, we have mechanisms in place to ensure that our products comply with global chemical-control laws and that our customers and end users can use them safely. Our tools include:

- **Chemical substances “heat map,”** which is a pictorial representation of monitored substances that are judged to be of greatest threat or opportunity to Lubrizol. The heat map helps to inform internal decisions about specific product formulations as we seek to determine the performance characteristics and compliance requirements of various substances.
- **“Breadbasket” and “Anti-Breadbasket”** framework, instituted nearly two decades ago, is a substance evaluation methodology that facilitates the identification, evaluation and use of specific chemicals during product development. It helps our scientists identify formulating components that have been shown to meet regulatory approval and that are, within their intended use, protective of public health and the environment. On the other side, it includes those that may meet the near-term needs of a specific product line but contain functional chemical groups that may not be good long-term solutions.
- In addition, to further improve, we are developing a **proprietary sustainability index of chemicals**, which will help Lubrizol evaluate various regulatory requirements and advocate for the inherent performance and environmental benefits of certain chemicals and substances.

ADDRESSING REACH COMPLIANCE

Over the last several years, Lubrizol has invested, and continues to invest, significant time and resources to adopt global best practices and ensure compliance with [REACH](#) (Registration, Evaluation, Authorisation and Restriction of Chemicals) laws that have been adopted in Europe.

REACH requirements set particularly high standards that Lubrizol has been addressing in a comprehensive manner. The objective of REACH is to promote the safe use of chemicals for humans and in the environment through substance registration. Registrations contain detailed information on chemical identities, properties and potential adverse effects. Thus, the registration process itself has resulted in a wealth of data and information about potential benefits and risks of approximately 30,000 substances used in European markets.

Lubrizol established a cross-functional REACH Governance Council soon after the law was adopted in Europe in 2007. Following a 10-year registration process, we met the May 31, 2018, deadline to register all our chemicals, which amounted to approximately 260 substances, at an overall investment of more than \$50 million.

Our efforts related to REACH include:

- Communicating with customers and suppliers to ensure that all needed end uses are captured for registration purposes;
- Compiling hazard data and exposure information to complete registration dossiers for those substances;
- Developing an IT system to act as a single location for storing all information related to REACH compliance, and to ensure that all supply-chain functions within Lubrizol factor REACH requirements into their daily decision making; and
- Ongoing substance volume tracking to maintain compliance.

We continually review the REACH requirements to ensure we remain in compliance and to enable Lubrizol and our customers to import, manufacture and use our products in Europe.

SUSTAINABILITY SPOTLIGHT

Applying ACC's Responsible Care Product Safety Code

In the U.S., as a member of the American Chemistry Council, we are bound to comply with ACC's Responsible Care[®] Product Safety Code.

ACC's Product Safety Code includes a set of Management Practices through which chemical manufacturers evaluate, demonstrate and continuously improve their product safety performance, while also making information about chemical products available to the public. Specifically, the Product Safety Code Management Practices require chemical companies to do the following:

- Undertake scientific analyses of their products and take steps to assure they can be used safely;
- Enhance cooperation and communications along the chemical value chain, so that chemical producers and the manufacturers, distributors and retailers who use, handle or sell chemicals, work together to improve awareness about the safety and risks of certain chemicals and how to manage chemical safety along the value chain;
- Consider impacts on public health, the environment and overall sustainability as they improve their products or develop new ones;
- Determine whether the chemicals they make pose risks, based on any new research, how the chemical is used, and whether children and other sensitive groups come into contact with them;
- Provide the public with access to product safety and stewardship information; and
- Ensure that company senior executives, including the CEO, commit to a culture of product safety and accountability.

We go beyond what is required and apply this ACC code globally, in accordance with the product health and safety provisions in the Lubrizol HSES Policy.

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EMPLOYEE ATTRACTION, ENGAGEMENT AND RETENTION

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Employee Attraction, Engagement and Retention



The collective global talent of our employees is a source of tremendous pride for us and a key driver of our success as a global company. As we enhance our market-driven focus, we seek to attract, engage and retain exceptional people in ways that align with our business objectives and vision of our organization. We are proactive and progressive in our human resources policies and programs to cultivate a workplace known, in our company and in our communities, for respect and fairness.

We are committed to building on our leading position as an outstanding place to work and build a career, and we support that through:

- **Employee policies** that promote equal employment and fundamental human rights and protect against intimidation and harassment;
- **An organizational structure** that enables us to leverage our strengths as a global employer while being attentive to regional needs, industry trends and best practices;
- **A wide range of employee benefits and programs** that support, recognize and motivate employees, while also helping them maintain a healthy work/life balance;

- **State-of-the-art co-ops, internships, apprenticeships and early-career programs**, as well as hiring practices that are effective in attracting quality talent to our workforce;
- **A series of world-class leadership development programs** that build and empower current and future leaders at all levels of our organization; and
- **A companywide focus on individual accountability and empowerment** within one's position that is critical to our efforts to create a sustainable and successful future for Lubrizol.

MAINTAINING A RESPECTFUL AND PRODUCTIVE WORK ENVIRONMENT

Our people policies are directed at helping us maintain a positive and productive work environment where employees are valued, respected and empowered. The concept of a fair and respectful workplace is also a key part of the [Lubrizol Code of Ethics](#). All employees of Lubrizol and our subsidiaries are required to abide by our Code of Ethics. In addition, non-employees working at a Lubrizol site – including temporary workers, consultants, contractors and visitors – must agree to follow our policies.

Key policies and provisions set forth our strong stance on:

- **Equal employment opportunity and anti discrimination:** We are committed to advancing equal opportunity and prohibiting discrimination against any employee or applicant for employment because of sex, race, color, national origin, citizenship, age, religion, marital status, military service, sexual orientation, genetic information, gender identity, or any other characteristic or trait protected by federal, state or local law, as well as against qualified individuals with disabilities.
- **Anti harassment:** We are intent on taking all necessary steps to prevent intimidating and harassing conduct in the workplace, including unwelcome verbal or physical conduct and sexual harassment. Our policy outlines methods for reporting, investigating and resolving complaints of harassment or discrimination, and includes a no-retaliation provision against those who make a good faith complaint or who participate in the investigation of one.

“I stand behind Lubrizol’s co-op program 100%. The diverse co-op opportunities the program offers have provided me with the tools I need to be a successful full-time engineer. The experience and level of responsibility I was given by my final co-op term gave me the confidence to hit the ground running after graduation. I was able to jump right into my first role, making valuable contributions to the organization from the start. With Lubrizol’s friendly atmosphere and devoted interest in developing the careers of young engineers, I couldn’t imagine working anywhere else.”

– Jen, former chemical engineering co-op,
current site superintendent
(University of Akron graduate)

Lubrizol had more than 85 students participate in our U.S. internship programs and 50 co-op positions in 2017.

Additionally, we had 31 placement students/apprentices in the U.K. in 2017, and comparable programs continue to gain traction in other regions around the globe.

- **Human rights:** Our commitment to uphold fundamental human rights for all people is documented in our Code of Ethics, which requires employees to always act with honesty and integrity and within ethical and legal limits. Lubrizol only employs individuals who apply to work willingly and are legally of age to perform the work. We abhor and will not tolerate child labor, human trafficking, slavery or other forced labor at our facilities or in our supply chain. For more information on our Code of Ethics, see the [Ethics](#) section.

LAUNCHING A LUBRIZOL CAREER

An array of award-winning programs at Lubrizol helps bachelor’s, master’s and Ph.D. candidates build the skills needed to bridge school and work, creating a pipeline of qualified new talent. Many of our leaders started their careers in our early-career programs, including current CEO Eric Schnur.

Our programs involve hundreds of students and young professionals each year, and include the following:

- Summer **internships** serve undergraduate students in data science and statistics, toxicology, chemistry, marketing and supply chain, with select internships offered for master’s and Ph.D. candidates. Full-year internships are geared toward students attending local universities and studying human resources, finance and accounting, chemistry and chemical engineering, and business.

- **Co-op programs** give students insights into a variety of career options while they are still in college. Partnering with 13 universities throughout the U.S. and Puerto Rico, our programs allow students to undergo multiple sessions in areas of interest such as chemical engineering, mechanical engineering, computer science, engineering, information technology and management information systems at a variety of Lubrizol sites.
- **Early-career programs** are designed to rapidly develop professionals through exposure to high-impact work projects and networking opportunities over a two- or three-year period. In our Commercial Rotational Program, for example, participants work as a marketing/product specialist for one year and as a sales/account specialist for one year, and upon program completion, receive a promotion.
- **Entry-level career opportunities** at Lubrizol are concentrated in accounting, data science and statistics, and Ph.D. chemistry and science-related fields. We encourage potential applicants to post resumes on our online employment site, where they receive prompt notifications of open positions.

PROGRAMS EMPHASIZE IMPACT

In recent years, Lubrizol has added programs that promote an enriching work/life balance for employees and create a progressive and productive workplace. From parental leave policies to reinvigorated work/life programs, all our benefits are linked by our belief that an employee's value is based on impact and that greater flexibility in the workplace leads to a more satisfied and productive workforce.

Among the programs we added or enhanced globally in 2017 were:

- **LIFE (Lubrizol's Integrated Flexible Environment):** Lubrizol supports the use of flexible work arrangements (FWAs) such as flextime, compressed work weeks, seasonal hours, reduced hours, part time, job share, phased-in retirement and ad hoc telecommuting. We have offered forms of FWAs for more than a decade.

SUSTAINABILITY SPOTLIGHT

Lubrizol honored as a great place to work

Lubrizol continues to be recognized as an outstanding workplace by respected regional and national rankings, many of which are based in whole or part on the opinions of our employees.

Recent awards and recognitions include:

- NorthCoast 99 best workplaces for top talent throughout Northeast Ohio, 2002 to 2018 (source: human resources consulting and training firm ERC)
- Top 10 Large Workplaces in Greater Cleveland, 2010 to 2018 (source: Cleveland Plain Dealer)
- America's Best Midsize Employers, 2018 (source: Forbes magazine)
- The Investors in People Awards for U.K.'s best workplaces, in multiple years (source: Investors in People)
- Great Place to Work in Brazil, 2018 (source: Great Place to Work Institute)



- **Lubrizol Casual Guidelines:** In a new approach to our everyday dress code, Lubrizol allows employees the opportunity to “dress for your day” – whether that is nice jeans and a sweater or a suit and tie.
- **Parental Benefits:** Parental benefits are in line with regional standards, and in many cases, provide competitive options for employees who have children through birth, adoption, surrogacy and foster care. For example, in 2017 we began offering parental leave benefits for U.S. employees, which enable a mother and a father to take up to four weeks (in weekly increments) of paid time off at any point, in addition to the standard six weeks of maternity leave for the mother.



To show our appreciation for employees' positive impacts in the workplace and beyond, Lubrizol recognizes employees with service and achievement awards. Our global recognition awards enable managers to give financial rewards for exceptional performance, totaling more than \$800,000 across our global operations in 2017. Our highest employee recognition program, our annual Lubrizol Founders Award, honors employees for contributions in four categories: excellence in the workplace/marketplace, new product development, innovation or service to the community.

DEVELOPING LEADERS AT ALL LEVELS

We place a high value on developing and equipping our leaders for success, and have transformed our talent development efforts over the last several years with state-of-the-art programs for leaders at all levels of our organization. These programs not only enhance our employees' professional growth, but also strengthen their team and business and, as a result, our entire organization. Developing the talents of others and coaching for performance are regarded as critical leadership skills and personally championed by our CEO in his communications and actions.

Among our signature programs are:

- **Situational Leadership:** Through workshops and training, this program empowers leaders to match their leadership style with the development level of the employees they oversee. Recognizing that there is no "one size fits all" approach to being an effective leader, participants identify the level of competence and commitment their employees exhibit, and are trained to match their leadership style with their employees' needs.

- **Stepping into Leadership:** This 12-month program builds foundational leadership skills, cross-functional relationships and a broader understanding of Lubrizol among new leaders. Sessions cover topics such as emotional intelligence, communications, coaching and developing others, commitment and accountability, influencing and motivating, financial acumen and managing change. In 2018, we extended this training to our facilities in Europe and Latin America.
- **Coaching Excellence:** Over the course of a two-day training session, this program equips managers with the skills to provide more effective coaching interactions. Reinforced by Lubrizol's culture initiative, leaders are trained in effectively giving and receiving feedback in their coaching efforts. Participants are armed with continuous support and mentorship through follow-up calls and other resources.

SUSTAINABILITY SPOTLIGHT

Sixteen employees honored with Lubrizol's most prestigious award

Sixteen employees globally, eight in both 2017 and 2018, received Lubrizol's highest honor, the Founders Award. This most prestigious award is given annually to employees who are nominated and recognized for excellence in the workplace/marketplace, new product development, innovation or service to the community. The founders award recognizes 7 to 10 employees each year.

Each of the recipients demonstrated our Cultural Beliefs in a way that strongly stood out to the selection committee. Through their work, they have also exemplified detailed technical knowledge, outstanding work ethic, the giving of their time and a commitment to honesty and integrity.

The Founders Award recipients are celebrated through a recognition dinner and team-building trip.



EXPANDING OUR EFFORTS

We recently introduced two new programs: **Aspiring Leaders** and **Leadership Essentials**. Aspiring Leaders is designed to engage employees with the potential to become Lubrizol leaders within the next 12 to 18 months. It helps participants learn the expectations of being a leader at Lubrizol and create a development plan for transitioning from individual contributor to leader. Leadership Essentials is for current mid-level leaders and is aimed at developing a flexible leadership style that creates and supports a culture of innovation and results.

Employee advancement at all levels is facilitated by our **Career Essentials** internal talent system. Through online career profiles, employees record and share their work experiences, achievements, aspirations, skills, community and volunteer involvement, and more. This information can be critical for assessing performance, creating development plans, identifying opportunities for promotion and ensuring proper succession planning.



SUSTAINABILITY SPOTLIGHT






Accountable Culture leads to more positivity, productivity

Our culture is a key factor in our reputation as an outstanding employer. In 2017, we began an initiative to refocus our culture on personal accountability, to empower employees and complement our longstanding reputation as a safe, ethical and respectful workplace. Centered on our five Cultural Beliefs (shown below) that form the cornerstones of our accountable culture, employees are empowered and expected to take action and ask, “what else can I do.”

We have been working to clarify expectations for individual jobs and demonstrate the importance of taking ownership of results. In 2017, we began a series of workshops for employees on our Cultural Beliefs to help these beliefs become ingrained in the ways we think and act as an organization. By mid-2018, virtually everyone in the global organization had participated in at least one workshop. In addition, 100 employees volunteered as facilitators and led many of the sessions.



Lubrizol Cultural Beliefs

-  **All In**
I take accountability, step up and ask “what else can I do” because results matter.
-  **Lead Decisively**
I rise to the challenge by making timely and informed decisions.
-  **Take Action**
I accept uncertainty, take timely action and adapt quickly to get it done.
-  **Think External**
I explore new ideas and diverse perspectives to accelerate success.
-  **Be Courageous**
I challenge the status quo, take risks and learn from failures to do it better.

- Accountable Culture workshops
- occurred across our global footprint.

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Diversity and Inclusion



We strive to make Lubrizol a place where our employees feel a deep sense of connection to, and respect for, each other, as well as the world around them. Our drive to be a diverse, inclusive and culturally intelligent organization is a key enabler of our success as a global company.

For many years, Lubrizol has been on the forefront of policies and programs that recognize and nurture a diverse and inclusive workforce. We continued to make progress in that regard in 2017 and into 2018.

Our approach includes:

- Companywide policies and processes that promote equality and nondiscrimination;
- Leadership training designed to develop inclusion-minded and diverse leaders;
- Business resource groups (BRGs) that connect, support and foster understanding among our employees and encourage a healthy mix of voices and thinking that drives Lubrizol's growth; and
- Coordination with Lubrizol's community outreach initiatives, such as tutoring and mentoring and STEM (science, technology, engineering and mathematics) talent development for underserved youth.

.....

“Diversity and inclusion is all about state of mind. A confident, open and curious mind welcomes differences in people, opinions and approaches. It is intentional and purposeful in challenging its own potential blind spots. And it creates an inclusive environment that invites everyone to participate in the overall success of the company.”

– Eric R. Schnur, Lubrizol Chairman,
President and Chief Executive Officer

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POLICIES SET EXPECTATIONS, ENSURE FOLLOW-THROUGH

Our commitment to diversity and inclusion is detailed in the [Lubrizol Code of Ethics](#) that all employees are required to follow. The code states that Lubrizol is committed to practices that advance equal employment opportunity for qualified individuals without regard to race, color, religion, sex, gender identity, national origin, age, marital status, military service, disability, sexual orientation, genetic information, citizenship, or social or economic status, and that we do not tolerate discrimination.

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The code requires employees to treat colleagues, customers, suppliers and third parties with dignity and respect. For more information on the code, see the [Ethics](#) section.

Lubrizol's human resources policies support our commitment to equality and nondiscrimination. This includes providing company benefits, from health coverage to bereavement leave, covering domestic partners as well as transgender individuals.

Additionally, we have enhanced our recruiting efforts by building relationships with colleges and universities that are outside of our typical geographies and are known for serving diverse populations. This effort is designed to increase diversity in our hiring, co-op and internship programs.

To anchor our efforts, we leverage data analytics that are critical in designing our programs and measuring our success. With these tools, we can better assess the makeup of our workforce, levels of employee engagement, the inclusiveness of our business partners and areas of opportunity.

EDUCATING OUR LEADERS ON DIVERSITY

In 2017, we expanded our training programs aimed at educating our leaders on diversity issues and, ultimately, ensuring that employees receive equal treatment across all levels and locations. We believe that creating a strong group of inclusion-minded and diverse leaders is essential for sustaining our recent successes in addressing workforce diversity.

Building on our pilot program launched in 2015, we are continuing to provide formal training to help leaders uncover and manage unconscious biases in the hiring and retention of talent. The daylong workshop has been held at supervisor summits and other planning sessions and is available upon request to any Lubrizol group. We designed the training with wide-ranging input to ensure it reflects the decentralized nature of Lubrizol's culture.

Our leadership development programs have expanded to include diversity and inclusion topics. With our "situational leadership" approach, managers are trained in effective feedback and coaching mechanisms and are encouraged to incorporate these tools into a leadership style that is best suited for the teams they lead, instead of a one-size-fits-all method. Our programs for Aspiring Leaders (for employees who have the potential to become Lubrizol leaders in the next 12 to 18 months) and Stepping into Leadership (for new leaders) include exercises to address diversity and inclusion. For more information on these leadership development programs, see the [Employee Attraction, Engagement and Retention](#) section.

BUSINESS RESOURCE GROUPS BRING VALUE TO EMPLOYEES AND OUR COMPANY

Our business resource groups (BRGs) are employee-led, grassroots organizations that drive Lubrizol's growth through professional development, cultural awareness, and employee and community engagement. The term "business resource groups" emphasizes the groups' contributions to our business objectives and their value to our workforce, workplace and communities. The groups have evolved from being inwardly focused, social groups to interest-oriented, self-managed work teams, each with an executive sponsor for leadership and guidance. They have become catalysts to engage employees to help us achieve our business goals.





LUBRIZOL'S BUSINESS RESOURCE GROUPS

- African American Resource Group (AARG)
- Asia Pacific Resource Group (APRG)
- Lubrizol Lesbian, Gay, Bisexual, Transgender and Allies (L²GBT+)
- Military Veterans Network (MILVETS)
- Women in Lubrizol Leadership (WILL)
- Group of Aspiring Lubrizol Leaders (GOALL) – *our largest group at 700 members!*
- Latin American Network (LANet)
- Innovation group LAUNCH

BRG participation is global in scope, open to everyone, and in most cases extends well beyond those identifying with the group's theme to include advocates and allies. In 2017, Lubrizol's BRG membership topped 2,000 employees, and 75 BRG-sponsored events drew more than 1,300 participants. Most of the events focused on career development, employee engagement or business knowledge.

Among the BRGs' successes in 2017 and early 2018 were:

- Our newest group, **LAUNCH**, was formed in 2017 in response to two employees seeking to fuel innovative ideas across functions and businesses. This group now has 60 members.
- At close to 200 members, our **MILVETS** group advocates for a large veteran population among our employees. In 2017, MILVETS worked closely with the talent acquisition team to help recruiters and hiring managers understand the transferable skills of veterans applicable to Lubrizol, and to train them on effective on-boarding techniques specific to veteran new hires.

- In 2017, **AARG** conducted a three-part professional workshop series called "Prepare and Pack for Your Lubrizol Career Journey" to help employees visualize and take action toward their career goals. Additionally, each year, AARG hosts keynote speakers as part of Lubrizol's Black History Month programming.
- In 2017, **L²GBT+** launched its Ally Campaign, which encourages and empowers employees to be an ally to their fellow lesbian, gay, bisexual, transgender and queer (LGBTQ) employees, regardless of their own sexual and gender orientation. Educational sessions, panel discussions and a Celebration of Allyship are among the resources and programming available.
- In 2018, **WILL** sponsored the Greater Cleveland YWCA's Women of Achievement Awards for the 11th straight year. Since 2007, the awards have honored more than 1,000 women for exceptional contributions to their organizations, including 21 women at Lubrizol. 2018's honorees included two Lubrizol employees.
- In 2018, **APRG** hosted workshops on accountability from the perspective of Japanese, Korean and Indian cultures, following its popular workshops on communication styles. With double-digit growth in the number of Lubrizol employees in Asia over the last decade, APRG's events have focused on ways to engage people across diverse cultures more effectively.

Business Resource Groups' Impact in 2017



SUSTAINABILITY SPOTLIGHT

Internal study explores gender balance in management

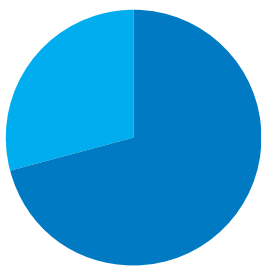
In 2017, Lubrizol conducted a compensation analysis and interviewed a broad cross-section of employees for their perspectives on the issue. The study showed:

- No difference in pay among Lubrizol men and women who work in the same or equivalent roles (equal pay).
- A 10% to 25% difference between the overall average pay for men and women across all management roles (gender pay gap). This reflects the higher proportion of men in more senior roles with differences being more pronounced in middle management positions.

Based on our findings, we are creating targeted talent recruitment and development plans to increase our outreach to women to join Lubrizol and provide greater support for women internally who aspire to more senior-level positions. In the U.K., where Lubrizol's gender pay gap stands at 22.5%, we are devising strategies to address the low percentage of females graduating with STEM degrees nationwide, which is as low as 14% in engineering and technology fields. Read more about our efforts in Hazelwood, U.K., and our support for STEM education in the [Community Involvement](#) section.

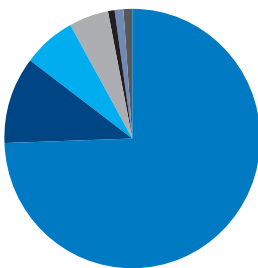


Employee Demographics



2017 Global Employee Population by Gender

- Male: 71%
- Female: 29%



2017 U.S. Employee Population by Ethnicity*

- White: 76%
- Hispanic/Latino: 11%
- Black or African American: 7%
- Asian: 5%
- Two or more races: 1%
- Native Hawaiian or Pacific Islander: Less than 1%
- American Indian or Alaskan Native: Less than 1%

* Percentages add up to more than 100% due to rounding.

SUSTAINABILITY SPOTLIGHT

L²GBT+ group delivers business impact

The Lubrizol Lesbian, Gay, Bisexual, Transgender and Allies BRG has grown from 50 members in 2016 to more than 220 in 2018, by encouraging employees to be their best selves and helping Lubrizol to become a more welcoming employer to all. The group participates in social and community events to connect and support LGBTQ employees and positively impact our communities, such as being a major sponsor of Cleveland's Pride in the CLE March.

The group assembled informally in 2014 and became an official BRG in 2016, and has served as an instrumental force in driving company change. In 2015, sexual orientation and gender identity were added to the company's non-discrimination policies and our healthcare policies were expanded to include domestic partners. In 2017, we further expanded our healthcare policies to include transgender healthcare benefits.

The group's efforts and the company's overall commitment to diversity and inclusion have helped to raise our Corporate Equality Index rating from 15 in 2015 to 95 in 2018, as measured by the U.S.-based Human Rights Campaign Foundation, which works to improve the lives of LGBTQ people by increasing understanding and encouraging the adoption of LGBTQ-inclusive policies and practices. Lubrizol continues to refine its efforts with a goal of achieving a rating of 100.



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Community Involvement

Lubrizol is committed to participating in, supporting and giving back to the communities where we live and work. We do this globally by engaging with community leaders, groups and families, volunteering our time and talents, and making financial contributions to help address pressing needs, consistent with our mission of “improving lives.” Lubrizol employees at all levels drive local engagement, and we are proud to feature their good work.

.....
“Education is crucial for our country, for success in business, and for the dignity and growth of an individual.”

– Lubrizol Founder A. Kelvin Smith
.....

While we provide guidance at the corporate level, the decisions about how to engage with local communities are made at the facility level. In 2017, across our global footprint, there were 98 community engagement events, compared with 97 in 2016 and 51 in 2015, the first year we began tracking this metric.

We are proactive in our community involvement efforts across our global footprint, which includes:

- **Northeast Ohio**, where Lubrizol was founded and is still headquartered today, has the company’s largest concentration of employees;
- **Across the U.S.**, with manufacturing plants or other significant locations; and
- **Globally**, with manufacturing plants or other significant locations in Belgium, Brazil, China, France, Germany, India, Singapore, Spain and the U.K.

What is apparent is our support for education, particularly in the STEM fields and for under-represented youth populations. This passion began with founder A. Kelvin Smith’s conviction about the importance of education: “Education is crucial for our country, for success in business, and for the dignity and growth of an individual.”

Our commitment to education is universal – spanning our operations in the U.S., Europe, Brazil, China, India and beyond. We sponsor a number of workforce development initiatives, including helping to train the next generation of innovators, scientists, engineers and business leaders. Many of our facilities offer

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internships, co-ops and apprenticeships to students enrolled in higher education programs related to chemistry, finance, supply chain management, marketing/market research, chemical engineering and more. In addition to the information in this section, refer to the [Employee Attraction, Engagement and Retention](#) section.

VOLUNTEERING TIME AND TALENT STARTS AT HOME

Our community engagement and philanthropic activities have deep roots in our Northeast Ohio home area. Each year, Lubrizol designates a day of service called Building Bonds, in which employees volunteer at multiple designated nonprofit organizations in Northeast Ohio. Employees take the lead in planning projects, assembling resources and organizing work assignments that engage approximately 500 employees – about one-fourth of employees in the Northeast Ohio region – in service projects for schools, parks and other nonprofit organizations.

A sampling of other activities by our Ohio facilities includes:

- **Wickliffe:** Our Learning About Business (LAB) program brings local high school students and teachers to our Wickliffe facility for daylong sessions to learn about our business and industry.
- **Wickliffe and Brecksville:** Dozens of employees participate in a year-long mentoring program with Cleveland Metropolitan School District eighth graders, which includes a career awareness fair hosted at the facilities by employees who represent a range of career opportunities.
- **Wickliffe and Painesville:** Our annual Lake County STEM Teacher of the Year Award has been in place for more than 20 years. The winner each year receives an award of \$5,000 for teaching expenses and sponsorship to attend the Ohio Chemistry Technology Council's Teachers, Industry and Environment Conference. The honoree's school also receives an award of \$5,000 to put toward STEM classroom equipment.
- **Painesville and Bowling Green:** Partnerships with local emergency responders include support for firefighting schools and making our facilities available as training grounds for community fire departments.
- **Avon Lake:** We support local science fairs, robotics teams and a Boy Scouts badge for chemistry.



Across our global footprint, community engagement events include open houses, educational outreach, volunteer activities, philanthropy, partnerships with local emergency responders and community meetings.

Additionally, all Northeast Ohio locations actively support United Way through employee campaigns and support from The Lubrizol Foundation. At the company's corporate headquarters location in Wickliffe, more than 65% of employees pledged a total of over \$350,000 to the United Way of Lake County (UWLC). The company is acknowledged annually by UWLC for the generosity of its employees as exemplified by last year's recognition as being the largest campaign contributor. In 2017, for the third consecutive year, Lubrizol's campaign contributed more than \$1 million in employee and Foundation support to United Way agencies in Ohio, Texas and other U.S. areas in which we operate.

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Lubrizol employees add further value to their communities by individually providing leadership to various nonprofit organizations. In Northeast Ohio alone, more than 50 employees serve on the boards of nonprofits such as the Boys and Girls Clubs of Cleveland, YMCA and YWCA of Greater Cleveland, Case Western Reserve University, the Great Lakes Science Center, the Literacy Cooperative, Youth Opportunities Unlimited and Dress for Success. In addition, in 2017, Lubrizol provided a leadership gift of \$150,000 for Miracle League Inclusive Playground in Eastlake, Ohio, a safe, enjoyable and barriers-free play area for children of all abilities.

COMMUNITY INVOLVEMENT SPANS OUR U.S. OPERATIONS

Outside Northeast Ohio, our U.S. community engagement efforts span a wide variety of local needs and priorities. Notable locations and programs include:

- **Bayport and Deer Park, Texas:** Employee involvement in Habitat for Humanity and other volunteer programs;
- **Louisville and Calvert City, Kentucky:** Relationships with first responders and participation in family, neighbor and community events and fundraisers;
- **Midland, Michigan:** Significant grant programs to support chemical engineering and environmental education;

Under our Building Bonds program in Northeast Ohio, Lubrizol has a longstanding and ongoing commitment to the Hospice of the Western Reserve. In 2015, our employees reached a milestone of more than 4,500 hours of service, which earned our company the Hospice's "Many Hands Award."



- **Pedricktown, New Jersey:** A grant program of \$500 per teacher for innovative primary and secondary school educators in the area; and
- **Rockton and Crystal Lake, Illinois:** Community caring program developed by our Chemtool custom grease manufacturing business.



Lubrizol's Doris Behnke (far left), Chris Ciolli (second from left) and Julie Edgar (second from right) honor Lake County 2017-2018 STEM Teacher Award winners Jerry Hites and Russ Messer of Fairport Harbor (Ohio) High School. For more information on the award winners, follow [this link](#).

SOCIAL: COMMUNITY INVOLVEMENT

The Lubrizol Foundation provides donations to U.S. educational institutions and charitable organizations in the areas of education, healthcare, human services, civic/culture, youth and the environment. For more information on The Foundation, see the sidebar at the end of this section.

COMMUNITY ENGAGEMENT PROVIDES GLOBAL IMPACT

Globally, our volunteer and philanthropic efforts are focused on addressing specific community needs and addressing global challenges, such as helping disadvantaged populations lead healthier, more productive lives. For example, several of our employees volunteer in Engineers Without Borders, which helps communities address their infrastructure challenges so they can meet basic human needs.

In addition, in many of our locations, community outreach efforts revolve around first responders, in line with our commitment to ensure the safety of our facilities and our communities. Our facilities hold regular trainings, drills and plant tours with local fire departments and emergency responders. Several of our facilities have established Community Advisory Panels (CAPs) to ensure a pipeline of feedback and opportunities for mutually beneficial engagement.

The Lubrizol Community Engagement (LCE) program was launched in 2014 to bring additional structure, consistency and support to our global facilities' community involvement activities. In four phases over a four-year period, we conducted interviews and surveys of many of our facilities around the world to identify current activities and best practices, gaps and challenges, and specific needs or requests for assistance. This undertaking resulted in the sharing of experiences, best practices and tools to help facilities organize and communicate their programs within their communities.

Actively engaged facilities in Europe and Asia include:

- **Hazelwood, U.K.:** Under the "Creating Shared Value" (CSV) program, employees develop and lead volunteer initiatives in the areas of Marketplace, Workplace, Community and Environment, and select a lead charity and other important causes to support.



SUSTAINABILITY SPOTLIGHT

Lubrizol mobilizes Hurricane Harvey relief effort in Houston

Lubrizol steps up to help employees and communities in times of greatest need. Such was the case in August 2017, when Hurricane Harvey hit the Houston area with one of the most significant U.S. natural disasters in recent years. With peak rainfall accumulations of 60 inches in a four-day span, Harvey created widespread flooding and impacted millions of people in the greater Houston area, including many employees who work at Lubrizol's largest global manufacturing complex based at Deer Park, Texas, as well as our Bayport and LaPorte sites.

Offers of help poured in from Lubrizol employees and retirees around the world. In swift response, The Lubrizol Foundation established its first Qualified Disaster Relief Fund and invited employees and retirees to make tax-deductible contributions to benefit employees who were affected. In short order, more than \$206,000 was raised from employees and retirees across the U.S. and globally. One hundred percent of the contributions were directed to the relief assistance of fellow employees, with grants awarded within days of the initial requests for support. With additional funding from The Lubrizol Foundation, relief assistance grants totaling \$337,750 were provided to 48 Texas-based employee and retiree families to help them recover from significant property damage and loss.

SOCIAL: COMMUNITY INVOLVEMENT

- **Mumbai, India:** We formed a corporate social responsibility committee to identify and address local community needs. In recent years, employees have worked with disadvantaged women to help them develop sewing and other skills needed to obtain employment and improve their access to health exams. Elsewhere in India, in Bhavale, employees participated in a tree-planting drive to benefit Hariyali, an organization that protects and upgrades environmental conditions.
- **Singapore:** In 2017, our employees in Singapore participated in approximately 10 community events such as volunteering for the Society for the Physically Disabled and working with several organizations that help senior citizens. This includes support for the Henderson Home, which houses three facilities under one roof – a home for ambulant elderly who need a place to stay, a day care center for seniors and a senior activity center. An average of 15 local employees volunteer for each event.

- **Zhuhai, China:** We partnered with the local government and other manufacturers in the area to form a safety consortium for the community.

Engagement with educational institutions is a priority at all of these locations, as well as at other facilities such as **Oevel, Belgium; Belford Roxo, Paulinia and São Paulo in Brazil;** and **Hamburg and Ritterhude in Germany.** In addition, our facilities in **Sant Cugat (Barcelona), Spain,** and **Rouen, France,** are particularly active in volunteerism and charitable donations.



⋮ In Singapore, Lubrizol employees volunteer
⋮ with TOUCH Home Care, which helps the
⋮ elderly enjoy greater independence and better
⋮ quality of life at home.

⋮ In 2017, Lubrizol's Singapore employees supported a variety of community and nonprofit
⋮ organizations, including several that help senior citizens.

SUSTAINABILITY SPOTLIGHT

Hazelwood, U.K., creates shared value in the community

Every one of our facilities strives to operate with a commitment to building lasting, mutually beneficial relationships with their local communities. Our Hazelwood, U.K., facility has been particularly effective in creating a formal, measurable program and making a consistent, positive impact on the local community.

Hazelwood introduced its “Creating Shared Value” (CSV) program in 2015. Employees develop and lead volunteer initiatives in four areas:

- **Marketplace**, which includes sponsorship of local awards, universities and events;
- **Workplace**, which provides development and leadership opportunities for employees;
- **Community**, including the creation of a Charities & Communities Committee to facilitate donations to nonprofits and volunteer efforts; and
- **Environment**, including participating in local environmental projects, reducing energy usage and joining the Hazelwood Environment Team. In addition, the Hazelwood facility sponsors the Derbyshire Wildlife Trust, which is involved in a wide variety of conservation and natural habitat projects.

Every two years, the Hazelwood facility identifies a new lead charity. For 2017-2018, it is Derbyshire MIND, which provides support and resources for local people living with mental conditions such as anxiety and depression. Hazelwood donated approximately £6,000 (\$8,100) to Derbyshire MIND in 2017. Past lead charities have included Macmillan cancer support, Alzheimer’s organizations and Barnardo’s children’s charity.

In addition, dozens of Hazelwood employees volunteer to serve as STEM ambassadors, participating in mentoring and tutoring programs, judging technical competitions, holding career events and mock interviews, and conducting plant visits for the facility’s “Just Imagine Working Here” project. More than 100 Hazelwood employees volunteered approximately 1,400 hours for community service in 2017. Between 2011 and 2017, Hazelwood’s total nonprofit contributions averaged approximately £14,800 (\$20,000) per year.



• Hazelwood’s “Just Imagine Working Here” project provides hands-on learning opportunities.



• Lubrizol works with students starting at a young age to promote curiosity and learning in science, technology and engineering.



• Hazelwood’s “Creating Shared Value” program enables employees to develop and lead initiatives in four areas: Marketplace, Workplace, Community and Environment.

SUSTAINABILITY SPOTLIGHT

The Lubrizol Foundation carries on a tradition

Established in 1952, The Lubrizol Foundation aims to complement and support the interests, values and vision of Lubrizol by awarding financial support to educational institutions and charitable organizations in U.S. communities where we operate major facilities. Since its establishment, The Foundation has awarded grants totaling more than \$84 million. In 2017, The Foundation awarded grants totaling approximately \$3.2 million, with individual grants ranging from \$1,000 to \$1 million.

Educational initiatives receive the largest portion of The Lubrizol Foundation grants. In 2017, The Foundation awarded \$819,000, or 26% of its total grants, to educational initiatives, with a priority given to STEM education, colleges and universities, and programs that benefit under-represented youth. A significant portion of The Foundation's support for education comes in the form of annual scholarships at colleges and universities, primarily in the chemistry, chemical engineering and mechanical engineering fields. In 2017, The Foundation granted 202 scholarships totaling \$346,000, to students attending 26 institutions of higher learning in the United States. Of these scholarships, 46% supported under-represented students.

The Foundation also supports a scholarship program for employees' children through the National Merit Scholarship Program. In the past three years, The Foundation has donated \$80,750 to this program for employee's children who qualify as National Merit Scholars.

The Lubrizol Foundation awards grants to nonprofit organizations to create and maintain strong assets in our communities. In recent years, The Foundation has been a major supporter of Breakthrough Charter Schools of Cleveland, Case Western Reserve University, Cleveland Metroparks Zoo, Cleveland Museum of Natural History, the Great Lakes Science Center, Lakeland Community College, University Hospitals' Rainbow Center for Women & Children and many other highly regarded nonprofits.

Among the most significant grants in 2017 were:

- \$100,000 in support of a STEM laboratory for Cleveland's Lincoln-West High School of Health and Science housed at MetroHealth Hospital;
- \$50,000 to Lake County's Auburn Career Center to house first responder training vehicles;
- \$36,200 to the American Red Cross for the purchase of an emergency response service vehicle;
- \$25,000 to Baldwin Wallace University toward the construction of a new math and computer science facility;

- \$25,000 to the Western Reserve Land Conservancy toward the permanent preservation of additional acreage to an existing Audubon bird sanctuary; and
- \$25,000 to the YWCA of Greater Cleveland toward the construction of an early learning center outdoor classroom.

The Lubrizol Foundation also manages two employee-driven programs:

- The **Matching Gift Program** rewards the generosity of employees and retirees by matching dollar-for-dollar employees' donations to qualifying charitable organizations. Matching gifts are made for donations of \$100 or more. In 2017, the program matched approximately 1,600 charitable contributions from employees and retirees for a total of more than \$854,000.
- Through our **Community Connections** program, we give \$500 grants to nonprofit organizations for which an employee volunteers for 40 or more hours in a calendar year. In 2017, this program provided \$39,500 to 79 nonprofit organizations in the United States.

For more information on The Lubrizol Foundation, including its 2017 annual report, visit [this link](#).



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▶ GOVERNANCE AND ETHICS

Corporate Governance



Our business philosophy is that we will walk away from business opportunities that we cannot obtain legally and ethically. We are not averse to taking business risks in order to grow as an organization, but we will not sacrifice our core values with regard to safety, ethical conduct and legal compliance.

Strong corporate governance and high ethical standards have been part of Lubrizol's culture since our founding in 1928. Lubrizol shareholders adopted our original corporate ethics policy at their first meeting in 1928 and, for generations, our leaders have instilled in our culture and in our people that doing business the right way is the only way to do business.

CORPORATE GOVERNANCE

As a global company, we must navigate a complex web that includes different commercial laws, trade laws, anticorruption laws, health, safety, environmental and security (HSES) regulations, product regulatory laws and more. Ever-changing global relations, embargoes and trade restrictions create further challenges that we must be prepared to address in a consistent manner. Well-established practices and systems, including training programs and internal audits, help to ensure compliance and that our conduct reflects our expectations and core values.

Our commitment to sustainability comes from the top and is a priority across our organization. Our CEO, Eric Schnur, has identified sustainability as an essential element for driving ongoing success at Lubrizol. We have a management structure, processes and tools in place to deliver on our commitment of "inspiring sustainability, improving lives."

In 2017, we sharpened our focus on sustainability by adding dedicated executive leadership in this area. During the year, we named our first-ever chief sustainability officer, Julie Edgar, who has assembled a small corporate team and works extensively with key internal stakeholders from around the company. Edgar, who started her career at Lubrizol in 1995, also serves as the company's corporate vice president of innovation. The convergence of these two critical roles reflects our belief that good chemistry will lead to a better life through responsible, cutting-edge innovations and solutions.

Building on our strong history of sustainability management and corporate citizenship, this additional executive oversight enables us to identify strong sustainability initiatives that already exist within our businesses and embed best practices throughout the organization. Over the years, Lubrizol has been built and has thrived on a strong entrepreneurial culture that has empowered

our businesses and our facilities to make their own decisions. At the same time, we recognize that we need to have a strong corporate culture, processes and tools that enable us to share best practices, set goals and track progress.

OUR SUSTAINABILITY STEERING COUNCIL

To drive collaboration and consistency, in 2017, we created the cross-functional Sustainability Steering Council, which meets regularly and includes senior management representatives of our businesses and key operational areas. The Council serves as a decision-making body with responsibilities to the Executive Leadership Team as well as the entire company.

The Council's objectives are aligned to facilitate and oversee key components of Lubrizol's overarching sustainability strategy, including:

- Performance management and measurement of sustainability progress;
- Use of external, accredited verification systems for monitoring and measuring performance;
- Adherence to widely accepted reporting standards, including the Global Reporting Initiative (GRI) – this report has been prepared in accordance with the GRI Standards: Core option;
- Participation in independent rating services, including EcoVadis and CDP;
- Product labeling and marketing practices regarding sustainability attributes (e.g., eco-labeling);
- External communication of sustainability progress;
- Internal communication, training and awareness; and
- Execution of sustainability initiatives across the enterprise.

In addition to our own activities, Lubrizol's sustainability team networks with counterparts from across Berkshire Hathaway, the chemical industry and other members of our value chain.

SUSTAINABILITY SPOTLIGHT

Training and continuous improvement sustain compliance efforts

We take a systematic approach to compliance training on business practices, and the scope and reach of our program have broadened significantly over the past two decades. Sessions for externally facing employees spark lively discussions of real-world situations and underscore the importance of compliance to our success as an organization.

Every year, we reach an average of 700 employees with in-person compliance training, supplemented by computer-based training for others. Our computer-based training modules are designed to complement the live sessions and provide updates on pertinent laws and regulations. In 2018, we are rolling out our computer-based training modules in six languages.



Lubrizol's Leadership

Lubrizol's leaders embody the skills and talent necessary to make this corporation the industry leader. Our senior managers are experts in the field, focused on bringing Lubrizol forward in fulfilling our vision, while staying committed to our corporate philosophy. Lubrizol leadership harnesses the power of experience and drive to make this enterprise one of the most successful companies in the business.

This leadership list is as of the report's published date. Should changes occur before we issue our next report, an updated listing will be available at [this link](#).



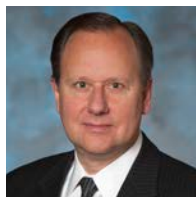
ERIC R. SCHNUR
Chairman, President and
Chief Executive Officer



JOHN J. KING
Corporate Vice President,
Information Solutions and Business Processes



TOM CURTIS
Corporate Senior Vice President
and President of Lubrizol Additives



ANDREW B. PANEGA
Corporate Vice President,
Human Resources



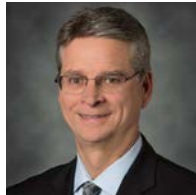
SUZANNE F. DAY
Corporate Senior Vice President,
Chief Legal and Ethics Officer



BRIAN PITTS
Corporate Vice President,
Chief Financial Officer and Treasurer



JULIE EDGAR
Corporate Vice President,
Innovation and Chief Sustainability Officer



RICK TOLIN
Corporate Senior Vice President
and President of Lubrizol Advanced Materials



TESHAM GOR
Corporate Vice President,
Corporate Strategy and Consumer Insights



MIKE VAUGHN
Corporate Vice President,
Operations, Supply Chain and HSES

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Ethics

Our fundamental commitment to ethics is reflected by the strong infrastructure that surrounds it. We have built and reinforced it over time, and today, we believe it is a clear strength of our corporate culture.

Our approach includes:

- A clearly defined **Code of Ethics**, which sets our expectations of employees, leaders and business partners as they face the inevitable ethical and legal challenges of working in today's business environment;
- A **chief ethics officer** who manages our ethics department and oversees the efforts of our director of ethics and compliance, corporate ethics manager and others; and
- A team of **local ethics leaders** who implement our Code of Ethics and serve as local contacts for questions or concerns about our policies or procedures.

LUBRIZOL CODE OF ETHICS

Published in 11 languages, the Lubrizol [Code of Ethics](#) affirms our commitment to conducting Lubrizol's business with honesty and

integrity. It outlines our expectations for doing things the right way in areas such as the following:

- Fostering an inclusive and respectful workplace;
- Using technology respectfully and responsibly;
- Continuously improving safety;
- Supporting Lubrizol's commitment to the environment;
- Respecting the intellectual property rights of others;
- Creating accurate and complete records;
- Avoiding conflicts of interest;
- Competing fairly and ethically; and
- Complying with anti bribery laws and trade regulations.

This current Code of Ethics was introduced in 2017 and replaced Lubrizol's Ethical and Legal Conduct Guidelines. The 2017 document includes modest updates to the same key principles that were part of the Guidelines but clarifies that the document is a set of rules and principles – and not just “guidelines” – that employees are required to follow. Live, in-person training was provided to employees at all locations globally when the Code was introduced; new employees are now required to complete a computer-based course on the Code. A computer-based course also will be used for periodic ethics refresher training.

PROHIBITED BUSINESS PRACTICES POLICY

In addition to the Lubrizol Code of Ethics, we adhere to Lubrizol's [Prohibited Business Practices Policy](#). The policy provides specific requirements for compliance with anti corruption laws and trade regulations. It also contains requirements for compliance training and review of third-party business partners. The policy reflects Lubrizol's and our parent company's commitment to honesty and integrity.

ADDRESSING ETHICS CONCERNS

More than 40 local ethics leaders at our major facilities help to ensure that employees understand and live by the Lubrizol Code of Ethics. The ethics leaders have localized knowledge and serve as additional "eyes and ears" in the field. Local ethics leaders, who also have other responsibilities in the company, usually serve for several years before someone else rotates into the role. Employees and partners are encouraged to seek guidance from their local ethics leader if they have questions. Concerns may be reported to a local ethics leader, a member of the corporate ethics office or through the Navex Global hotline system.

Every reported ethics "contact" is taken very seriously. Questions and concerns are tracked to identify trends and areas requiring greater attention. Employee relations concerns are usually referred to human resources for investigation and resolution. Other types of concerns are investigated under the leadership of the corporate ethics office. The corporate ethics team meets biweekly to review open cases. As appropriate to the situation, assistance may be provided by human resources, internal audit, information solutions, legal, security or other functional areas. Employees who participate in an ethics investigation are reminded that they should not conclude that any wrongdoing has occurred simply because an investigation is being conducted.

At the end of an investigation, a determination is made about whether the allegation is substantiated, partially substantiated or unsubstantiated. If it is substantiated or partially substantiated, a decision is also made about what action will be taken. Such outcomes range from coaching or training to more formal action, up to and including termination of employment.

When the identity of the reporter is known, feedback is provided at the conclusion of the investigation. However, due to the need to manage ethics cases as discreetly as possible, not all details can be provided. We encourage reporting, even though the vast majority of contacts do not result in disciplinary action. We have a strict policy of no retaliation against a person for initiating an ethics contact in good faith or participating in an ethics investigation.

All of the codes and policies discussed in this section, and related documentation (such as the ethics reporting contact information), are available on our website at [this link](#).

SUSTAINABILITY SPOTLIGHT

Supplier Code of Conduct

Lubrizol's Supplier Code of Conduct sets forth Lubrizol's expectations that our suppliers will conduct their activities with us in a manner that is consistent with our Code of Ethics. Failure to do so can jeopardize the supplier's business with us.

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INNOVATION, RESEARCH AND DEVELOPMENT

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▶ ECONOMIC

Innovation, Research and Development

Investing in innovation to maintain and improve our technical position is inherent in Lubrizol's corporate philosophy. We're always looking for new ways to help our customers make the products that people use every day perform even better, and sustainability is increasingly prominent among the factors that drive innovation. Our process considers not only the health, safety and environmental impacts of a product, but its intended use as well. This comprehensive approach encompasses every aspect of the innovation, product design, manufacturing and improvement stages.

Working at the molecular level, our engineers and chemists develop and refine additives, ingredients and compounds that amplify the quality and performance of customers' products. Among the sustainability impacts of our products are automotive additives that drive better fuel economy and longer engine life; ingredients for paints, coatings and impact-resistant finishes; high-quality resins and polymers for better packaging and product protection; pharmaceutical ingredients that promote better health; engineered polymers for breathable, durable clothing; and personal care products that deliver desirable qualities.

Well-established product development processes and proven tools help to foster innovation throughout Lubrizol. We track our innovation efforts based on a number of indicators, including patents filed and granted, research and development (R&D) spend, and ultimately sales of new products. Innovation and sustainability are closely linked at Lubrizol, and, as a result, our corporate vice president, innovation is also our chief sustainability officer.

Outstanding technological innovation and successful research and development require continually making significant financial investments that will allow us not only to maintain our strong positions in the marketplace but to break new ground in technology while fulfilling our commitment to inspiring sustainability, improving lives.

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Our process considers not only the health, safety and environmental impacts of a product, but its intended use as well.

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INVESTING IN SUSTAINABLE INNOVATION

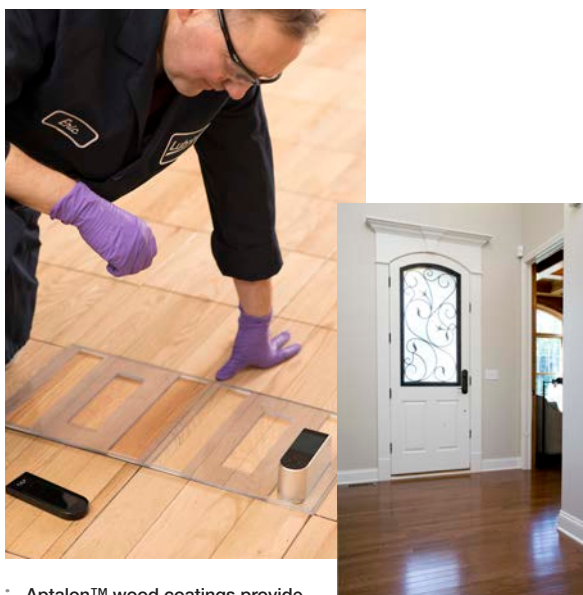
We have made significant investments in strategic projects involving technology, capacity or product line expansions and to keep our plants and other assets up to date.

In the area of product innovation, our businesses have developed a variety of increasingly sustainable solutions, including:

- **Fuel economy solutions:** There are approximately 3.5 million Class 8 trucks in North America, each driving roughly 125,000 miles per year. For every 1% of these vehicles that switch over to low-viscosity motor oil (SAE xW-30), an estimated 7 million gallons of fuel can be saved, which also enables lower CO₂ emissions. Lubrizol helps make the switch easier by providing improved durability at lower viscosities. We also produce additives that enable migration to lower-viscosity axle oils, which increase fuel economy by improving durability and thermal management.
- **Metalworking fluids:** We have developed solutions specifically designed to maximize performance in closed systems, thus eliminating exposure to the product in use.

- **Reduced use of volatile organic compounds:** Aptalon™ polyamide polyurethanes deliver core properties that enable wood coatings to be more durable, easy to use and contain less volatile organic compounds (VOCs). This combination means outstanding toughness and durability opportunities for waterborne coatings.
- **Reduced water and energy consumption:** Our Noverite™ LD 920N polymer is a unique acrylic copolymer that provides multifunctional performance benefits in laundry detergent products. In addition to improving detergent performance, it can improve efficiency during detergent processing, which results in significant reductions in water and energy consumption.
- **The Compass Sustainability Strategy:** For more information on this sustainable innovation success story being implemented by our Personal, Home and Health Care (PHHC) business, see the spotlight on the next page.

As we continue to explore innovative technologies and chemistries to help make the world a better place, we expect that sustainability will play an increasingly important role in our development efforts.



⋮ Aptalon™ wood coatings provide
⋮ enhanced durability as well as
⋮ sustainability benefits, including
⋮ less VOCs.



⋮ Our Noverite™ innovations enable water and energy efficiencies
⋮ in detergent products.

SUSTAINABILITY SPOTLIGHT

Personal and Home Care's Compass Sustainability Strategy

Lubrizol's personal, skin and home care teams have embedded sustainability into all aspects of their businesses with the Compass Sustainability Strategy. Compass guides these businesses to understand and reduce their own environmental impact, as well as empowering customers with the ingredient solutions that can help to reduce theirs.



- Lubrizol's Compass
- Sustainability Plan

By prioritizing actions that enhance supply chain transparency, improve manufacturing processes, provide easier access to product information and empower customers to address their pressing sustainability needs, Compass ensures that the teams are staying on track to achieve the key sustainability goals of increasing nature-based ingredients and reducing impact in the value chain.

Products with the Compass designation include ingredients that: 1) are nature-based (as measured according to ISO 16128); 2) have been proven to reduce environmental impact; or 3) have been certified under third-party programs such as EcoCert or US EPA's Safer Choice.

Inspired by United Nations Sustainable Development Goals 12 (responsible consumption and production), 14 (life under water) and 15 (life on land), Compass includes the Global Goals/Local Actions program. This program ensures that the teams continually remember that all actions have impact and that we must consider all opportunities to make a positive impact and to influence others to do the same.

Compass focuses the teams on important issues such as responsible harvesting of nature-based ingredients, including palm kernel oil derivatives. Lubrizol has been a member of the Roundtable on Sustainable Palm Oil (RSPO) since 2014. By engaging with RSPO's raw material certification program, and consistent with UN SDG 15, Lubrizol is taking action to reduce deforestation and the destruction of natural habitats in the harvesting of the palm kernel oil it uses. As part of the Compass Strategy, 22 of Lubrizol's ingredients containing palm kernel oil derivatives recently became available with RSPO Mass Balance Certification. We have set a goal that, by 2020, 100% of Lubrizol ingredients containing palm kernel oil derivatives will be available with Mass Balance certification.

In addition to enhancing the representation of nature-based ingredients in the portfolio, the Compass Strategy provides data and substantiation for the impact-reducing attributes of synthetic ingredients. Compass' "Synthetic is Sustainable" program shows that, not only do synthetic ingredients avoid concerns related to deforestation or biodiversity reduction, often synthetic ingredients are more efficient in reducing overall environmental impact in the value chain.

Learn more about Compass' goals and actions at [this link](#).

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▶ **ECONOMIC**

Sustainable Sourcing

Our suppliers play a critical role in helping us fulfill our mission of improving the lives of people every day. They are also instrumental in impacting our ability to achieve our sustainability commitments and goals. We work with our suppliers to create a supply chain that is built on shared responsibility, reliability and trust. As these relationships grow and mature, our level of supplier engagement is expected to increase and deepen, allowing for more transparency and collaboration.

Supplier selection and engagement are highly dependent on legal and ethical conduct, reliability, sustainable sourcing and continuous improvement. We seek to establish, maintain and grow relationships with suppliers that share our commitment to the highest ethical standards. Failure by a supplier to conduct its activities in a manner consistent with expectations, including Lubrizol's [Code of Ethics](#), will jeopardize the supplier's business with us.

The sustainability materiality assessment we completed in 2018 identified sustainable sourcing as one of our most important material topics – as measured by its importance to Lubrizol and our key stakeholders. This assessment will guide us as we engage further with our suppliers. As we continue our sustainability progress, many of them are also working on their own sustainability agendas.

POLICIES AND COMMITMENTS ESTABLISH PARAMETERS OF ETHICAL AND LEGAL CONDUCT

The [Lubrizol Supplier Code of Conduct](#) outlines our expectations of suppliers in a wide variety of areas, including conflicts of interest, health and safety, employment practices, compliance with competition laws, financial transactions and conflict minerals. The Code states that “our suppliers must be committed to a workplace that is free from all forms of human trafficking, forced labor and unlawful child labor in their operations.” We also ask that suppliers refrain from attempting to send gifts to our employees, and any business entertainment must be associated with a “legitimate business interest.”

We encourage open communication with our suppliers on the behavior of our employees and we welcome feedback on our Supplier Code of Conduct. Over the next couple of years, we expect to increase the scope of supplier engagement, enhance the buy-in of our Supplier Code of Conduct and assess supplier performance related to sustainability efforts.

PHHC BUSINESS PROVIDES LEADERSHIP

One of the best examples of our progress to date in sustainable sourcing is in our PHHC business. PHHC has been a leader within our company for addressing certified sustainable materials. PHHC

ECONOMIC: SUSTAINABLE SOURCING

is a member of the Roundtable on Sustainable Palm Oil (RSPO), which seeks to ensure that the global supply chains for Palm Oil (PMO) and Palm Kernel Oil (PKO) are sourced responsibly. In September 2018, three Lubrizol sites (Brecksville, Ohio; Clifton, New Jersey; and Spartanburg, South Carolina) received Mass Balance Certification under RSPO standards, with plans to secure certification of three more production facilities in 2019.



FOCUSING ON RELIABILITY

Our vision for sustainable sourcing is based on a global procurement system that reduces risk and minimizes the impact of any potential disruptions. Lubrizol has a comprehensive risk management program that continually analyzes our supply chain of more than 3,000 raw materials across 500 suppliers.

We have had a comprehensive supplier risk assessment and management program in place since 2013. We specifically look at risks related to reliability, quality, financial viability, safety and, of course, past history between Lubrizol and the supplier. Every year, we audit a portion of our base of key raw material suppliers, and we generally reach all of our major suppliers at least every three years. Our assessments involve a significant amount of observing, asking questions, and reviewing data and documentation. Where there are concerns, we seek to engage quickly with our suppliers to find solutions.

CONTINUOUS IMPROVEMENT

Our Global Supply Chain Center of Excellence and procurement leadership are structured to facilitate the development and sharing of best practices and drive continuous improvement across the supply chain. We conduct data-driven analysis for both supply and demand planning and audit plans for global process controls to ensure optimal performance.

Our supply chain engagement goals include:

- Increasing the level of overall engagement with our suppliers;
Continuing to improve supplier reliability;

- Aligning with our business units and other internal customers to increase strategic procurement value; and
Working with key suppliers to drive increasing value from those relationships.

For the past eight years, we have been tracking our corporate environmental footprint. In our most recent analysis, we found that, for greenhouse gas (GHG) emissions, raw materials constitute approximately 80% of our footprint. Given this finding, significant improvements in our environmental sustainability profile are likely to be made through raw material choice and supplier engagement.

The report identified three ways for us to address this challenge:

- Determine if an alternative supplier or supply chain can be identified that itself has a better sustainability profile than the incumbent;
Consider whether improvements can be made in the supplier's operations, or in its supply chain; and
Evaluate whether a less impactful raw material can be substituted for those materials identified, now or in the future.

We continue to evaluate these findings, including considering how they might impact our development of updated environmental goals. We are also enhancing our internal resources and supplier engagement to give more focus to the environmental aspects of our supply chain. Through collaboration, policies, data collection and goal-setting, we are committed to accelerating our sustainable sourcing and supply chain activity during the 2018-2020 time period.

Lubrizol seeks to promote diversity in our supply base by identifying and engaging with highly qualified suppliers that are considered small businesses as well as women, veteran and minority-owned. In 2017, approximately 20% of our suppliers met that criteria.

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RSPO trademark license number 2-0448-14-100-00

▶ **ECONOMIC**
Information Security



Fundamental to everything we do at Lubrizol is providing a safe, secure environment for all our stakeholders. That means a lot more than just secure entrances and exits and security badges. What once stopped at the facility gate has been extended to technology – data protection, privacy and cybersecurity.

Lubrizol has a number of information security policies that address privacy and protection of personal information. In addition to the policies, Lubrizol publishes its Third-Party Personal Data Protection Notice and the Lubrizol Key Privacy Rules. As personal data are everywhere, privacy rules apply to virtually every business process in Lubrizol. For more information on the data protection notice and the privacy rules, see [this link](#).

In addition to our own efforts, members of our information security and compliance department meet with information security professionals from across the Berkshire Hathaway subsidiaries to share best practices and meet with outside experts and solutions providers.

DATA PROTECTION AND PRIVACY

Information is a critical component of our business and relationships with employees, suppliers and customers. Around the world and across tens of thousands of connected devices, protecting

information from the ever-evolving potential threats is pivotally important to our success. Shifts in technology continue to make this more challenging. The need for mobility, a changing regulatory environment, and transformative innovations such as the shift to the Cloud and the emerging Internet of Things drive our continuous improvement mindset.

By effectively monitoring the flow, access and usage of information across our network, our information security and compliance department is able to institute protocols around suspicious behavior and investigate further when warranted. As business moves further into the Cloud, we continue to work proactively with third-party vendors to properly vet new technology and put specific policies in place to make sure the information so critical to our business is protected.

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We are committed to managing personal data in a professional, lawful and ethical way and respect the rights of individuals and other stakeholders to access, correct, restrict or remove their data.

.....

In addition to our own efforts, members of our information security and compliance department meet with information security professionals from across the Berkshire Hathaway subsidiaries to share best practices and learn from outside experts and solutions providers.

Along with the defense of valuable data, Lubrizol respects the privacy of individuals and partners with which we share information. We are committed to managing personal data in a professional, lawful and ethical way and respect the rights of individuals and other stakeholders to access, correct, restrict or remove their data. In accordance with our global operations, we are dedicated to ensuring our compliance with relevant legal frameworks, including the European Union's General Data Protection Regulation, or GDPR.

DRIVING INFORMATION SECURITY AWARENESS

While the information security and compliance department is responsible for data security, everyone in the company has a role in helping to protect Lubrizol and those whose data we utilize in our business. In fact, people remain the most critical piece of an organization's ability to conduct business in a secure way. It takes an ongoing investment in education and testing to ensure information is properly stored, accessed and shared. It's also critical to create a culture of employees engaged in the defense of data and able to recognize the potential for risk before it becomes a problem.

Employees participate in mandatory information security training annually, and periodic communications keep them up to date on the evolving landscape for risk. Ongoing training includes simulated phishing email attacks, which are conducted in a controlled environment to further educate our employees on this threat. We monitor and track relevant metrics associated with the tests and have seen meaningful increases in the reporting of these simulated attacks, which indicates that employee awareness and due diligence are increasing.

Also helping us to drive awareness is having information security ambassadors embedded at Lubrizol locations across the globe. These employees reinforce the attention to data protection at our sites in North America, Latin America, Asia Pacific and Europe.



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General Disclosures

GRI Standard	Description	Report Section	Page Number / Disclosure
102-1	Name of the organization	Executive Summary	6
102-2	Activities, brands, products and services	Executive Summary	6
102-3	Location of headquarters	Executive Summary	6
102-4	Location of operations	n/a	We have a significant presence in the United States, Belgium, Brazil, China, France, Germany, India, Japan, Malaysia, The Netherlands, Singapore, South Africa, Spain and the United Kingdom
102-5	Ownership and legal form	Executive Summary	6
102-6	Markets served	Executive Summary	6
102-7	Scale of the organization	Message from Our CEO and CSO; Executive Summary	5-7
102-8	Information on employees and other workers	Executive Summary; Diversity and Inclusion	In 2017, 99% of our male employees and 96% of our female employees were full time; the balance were part time, which accounted for less than 2% of our total employment. See also pages 7 and 42
102-9	Supply chain	Sustainable Sourcing	59-60
102-10	Significant changes to the organization and its supply chain	n/a	n/a
102-11	Precautionary Principle or approach	n/a	The Lubrizol Corporation is not currently a signatory to the UN Global Compact and we do not specifically apply the Precautionary Principle or approach as defined by the United Nations. However, we have a strong culture of reporting and transparency, and utilize a conservative, risk-based approach to any decision-making that relates to health, safety and environmental factors. We also aim to comply with all applicable standards and our company has signed on to the American Chemistry Council's Responsible Care® Global Charter, which affirms our commitment to apply Responsible Care principles and expectations globally. All of these efforts give us a high degree of confidence that we are taking the appropriate precautions in protecting health, safety and the environment.
102-12	External initiatives	Executive Summary	7-8
102-13	Membership of associations	Executive Summary	7-8
102-14	Statement from senior decision-maker	Message from our CEO and CSO	4-5
102-16	Values, principles, standards and norms of behavior	Ethics	54-55
102-18	Governance structure	Corporate Governance	51-53
102-20	Executive-level responsibility for economic, environmental and social topics	Corporate Governance	51-53
102-31	Review of economic, environmental and social topics	n/a	Annually
102-40	List of stakeholder groups	Executive Summary	9

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General Disclosures - continued

GRI Standard	Description	Report Section	Page Number / Disclosure
102-41	Collective bargaining agreements	n/a	As of December 31, 2017, approximately 3% of our U.S. workforce was covered by a collective bargaining agreement. We do not track this designation outside the U.S.
102-42	Identifying and selecting stakeholders	Executive Summary	9
102-43	Approach to stakeholder engagement	Executive Summary	9
102-44	Key topics and concerns raised	Executive Summary	9
102-45	Entities included in the consolidated financial statements	n/a	n/a
102-46	Defining report content and topic Boundaries	Executive Summary	9
102-47	List of material topics	Executive Summary	9
102-48	Restatements of information	n/a	n/a
102-49	Changes in reporting	About this Report	3
102-50	Reporting period	About this Report	3
102-51	Date of most recent report	About this Report	3
102-52	Reporting cycle	About this Report	3
102-53	Contact point for questions regarding the report	About this Report	3
102-54	Claims of reporting in accordance with the GRI Standards	About this Report	3
102-55	GRI content index	GRI Index	63-65
102-56	External assurance	About this Report	3

Management Approach

GRI Standard	Description	Report Section	Page Number / Disclosure
103-1	Explanation of the material topic and its Boundary	Explained in each material topic section	10-62
103-2	The management approach and its components	Explained in each material topic section	10-62
103-3	Evaluation of the management approach	Explained in each material topic section	10-62

Economic

GRI Standard	Description	Report Section	Page Number / Disclosure
201-1	Direct economic value generated and distributed	n/a	https://www.lubrizol.com/Sustainability/Scorecard
205-2	Communication and training about anti-corruption policies and procedures	Ethics	55

Environmental

GRI Standard	Description	Report Section	Page Number / Disclosure
305-1	Direct (Scope 1) GHG emissions	Environmental Data Summary	12 https://www.lubrizol.com/Sustainability/Scorecard
305-5	Reduction of GHG emissions	Environmental Data Summary	12 https://www.lubrizol.com/Sustainability/Scorecard
306-2	Waste by type and disposal method	Waste and Recycling	22 https://www.lubrizol.com/Sustainability/Scorecard

Social

GRI Standard	Description	Report Section	Page Number / Disclosure
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	n/a	benefits.lubrizol.com
403-1	Occupational health and safety management system	Workplace Health and Safety	25-29
403-2	Hazard identification, risk assessment and incident investigation	Workplace Health and Safety	25-29
403-5	Worker training on occupational health and safety	Workplace Health and Safety	25-29
403-9	Work-related injuries	Workplace Health and Safety	25-27 https://www.lubrizol.com/Sustainability/Scorecard
404-1	Average hours of training per year per employee	n/a	All employees globally receive at least 12 hours training per year. Each employee in chemical operations averages 50 or more hours of training per year. Each employee in chemical operations averages 36 or more hours of HSES training per year.
404-2	Programs for upgrading employee skills and transition assistance programs	Talent Development	36-37
404-3	Percentage of employees receiving regular performance and career development reviews	n/a	100% of employees receive regular performance and career development reviews
410-1	Security personnel trained in human rights policies or procedures	n/a	52% of security personnel have been trained in human rights policies or procedures
412-2	Employee training on human rights policies or procedures	n/a	100% of employees have received training on human rights policies or procedures
413-1	Operations with local community engagement, impact assessments and development programs	n/a	Over 80% of our operations have implemented local community engagement programs

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