

# Annual Summary



# RESURF





# STEWARDSHIP Report

People sometimes identify Celanese as a manufacturer, or a chemical company, or a publicly traded corporation. But what truly defines us is our team of more than 7,500 people who work together—side by side each day—to solve problems that improve the lives of our customers and the communities where we do business.

We are part of the human equation with committed people who create materials that make the world safer, cleaner and more sustainable. We make the materials found in products that people around the world use every day—vehicles, foods and beverages, appliances, electronics, medical devices, pharmaceuticals and paints, to name a few. We strive to operate safely while protecting the environment, and we engage with our communities to help them thrive.

We are motivated to grow. We are inspired to improve the world around us. We are driven to make a difference.

[A human difference.](#)



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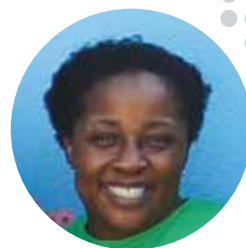
Metrics

OPERATIONS IN  
**38** COUNTRIES

Pierre Morin  
Site Director  
Boucherville, Canada



Erica Hamilton  
Recruiting Associate  
Dallas, Texas



Bruna Bergmann  
EHS Engineer  
Campo Bom, Brazil



Jaana Tenhaeff  
Communications Specialist  
Sulzbach, Germany



Roberta Cangini  
HR/Accounting  
Forlì, Italy



Vincent Zhang  
Production Operations Leader  
Suzhou, China



**7,500**  
EMPLOYEES

SERVING APPROXIMATELY

**6,750**  
CUSTOMERS

● Celanese locations

# MEET CELANESE

Our team of world-class chemists, material and polymer scientists, engineers, operators and professionals spend their days helping solve customer challenges and creating dynamic solutions. These solutions end up in products that touch almost every aspect of human lives.

At home and work, Celanese materials are found in cosmetics, detergents, foods, paints and solar panels as well as mobile phones, computers, hip and knee joints, pharmaceuticals and packaging. As people travel from place to place in vehicles, jets, ships and more, our materials are in molded parts, paints and other components. At play, people encounter

Celanese materials when using surf boards, skis, goggles and sneakers. The list could go on. There are no Celanese labels on these products. But each material plays a role in making life easier, safer, tastier or better in some way for humans everywhere.

When customers hit a challenge, our committed team combines chemistry and material science knowledge with customer relationships and our global production network to develop, manufacture and market unique solutions in six main businesses for customers worldwide.

## MATERIALS SOLUTIONS – OUR HIGHLY VALUED INNOVATIONS.

**Engineered materials** for automotive, electronics, medical devices, consumer goods and aesthetic applications.

**Cellulose derivative** products such as acetate tow and diacetate films for filtering, luxury packaging, insulation, medical, nonwoven and other consumer specialty applications.

**Food ingredients** for sweetening and preserving foods, beverages and supplements.

**EVA polymers** used in flexible packaging, thermal lamination films, hot melt adhesives, medical solutions, photovoltaic cells and more.

## ACETYL CHAIN – OUR CHEMISTRY BUILDING BLOCK.

**Acetic acid, vinyl acetate monomer and other intermediate chemistries** are the basic chemicals for colorants, paints, adhesives, coatings and medicines to name a few.

**Emulsion polymers**, one of the broadest emulsion product portfolios, used in paints and coatings, adhesives, nonwovens, glass fibers, textiles, paper, waterproofing and construction materials.





Mark C. Rohr  
Chairman and Chief Executive Officer

## A HUMAN DIFFERENCE

The Chemistry Behind our Culture of Stewardship

We believe that chemistry plays an integral role in solving many of the world's challenges. This belief means we are committed to advancing safe, effective and sustainable products and technologies that unlock the untapped potential of humankind.

This potential is at work at Celanese where each employee has taken measures to be a steward of the earth's natural resources and of each other. We are committed to continuing our significant progress in meaningful areas of our business, including energy use, protecting sensitive air and water ecosystems, continued emissions reductions, meaningful safety measures, and a people-centered culture, all while growing Celanese products, customers and technologies to new heights.



Improving the world is not just a slogan.

These new heights are showcased in this year's Stewardship Report, with just a preview of some areas of interest listed below:

We continue to make energy usage a priority. Our efforts have decreased energy intensity globally by 33% since 2005, and by 6% in 2016 alone. We are adopting advanced methods of energy management and changing human behaviors which fosters successful energy usage; and we are especially proud of our Energy Star Partner of the Year designation for the last two years.

Significant environmental progress in the areas of carbon dioxide emissions, waste, and water usage continue to be made at our operations in nearly 40 countries. From 2012-2016, greenhouse gas emissions are down 20%, volatile organic compounds are down 30%, and waste has been reduced 45% across Celanese sites globally. Our desire to protect the natural resources around us is as powerful as our desire to ensure the safety of our workforce and improve the communities where we operate.

In this regard, our employees take their commitment to the Celanese stewardship culture beyond environmental improvements by giving back to their communities through volunteerism and generous giving. Our workforce of more than 7,500 valued employees share of their time and resources to causes which reflect our culture of caring. With a record 121,000 hours of volunteerism and more than \$3.2 million donated to 750 global charities last year alone, we are creating positive change together in full partnership with the communities where we operate.

We are also working to build a company culture where our employees are valued, engaged and rewarded for their efforts. Through a balanced focus on our people and our business model, Celanese is growing and attracting a diverse, inclusive workforce. Additionally, our employee resource groups foster our culture of diversity and inclusion and advance important social issues which makes us better together.

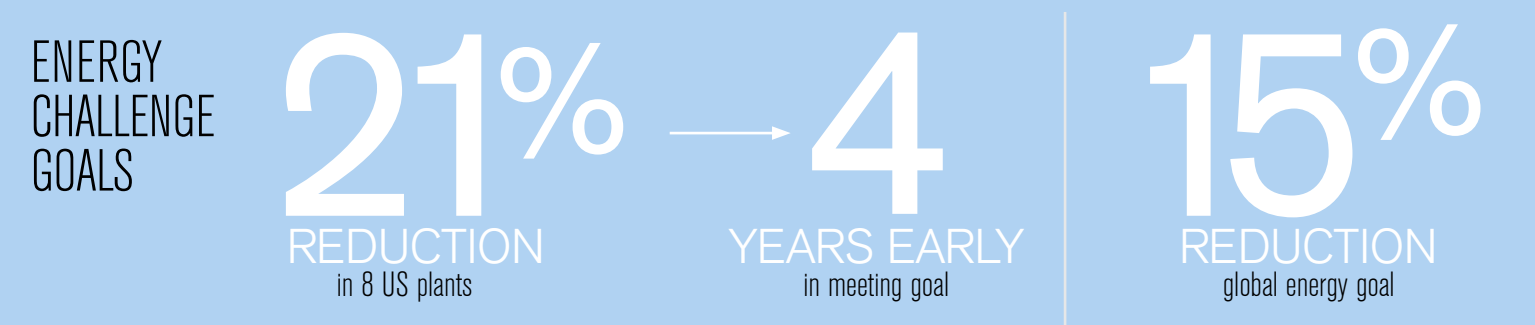
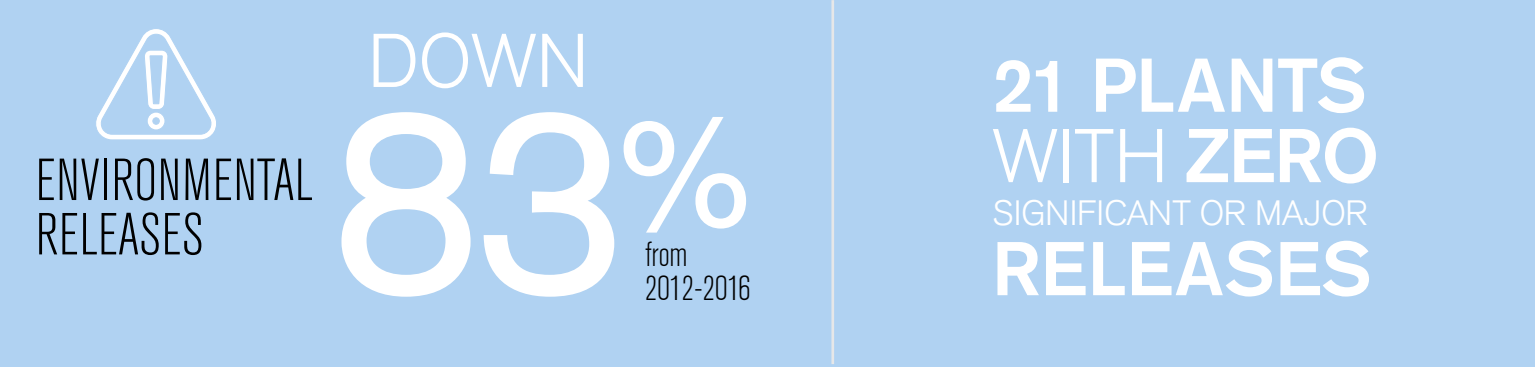
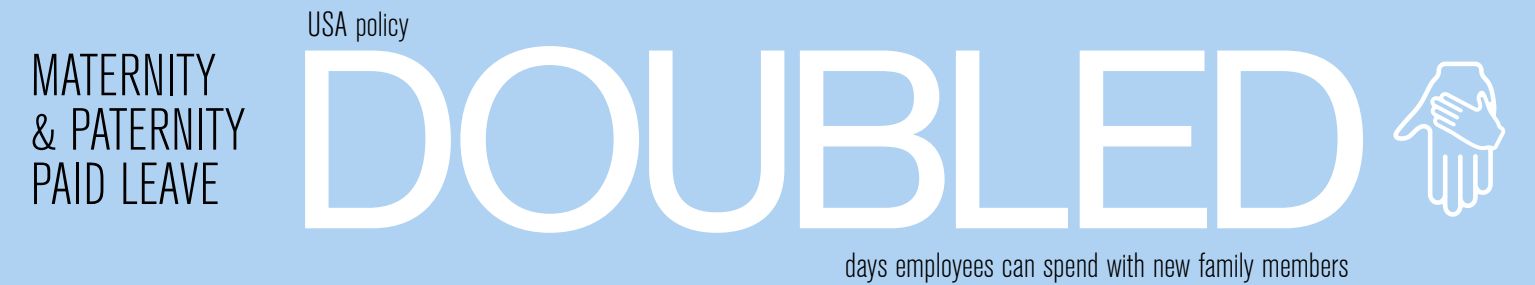
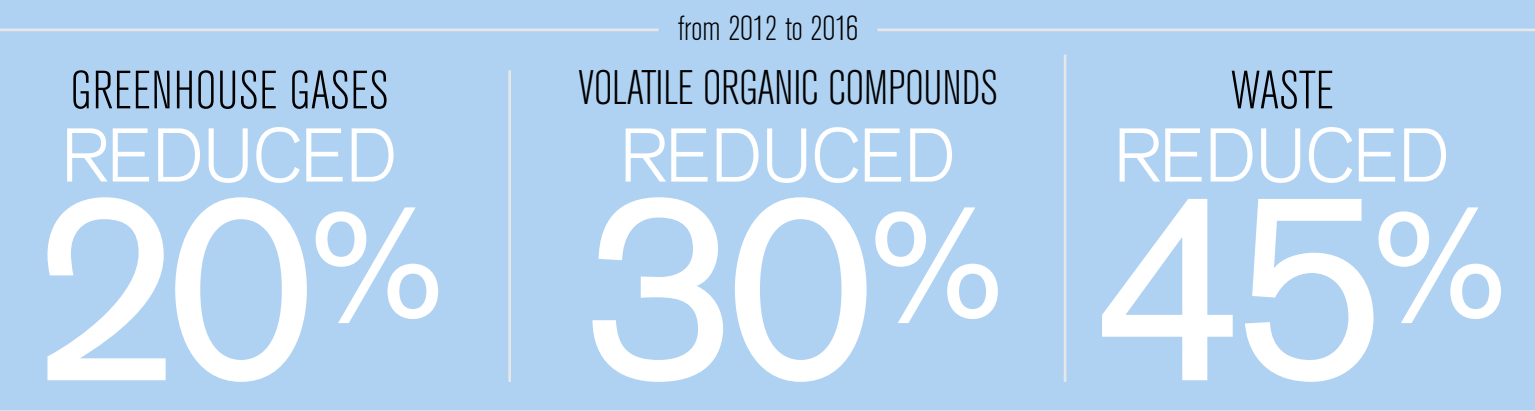
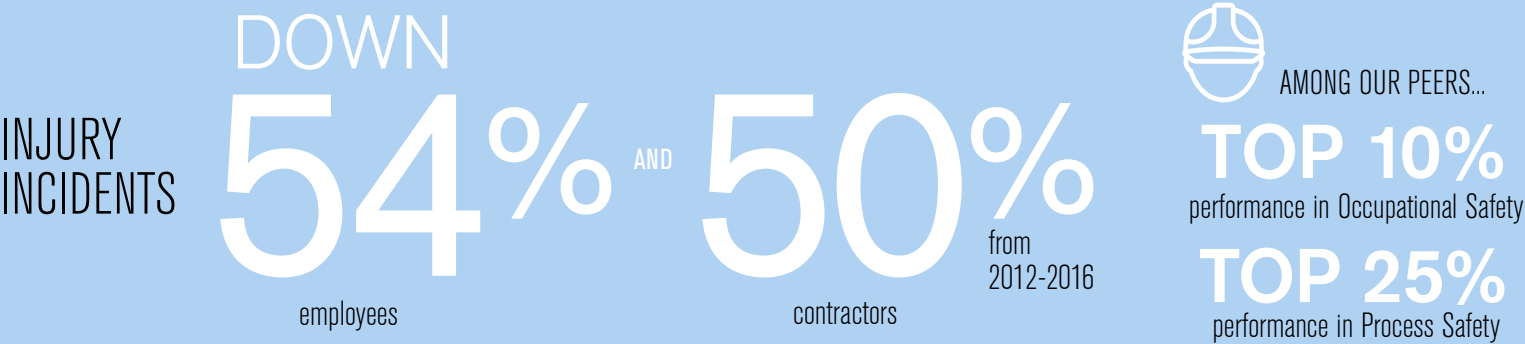
These and other examples of our forward progress as a company can largely be attributed to fully embracing a comprehensive view of stewardship as we learn from each other and elevate our environmental, business and personal performance. To us, being good stewards is our collective effort to reach for more because we have a shared belief that through our actions we will improve the world.

This Stewardship Report reflects the collective efforts of thousands of employees working together to make a difference. We call our efforts **The Chemistry of Us**. Thank you for taking the time to review this year's report which showcases our people, our products and our progress along the stewardship journey.

Mark C. Rohr  
Chairman and Chief Executive Officer  
Celanese Corporation

# NUMBERS COUNT BECAUSE PEOPLE MATTER

(Statistics taken from 2016-2017, unless otherwise noted.)





# life

While metrics are important, true stewardship means looking beyond the numbers and striving to make the world a better place.

“Our caring culture creates an environment where employees not only develop materials that make other products—and daily life—better, but also work enthusiastically together to support the communities where we do business.

It’s what makes us different.”

– Gretchen Rosswurm,  
Vice President Global Communications  
and Corporate Social Responsibility





# LIFE

Better for Everyone.

The ingenuity we use to develop and deliver products that make life better creates a difference for millions worldwide, a human difference.

From material science... to product development... to life.



"Innovation always begins with an understanding of an unmet or unrealized market need. It entails understanding and anticipating future customer needs then developing enabling material solutions."

— Verghese Thomas,  
Vice President and Chief Technology & Innovation Officer



From the manufacturing plant... to the design shop... to life.



"It's not just our products. It's how our products make other products better and influence daily life. Materials that make automobiles lighter, more fuel efficient and pollute less, for example."

— Stephanie Daigle,  
Vice President, Government Affairs



Consumers can see Celanese specialty engineered materials throughout their daily lives—as they drive, cook and experience modern medical care. When medical device manufacturers needed lighter weight, more durable hip and knee joints, we provided the materials. When pharmaceutical companies needed excipients for controlled drug release applications, we provided ethylene vinyl acetate (EVA) polymers.

In a world with a need for safer, more fuel-efficient vehicles, we work with manufacturers to make structural components including instrument panels, consoles, front-end modules, and head restraints, as well as roof struts, clutch master cylinders and pedal systems. These tailor-made components are up to 50% lighter weight, tough and versatile. Manufacturers also use our materials in fuel systems in gasoline,

diesel and bio-fuel resistant fuel components because these materials are engineered to perform while achieving lower emissions, even at higher operating temperatures and elevated pressure. Manufacturers also choose our high-temperature materials for electrical and electronic components because of their excellent dielectric properties, attributes that retard flames, and halogen-free composition that also allow for lead-free soldering.

In our homes and offices where safety is also important, Celanese polymers make consumer electronics such as espresso machines and microwave ovens safer and furniture slide systems smoother and quieter.





### MEDICAL-GRADE POLYMERS IMPROVE QUALITY OF LIFE

Precision and performance are critical to medical device usage and drug dispensing in order to improve patients' quality of life. Many Celanese certified medical-grade polymers help medical device manufacturers improve product design, safety and effectiveness—from orthopedic implants to surgical tools. Our new MT® (Medical Technology) grade polymers enable medical device researchers and manufacturers to design moving parts with precision dosing and wear resistance. Devices such as orthopedic implants made with our GUR® product line extend the life of orthopedic implants. Insulin injection pens and measured drug delivery devices, such as syringes and asthma inhalers, are made stronger with MT® grade polymers that are durable, reliable and medically compliant. We test to make sure these materials have the required properties for consistent operation to make life better for practitioners and patients. Our medical grade materials were integrated into a novel product design of an affordable, reusable insulin pen with state-of-the-art features developed especially for diabetes patients in emerging markets.

### PAINT THAT'S EASIER ON THE AIR

One of our highest-demand products is EcoVAE®, an emulsion that paint makers formulate into low-odor and low-to-near-zero volatile organic compound (VOC) interior paints and coatings. EcoVAE® meets regulatory requirements, is more durable and especially appeals to environmentally-conscious contractors and do-it-yourselfers around the world. Lowering VOC emissions helps improve indoor air quality, especially in energy efficient, well-sealed buildings, and reduces the occupants' risk of health concerns.



### CLEANER SEPARATORS FOR LITHIUM-ION BATTERIES IN ELECTRONIC DEVICES AND ELECTRIC VEHICLES

Growth in smartphones and electric vehicles boosts demand for lithium-ion batteries with GUR® membranes. GUR® is an ultra-high, molecular-weight polyethylene that manufacturers are using more often as a membrane that separates electrodes in newer, more environmentally friendly energy storage systems. Our technology innovations enable differentiated materials that improve the processing and performance of such membrane separators.







#### POLYMERS MAKE LIGHTER-WEIGHT, ATTRACTIVE VEHICLE PARTS

Automobile manufacturers are replacing metal in fuel-based and electric vehicles with Celanese polymers. The result is improved energy efficiency and performance, both contributing to making the world better. You can find a number of Celanese materials including Celstran®, Fortron® flexible PPS, Hostaform® and CoolPoly® in many automobiles on the roads today. Visible components include center seat/console, running boards and cabin steps, overhead bins and head lamp components. Under the hood, there are engine ventilation tubes, maintenance access panels, and components in fuel pumps and water pumps.

Celanese materials are in more than 300 different parts and applications within a vehicle—across electrical, appearance, fuel, and powertrain systems. A 50 kilogram vehicle weight reduction increases fuel economy by up to 2% and reduces up to five grams of CO<sub>2</sub>/km. In 2016, 95 million vehicles were produced worldwide and vehicle light-weighting can contribute significantly to reduction in fuel usage and CO<sub>2</sub> emissions globally.

Heavy use combined with exposure to heat, chemicals and the environment can cause painted interior automobile door handles to bubble, peel and crack, often leading to expensive manufacturer recalls. Celanese MetaLX® Hostaform® LX90Z, an acetyl copolymer resin, is molded in metallic in custom colors to replace paint for the interior door handles, taking one less manufacturing step while replacing metal with a lighter weight, more durable material.



#### INDUSTRY'S FIRST NO-FOG FILM BASED ON ENVIRONMENTALLY FRIENDLY CELLULOSE DIACETATE

Companies around the world use Clarifoil® cellulose diacetate film—a high performance, versatile, scratch-resistant antifog film—for optical applications such as sports goggles and visors. Celanese Clarifoil® antifog film can also keep the glass on a grocery store freezer door from fogging. According to our research, large retail stores could reduce their energy spend by as much as 1.5-2.0 kilowatt hours (KWH) per day per freezer door—roughly 30% of the total energy consumption of a typical display freezer—if they use this antifog film. This can translate to between 50,000-70,000 KWH annual savings for a 100-store retail chain which can equate to a recurring savings of \$8,000-\$10,000 per year and a CO<sub>2</sub> reduction equivalent to 65,000-85,000 pounds per year.



### MORE COST-EFFECTIVE IRRIGATION

Using reclaimed water for irrigation is a growing trend, but recycled water often contains chemicals that corrode valves, gears and nozzles. One of our innovative new polymers cost effectively solves this problem while also withstanding constant exposure to outdoor heat, UV rays and humidity. Reclaimed water provides a safe, cost effective and sustainable alternative water source for irrigation that reduces the stress on drinking water supplies.



### A SMOOTHER RIDE FOR MATERIAL HANDLING

The beverage industry uses conveyor systems that can be miles long. A customer asked if it was possible for the chains that move the conveyor systems to be lubricant- and water- free and not require cooling. It's very possible with dry polyoxymethylene, or POM, an inherently lubricious polymer. And POM provides a sustainable solution, thereby eliminating water waste, lubricant use and disposal costs while increasing worker safety.



### MAKING THE WORLD SWEETER

Sunett® Acesulfame Potassium (Ace-K) is a safe, pure, zero-calorie sugar substitute found in dairy and bakery products, sauces, beverages and pharmaceuticals that meets the needs of the health aware and those with the most sophisticated taste buds. When manufacturers needed to keep up with consumers' taste and lifestyle changes, while also maintaining efficient, lean manufacturing processes, we developed Sunett® Ace-K. It also helps manufacturers formulate products to achieve a consistent, sweet flavor with no lingering aftertaste.



# LIFE

## Better for Employees.

A significant part of our culture is created by employees enjoying what they do and feeling appreciated. We care about each other because we are greater together.



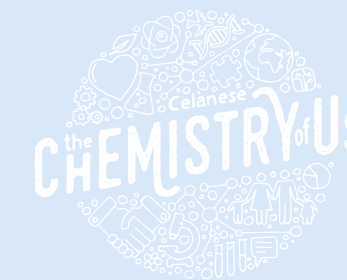
Maternity and paternity paid leave has doubled for Celanese U.S. employees.

This realization that we can do more together drives us to focus on talent development, wellness, volunteerism, and creating an inclusive culture.

We provide opportunities for employee health and financial wellness with competitive compensation, as well as health and retirement benefits. And when we are healthy and safe, our productivity contributes more to company performance. We try to make it easier to take ownership of our own health and wealth with a number of programs launched or expanded in 2016 and 2017 as a result of our efforts to improve work life for our employees.

Helping employees and their families stay well is one way employees know we care. We have stepped up how we support employees to eat healthy, exercise and cut out unhealthy habits.

We try to make healthy living more convenient by offering onsite biometrics-based health screenings, along with a consultation with a medical professional to review results, risks and steps to address any issues. Some sites have fitness facilities and others have stationery bicycles in control rooms. And many sites host Lunch & Learn sessions to help employees expand their views on healthier living.



### A CULTURE OF EMPLOYEE ENGAGEMENT

We are working to build a company culture where our employees feel valued, engaged and rewarded for their efforts. Through a balanced focus on both our people and our business model, Celanese is growing and attracting a diverse, inclusive workforce which is dedicated to executing the company's business strategy. We call this **The Chemistry of Us**. Our global workforce of 7,500 employees are seeing the unlimited possibilities that are available to them as Celanese continues its path to growth.



### A PLACE TO BELONG

Also new to Celanese are Employee Resource Groups. With six formed already, and more than 30 chapters worldwide, groups support women, veterans, diverse lifestyles, greener living, wellness and young professionals. These employee-led resource groups advance and address issues our employees face.

The GREEN Team in Bishop, Texas recently installed electric vehicle charging stations onsite, while some women's groups observed 2017 International Women's Day. In Shanghai, employees and their families participated in the Celanese Coastal Clean-up Day. Despite the heavy rain, around 150 volunteers headed to the east coastline of Shanghai to collect trash along the beach. The Amsterdam Women's Impact Network invited the American Women's Club of Amsterdam to present on "Hope Beyond Displacement," a social action project that focuses on educating and empowering women and girls within refugee families. The Ocotlan site organized a clothing and food drive for a family in the community affected by a fire that destroyed their home, leaving them without furniture or personal belongings. The Clear Lake Veterans group provided meals at a local homeless shelter and observed Veteran's Day.



Celanese Shanghai employees participate in coastline clean-up efforts.



# LIFE

Better for Communities.

Celanese wants to make a difference in the communities where we do business—a human difference—one person and one project at a time. Contributing not only helps the community, it also helps build teams and engage employees. When we create change together, it sets us apart from others in our industry.



Our commitment to volunteerism not only benefits charitable organizations in the communities where we operate, but also gives our employees an opportunity to have a positive impact on the next generation.

IN 2016, CELANESE & OUR  
EMPLOYEES DONATED OVER  
\$3,200,000

  
~750  
CHARITIES  
SERVED

EMPLOYEES BEAT  
VOLUNTEER GOAL BY  
21   
THOUSAND  
HOURS



WORKING TOGETHER  
TO IMPROVE THE WORLD

[foundation.celanese.com](http://foundation.celanese.com)



Global Impact Month joins local organizations with local Celanese employees to meet the needs of community groups such as schools, non-profits or shelters.

The year 2016 was significant for Celanese's community engagement efforts. Until then, the Celanese Foundation, an employee-led 501(c)(3) non-profit, only included U.S. sites. Now it encompasses locations around the world in 17 nations including Mexico, The Netherlands and Singapore. The Celanese Foundation focuses on creating opportunities for at-risk families to learn, grow and thrive. By focusing on primary education, safe places and families, we can move from transactional to transformational programs and make a bigger difference.

In 2016, Celanese initiated a **100,000 Hour Volunteer Challenge** to encourage employees to work together as one team to achieve something great in the communities where we live and work.

To build excitement around the challenge, the Celanese Foundation launched a matching gifts program that matches employee volunteer hours with dollars—\$10 for every hour—donated to local charitable organizations. This is in addition to matching employee contributions dollar for dollar up to \$1,500. Giving rose 46% and actually we volunteered 121,209 hours, surpassing our goal by 21 percent. And that means the organizations selected received more than \$1 million in cash donations. We're currently working toward our 2017 volunteer challenge of 150,000 hours. This year, we are inviting friends and family to join the efforts as well as other local companies. Celanese also gives employees two days per year paid volunteer time in addition to company-sponsored events.



## Small Group Focuses on Those Who Need Help Most

In addition to local efforts, there are remote areas of the world with great need, so we revamped the **Celanese International Impact Program**. This program allows employees to interact with global communities and make more of a direct difference while also giving team members the opportunity to build better relationships with coworkers. Every year, two teams of about 10 employees each travel to remote locations around the world to help with projects that include working in women's empowerment groups, assisting in child development activities, and teaching language and basic math skills.





The Celanese International Impact Program connects employees to communities around the world.

We boosted the profile of volunteerism in 2016 with a number of onsite programs to encourage more people to volunteer. The **Global Citizen Network**, a like-minded group committed to making a difference in their workplaces and communities, includes about 50 site ambassadors for volunteerism. These employees apply for the role and, for two years, they plan volunteer events and cultivate relationships with local organizations. They also took part in a kickoff for the Global Citizen Network conference focusing on creating a culture of giving and caring.

To assist our employees with their volunteer efforts, we established **The Giving Hub**, a new global system that allows employees to easily schedule and coordinate volunteer activities while accurately tracking and reporting how many hours they contribute and where. The Giving Hub even tracks the time friends and family members contribute. It helps us see and celebrate the difference we can make when we create change together.



“We’re changing the culture to understand community needs and contribute in meaningful ways to employees. All the volunteer hours. All the people. We’re making an impact that we can feel good about. And that kind of enthusiasm is contagious.” —Dana Smith, Celanese Foundation Manager



#### #ImprovingTheWorld

Many employees’ favorite time of year is **Global Impact Month**. This program started in 2011 with 117 projects and has grown to 8,503 projects. Volunteer hours during 2016 Global Impact Month are up by 10,000 hours from 2015. In 2016 and 2017, employees at 33 sites worldwide spent nearly 24,000 hours giving back to their local communities. These examples below show how volunteerism is contagious.

- The team in Germany assembled hundreds of pieces of furniture to equip a Frankfurt shelter for refugees from Syria, Eritrea, Iraq and Iran.
- In Florence, Kentucky employees joined with the Free Store Food Bank to prepare and plant 1,500 tomato plants as well as weed, feed and harvest leading to approximately 30,000 pounds of fresh vegetables for the food bank and surrounding communities.
- Volunteers in Nanjing, China contributed over \$10,000 to the Amity Foundation benefitting the Hopeful Hearts project to help provide surgeries that saved two children.
- Employees in India spent a day playing with special needs children at Sangopita education center and residential school, and also led a drawing competition.
- In Shanghai, China employees helped repaint the activity room and corridor with low-VOC emulsion paint from our Celanese lab at the Huaxin Rehabilitation and Education Center for special needs children. They also delivered gifts to the children for Chinese New Year.



Celanese employees in Shanghai are volunteering in meaningful ways to help school children learn and grow.



A close-up photograph of a newborn baby's face, lying down with eyes closed. A hand wearing a blue nitrile glove is gently touching the baby's forehead. The background is blurred, showing more of the baby and the gloved hand.

# product stewards

As we become more aware of consumers' needs and experiences with specific products, we can better consider sustainability over the entire product lifecycle.

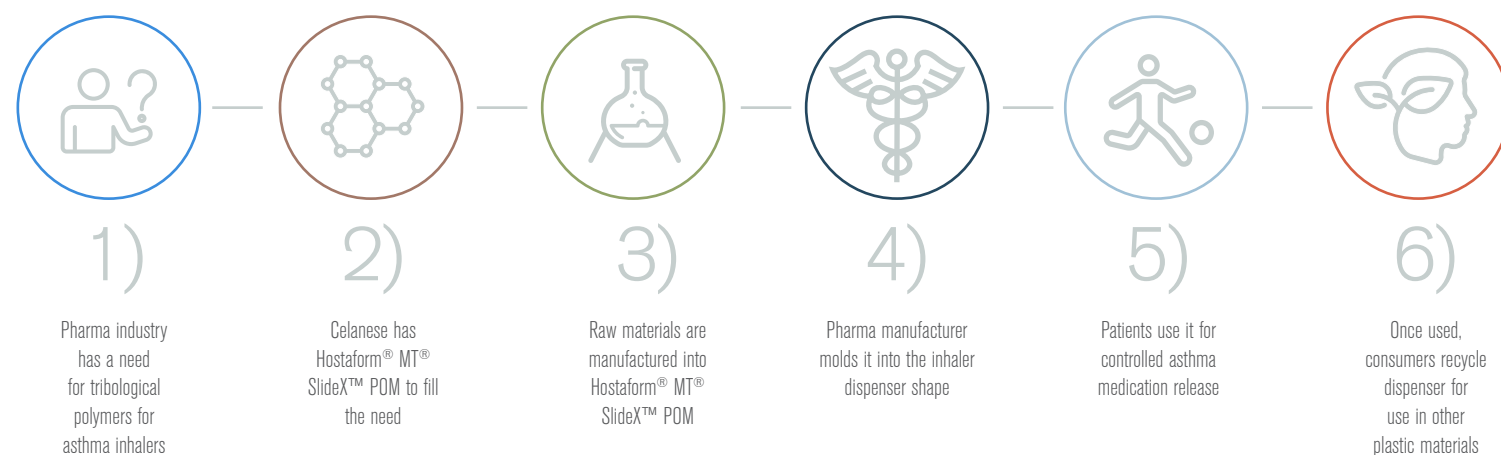
"When market needs arise or customers encounter challenges, we combine chemistry and material science with customer relationships to create unique solutions that are sustainable from creation to disposal."

# PRODUCT STEWARDS

A product's life begins with a need and an idea. We use a healthy dose of advocacy and innovation to design and develop materials that are safe and have the least environmental impact throughout a material's lifecycle.

## PRODUCT LIFE CYCLE

The product lifecycle describes the different stages of a product during its entire existence, from production to its period of use and its end-of-life recycling.



### FROM IDEA TO PRODUCT DISPOSAL

Increasingly, product regulations are making compliance a top focus. That's why our first priority is managing regulatory and risk aspects to make sure all materials are compliant with each nation's laws where our products are sold. With Celanese materials used in most of the world's 195 countries and thousands of regions and cities, there are many laws and regulations to be followed. Governments around the world closely scrutinize the materials that go into automobile fuel lines, home appliances and

human replacement joints; therefore, we are launching a new information technology system that will go live in the last half of 2017 to help us manage the complexities of health and safety regulations worldwide.

We play an active role as strong advocates for safe, sustainable chemicals in national and international industry organizations where we share best practices and lessons learned to improve the chemical and specialty materials industries worldwide. In larger



### UNDERSTANDING CONSUMER NEEDS IMPROVES SUSTAINABILITY

As we become more aware of consumers' needs and experiences with specific products, we can better consider sustainability over the entire product lifecycle. The global need to reduce automotive emissions, for example, has driven a substantial push for polymer use for auto parts that are as strong as metal but significantly lighter weight. In addition, the social pressure to lessen landfill waste is not a burden to consumers because they can recycle or reformulate most products containing our engineered plastics.

nations, we serve on technical committees to help government agencies develop realistic, science-based regulations. The Toxic Substances Control Act (TSCA), for example, regulates new and existing chemicals throughout the product lifecycle in the United States. This law was recently updated, and as an active member of the American Chemical Council (ACC), we are well informed of new industry mandates.

Product risk management, or how people use or misuse chemicals, is another top priority. We strive to identify and mitigate potential risks before making chemicals available for commercial use. This includes a health and safety assessment of raw materials as well as product formulations during each product's research and development phase. Celanese is committed to providing safe, sustainable materials to our customers. We also ensure customers use our products in accordance with chemicals regulations and in the intended end-use applications and markets.

We are especially diligent about vetting materials destined for use in highly regulated industries such as healthcare and pharmaceuticals. For example, we deliver reliable and robust engineering thermoplastics to the pharmaceutical industry for use in drug delivery systems such as inhalers, insulin injection pens and syringes.



From innovation to use to disposal, stewardship connects our products to the consumer.

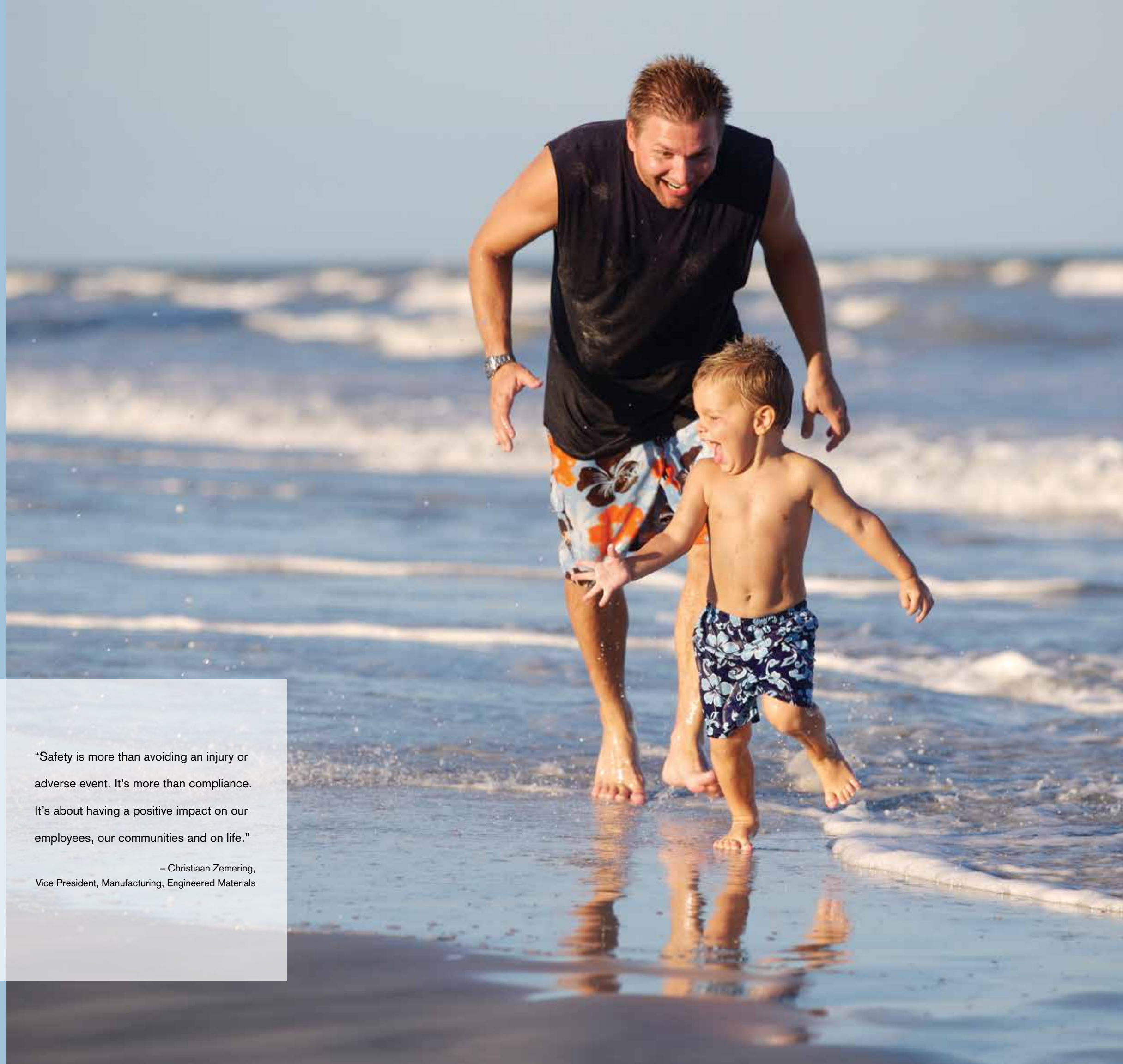


# safer

Safety is a core value for all of us—the ultimate human measure of success.

“Safety is more than avoiding an injury or adverse event. It’s more than compliance. It’s about having a positive impact on our employees, our communities and on life.”

— Christiaan Zemering,  
Vice President, Manufacturing, Engineered Materials





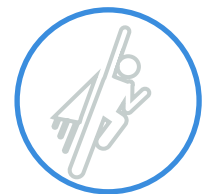
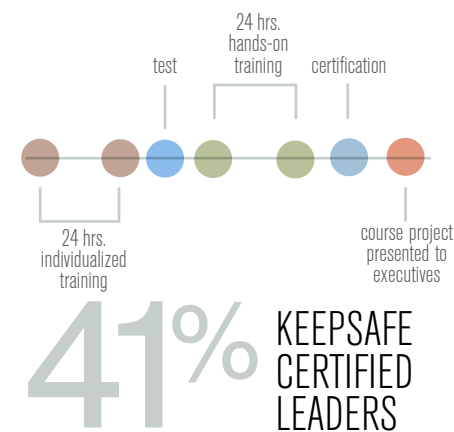
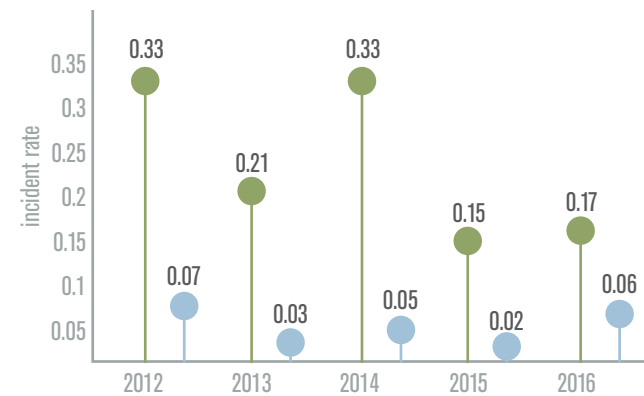
# SAFER

Our goal is the triple crown—zero occupational injuries, zero process safety incidents, zero environmental releases. We will continue improving until we achieve this goal.

## INDUSTRY-LEADING OCCUPATIONAL SAFETY PERFORMANCE

Employer and Contractor OSHA Recordables and Lost Time Rates

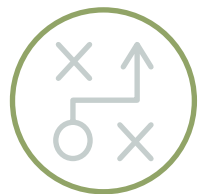
● total recordable incident rate  
● lost time incident rate



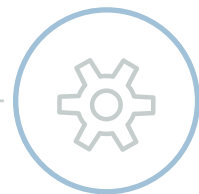
We take leading actions to stop injuries, accidents and incidents.



We operate in compliance with permits.



We live by our fundamental procedures.



We operate within operating limits & mechanical integrity requirements.

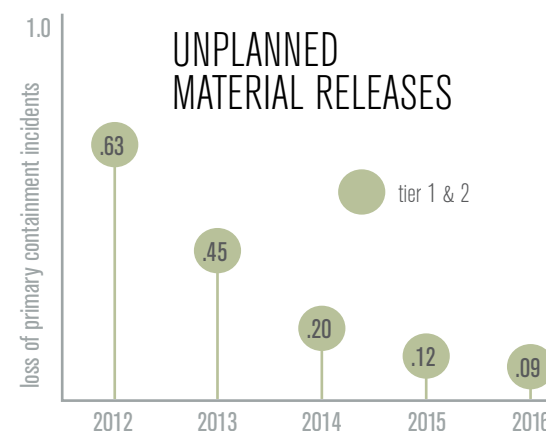


We eliminate high-consequence single points of failure.

## GUIDE 5 EHS POLICY & GUIDING PRINCIPLES

## LEADING INDICATORS DRIVE PERFORMANCE IMPROVEMENT

REPORTING UP 50%



## UNPLANNED MATERIAL RELEASES

DOWN 86%

This chart shows continuous performance improvement as a result of executing our process safety strategy. Process safety performance is measured consistent with API-RP-754 definitions.



Celanese safely manufactures 25% of the world's supply of acetic acid and 30% of the world's capacity as a raw material for plastics, solvents and reactive molecules in inks, paints and pharmaceuticals.

## SAFETY IS MORE THAN COMPLIANCE

A safe facility is a sign of efficiency. We improve safety by the way we design and build, as well as operate and maintain our facilities. Most of all, safety is a part of our culture. It is one of our core values that determines how each team member thinks and acts every day, at work or play.

As a baseline, we operate in compliance with regulations. But much more, we strive to achieve injury-free performance for our employees and contractors. In 2016, we adopted a philosophy to further improve our effectiveness as leaders and create an even safer environment, one that teaches behavior changes to avoid incidents. We operate our plants to prevent loss of primary containment incidents that could lead to putting surrounding communities and our employees in harm's way.

Celanese leaders now use techniques to create team environments which encourage behaviors that lead to desirable results. This psychology teaches

antecedents, behaviors and consequences. For example, if obeying the speed limit is the desired behavior, the antecedent is the speed limit sign. In our world, it's an operating procedure. In past incident investigations, we would have corrected someone for failing to follow a procedure. Now we evaluate the environment, such as conflicting requirements or time pressure, that influenced the person's behavior.

We're changing our culture by addressing the entire company. We've created an environment where, for example, any employee or contractor can stop a job until their safety concerns are addressed. Creating the best environment to influence desired behaviors is the basis of our stewardship culture used across all functions and included in many sections of this report. And we use **Celanese's Guide 5 EHS Policy and Guiding Principles**, summarized on the facing page and found at the end of this report, as the foundation for all we do.



safer

## OCCUPATIONAL SAFETY

### OUR GLOBAL CHALLENGE

A 25-pound bag falls 12 feet to the walkway below. If there was no injury or impact, is this just a near miss? The potential to cause serious injury drives us to not only report this near miss, but also tag it as a high-potential event. As a high-potential event, we apply the same rigor in communicating across the corporation and sharing lessons learned from the thorough investigation. We answer the tough questions—do we say one thing and do another? And we share these events across the organization and learn from each. This is an example of how managing behaviors builds a strong total incident-reporting culture.

### INDUSTRY-LEADING OCCUPATIONAL SAFETY PERFORMANCE

Creating an environment that influences 100% safe behavior isn't a stretch goal, it's an expectation. And with a 0.17 recordable incident rate per 100 full-time workers and 0.06 lost-time injury rate in 2016, we are getting closer.

According to the U.S. Occupational Safety and Health Administration (OSHA), there were nearly 700,000 non-fatal occupational injuries and illnesses in goods-producing industries in 2015 in the U.S. alone. Our **KeepSAFE** approach helps keep occupational safety the center of our culture. **KeepSAFE Day** is a new, annual company-wide event where employees and contractors make their KeepSAFE pledges. The intent is to refocus attention on safety and personal responsibility and avoid complacency.

Occupational safety isn't just important in manufacturing plants; therefore, we developed the **Safety Change Agent** program, a network of corporate leaders who extend our safety programs to all global locations. Line leaders are also safety certified, a multistep process including classroom and hands-on training that builds on the concept of behavioral leadership.



### SAFETY DOESN'T STOP AT WORK

A safer lifestyle is our goal. Not just at work, but at home and while driving a vehicle, for example. We hope to help people be more aware of and avoid life's risks and hazards—from slips and falls to accidents with machinery, electronics and more.



Our safety culture extends beyond our day-to-day jobs into our actions at home.

## PROCESS SAFETY

### CULTURE BUILT OVER YEARS

We believe all process safety incidents are preventable. When chemicals remain in their pipes, for example, people and the environment can stay safe, and we increase reliability and lower costs. With fewer and fewer process safety incidents, many of our early career employees have never experienced a major incident. We help manufacturing and front-line leaders build these capabilities through comprehensive process safety training and certification programs. We've also built a culture that defers to our experts in this field.

An 86% process safety performance improvement is quite an achievement. It's an accomplishment we can attribute to executing a strong strategic plan that commits us to process safety. This plan helps us identify and eliminate hazards and risks with a comprehensive 21 element management system model. We learn from experience by identifying and eliminating incident causes using two major programs—**Walk the Line** and **Know Your Limits**. But most of all, our people worldwide who practice process safety in all they do are responsible for these improvements.



Celanese is the largest manufacturer of solid and emulsion polymers that are used in paints, adhesives, textiles and other household products.



Across the industry, 25% to 40% of all loss of primary containment incidents have causes related to valves left open or improper line-up. With Walk the Line, we aim to eliminate these incident causes by providing operators with the appropriate operational discipline and readiness tools. We freely share our ideas with the industry through the American Fuels and Petrochemical Manufacturers (AFPM) Advancing Process Safety effort and the American Chemistry Council's (ACC) Enhancing Process Safety program.



#### SHARING MAKES OUR INDUSTRY BETTER

Our process safety department has helped Celanese exceed our 100,000 Hour Volunteer Challenge by sharing knowledge and skills with the rest of the industry. In addition to working with other companies to adopt Walk the Line, we are charter members of AFPM's Advancing Process Safety effort and lead the ACC Enhancing Process Safety program. We help lead the American Institute of Chemical Engineers Safety & Health Division process safety management mentor program. We also work closely with the Center for Chemical Process Safety (CCPS) to help train the next generation of engineers on process safety. These actions include leading the effort to educate future engineers by being the industry chair for a new process safety textbook used in lectures on process safety at Louisiana State University. We are industry chair for a CCPS project that creates smart phone applications that engineers use to manage process safety. We also work with CCPS as industry chair for a professional process safety certification process and participate with several book authoring teams.

We conduct industry workshops and share program documents with members of these organizations. Our Walk the Line program has helped Celanese achieve dramatic reductions in loss of primary containment. Early indications show Walk the Line is helping reduce these incident causes wherever companies have adopted these concepts. When we share, we all improve.

Understanding safe operating limits is critical so operators can take action to prevent incidents. Adopted across all sites in 2016, Know Your Limits does just that. Our 2017 focus is monitoring results and improving the program as we learn.

We never stop learning from experience. For example, adding a risk-based audit procedure helps us spend more time and effort where the most risk exists. Scenario-based audits are another example. With these deep-dive process-specific audits, we identify the top risks and confirm the correct controls are in place to mitigate these process risks. We also document lessons learned from incidents in videos and incident books, translated into several languages, to remind people what can happen if we are not vigilant.



Training future scientists and engineers promotes a generational safety culture.



"If we can't do it safely, we won't do it at all." –Steve Alexander, Global Process Improvement Leader



#### RESULTS GET RECOGNIZED

Industry groups recognize our process safety efforts with awards such as the ACC 2015 Responsible Care Initiative of the Year finalist and the European Chemical Industry Council Responsible Care Award, both for Process Safety Lessons Learned. CCPS honored our engineers with a best paper award at its Global Congress on Process Safety in 2015 and 2016, and AFPM presented our process safety leader with a Herding Cats Trailblazer Award.



Education is key to achieving our strong safety performance.

#### ON THE HORIZON



- Performance comes with strong people and strong systems. We will continue to focus on both with behavioral improvement plans that will change the environment so our employees always follow standard operating procedures.
- We will also continue improving managements systems and volunteer our time, talents and experience to help make the industry safer.





# cleaner

As stewards of the environment, it is our duty to protect our natural resources.

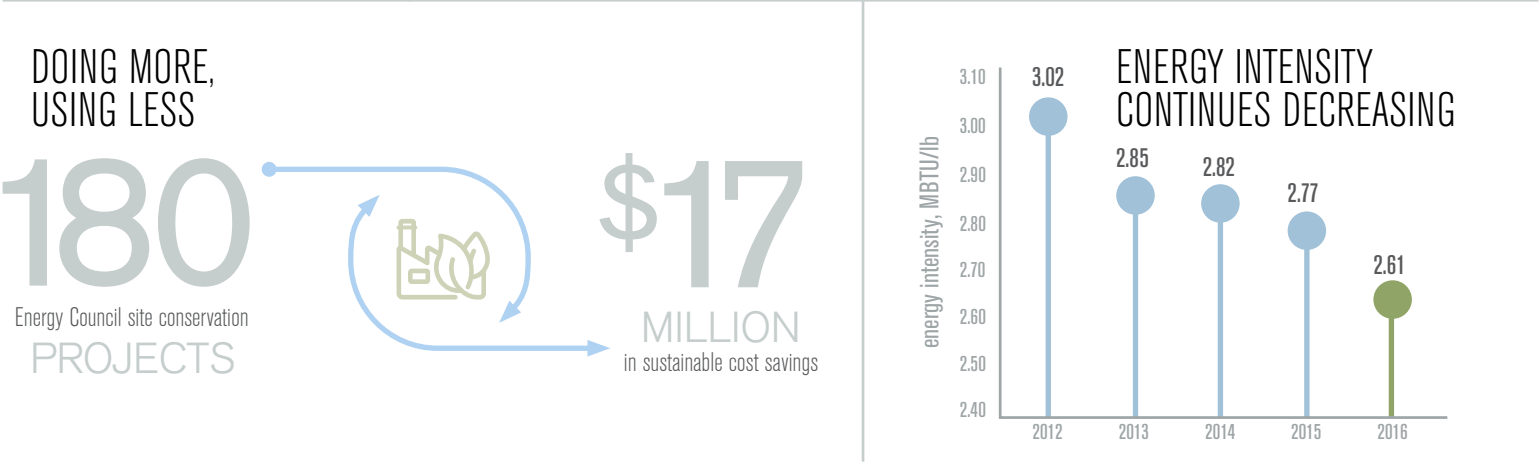
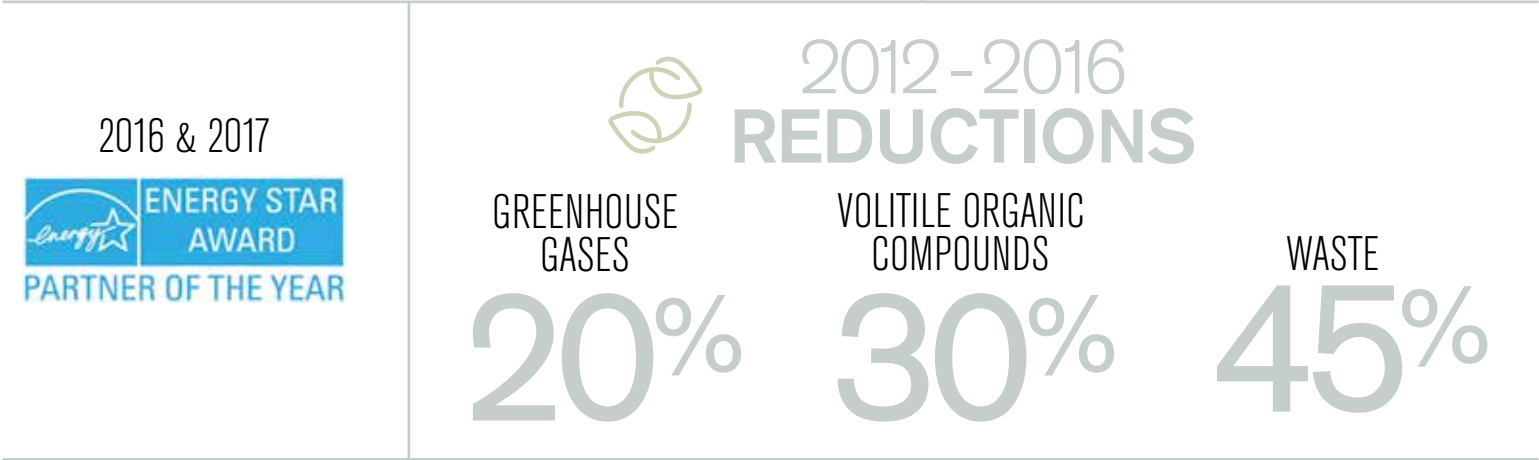
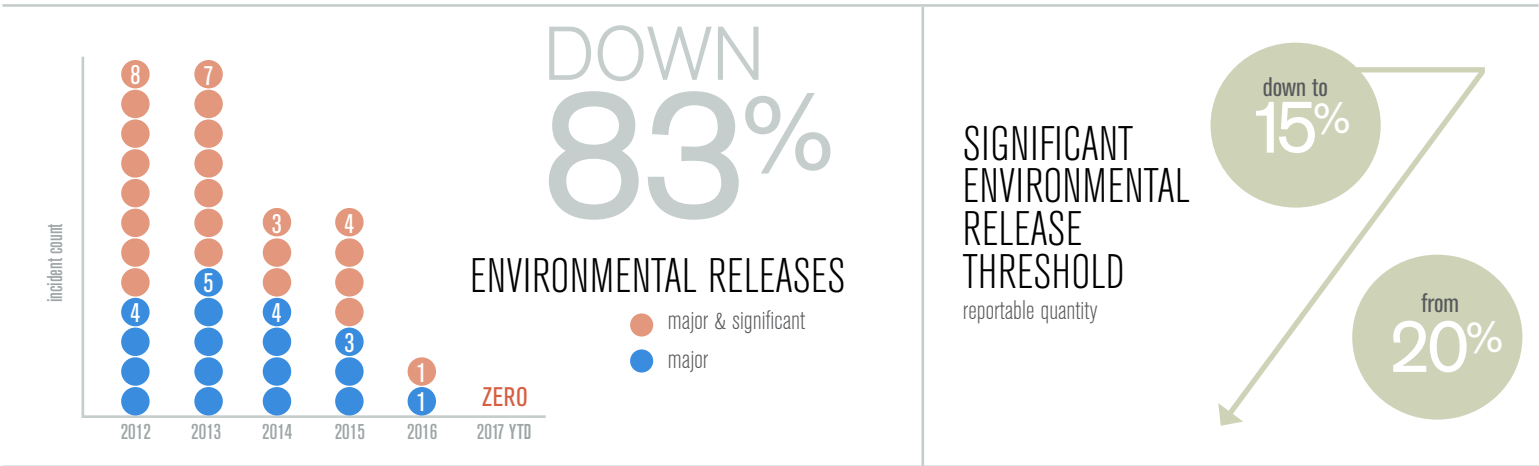
"We've transitioned to a more holistic view of environmental stewardship—one that ensures we have the foundational building blocks, including global systems, processes and internal performance measures that allow us to continue improving."

— Darren Hubbard,  
Global EHS Sustainability Leader



# CLEANER

Each employee takes responsibility as a steward of the earth’s air, water, soil and natural resources. As a result, we have reduced significant and major releases to the environment by 83% over the last five years and are in the longest time period without an environmental incident. How? We elevated our approach beyond compliance to a culture of accountability and continuous improvement.



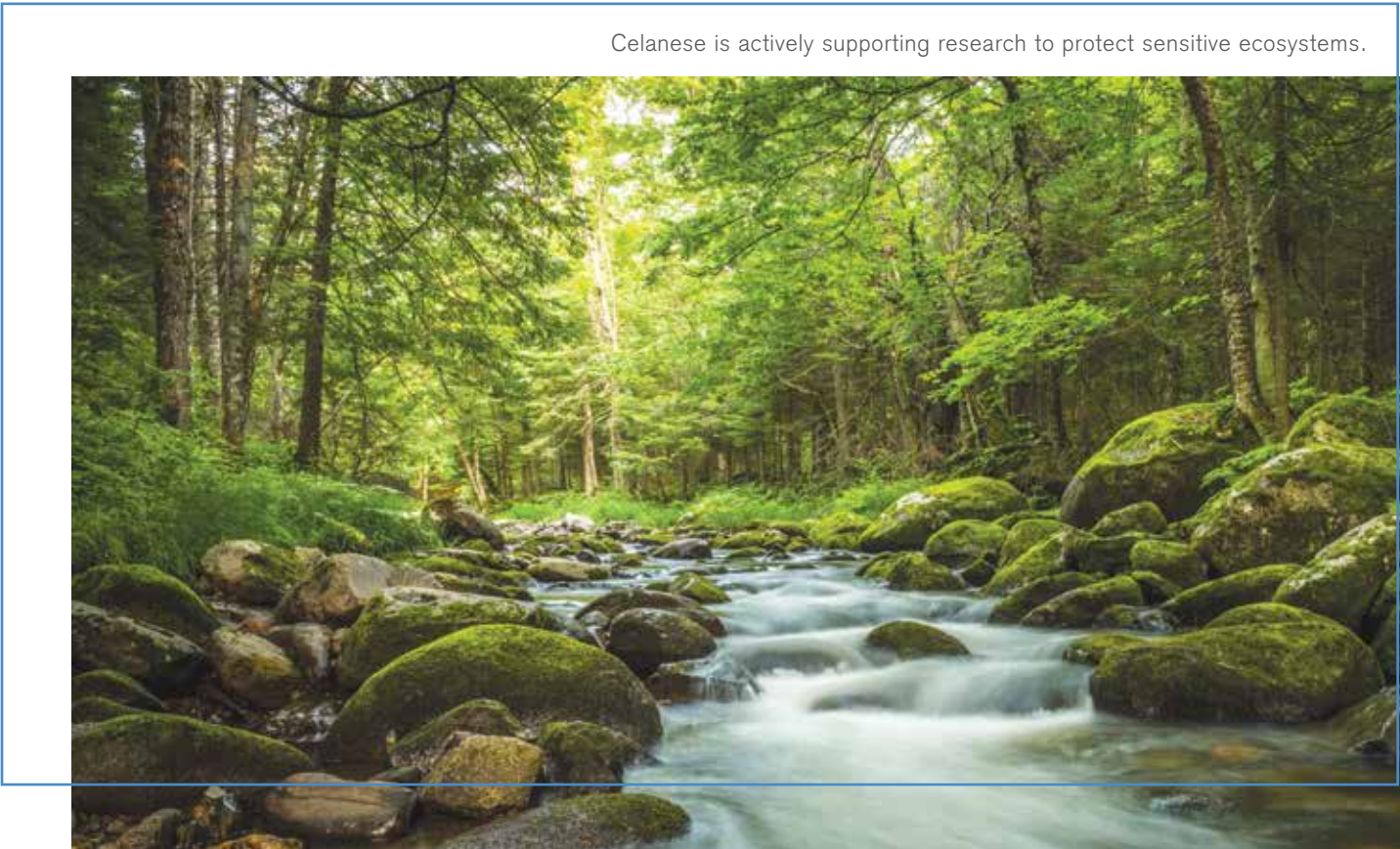
## STEWARDS OF THE WORLD'S RESOURCES

Incidents by other companies in recent years highlight the importance of having protective measures in place to prevent plant operations from releasing materials into the environment. We learn from these incidents and proactively evaluate our own plants worldwide to determine where and how we can reduce environmental release risks.

At our Narrows, Virginia plant, we immediately identified and prioritized vulnerabilities. A team of about 50, spanning functions from operators and engineers to maintenance craftsmen and inspectors, put fixes in place to prevent discharges into the New River, a popular recreational destination. This team continues to protect the river like it's their own. Our people have worked together to protect communities and valuable natural resources with similar projects in Nanjing, China, Singapore, Ocotlan and Cangrejera in Mexico, Wilmington, N.C. and Edmonton, Alberta, Canada.

These global reviews enable us to work as a team to identify and eliminate risk and boost our culture of environmental health and safety (EHS) around the world.

This is an example of our strategy in action. The global strategy is based on a holistic environmental management system of processes started in 2013. Implementations are underway as our processes mature and improve. Led by a team that has doubled in size since last year, we are now assessing the effects of these environmental management systems companywide to serve as the foundation from which to grow and improve. All environmental leaders and engineers are trained on the audit protocol, to evaluate programs and processes to ensure that we have the correct system requirements and components and that our employees know how to operate these systems and maintain compliance.







At the Celanese Clear Lake, Texas acetyls manufacturing facility, protected wildlife thrive through careful land and water management.

We also track and communicate emerging regulatory issues. Teams gather to determine potential environment, safety, financial and human effects and implement management systems updates where regulations affect operations.

Sharing best practices within our industry via regional EHS professional meetings is standard procedure at Celanese. In addition to completing audits within the company, our regional EHS leaders meet periodically, and groups of technical

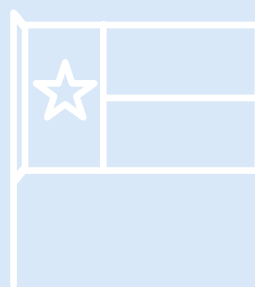
experts not involved with the project conduct cold-eye reviews when there are major technology or chemistry changes or new facilities.

Leaders across the company drive much of the momentum by using various techniques to monitor, analyze and implement effective solutions to reduce our environmental footprint. Through these efforts and other continuous improvement initiatives, we lowered our environmental significance threshold to 15 percent.

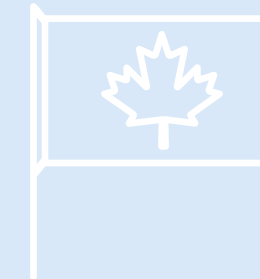
#### NEW METHANOL PLANT BUILT WITH ENVIRONMENT IN MIND

The best approach is to design and construct a plant with minimal environmental impact. Operated as a joint venture between Celanese and Mitsui, the new methanol unit in Clear Lake, Texas is an example of this approach. We didn't simply acquire the standard permits, we met with multiple organizations including Sierra Club and the U.S. Environmental Protection Agency to make sure we considered everything possible. This methanol unit makes one billion pounds of methanol per year with efficient energy use, very little VOC emissions and waste, as evidenced by these metrics:

- Plant energy intensity: 47% lower than global average
- Carbon emissions: 5% of global emissions
- Waste generation: 0.3% of global waste generation
- VOC emissions: 7.2% of global emissions

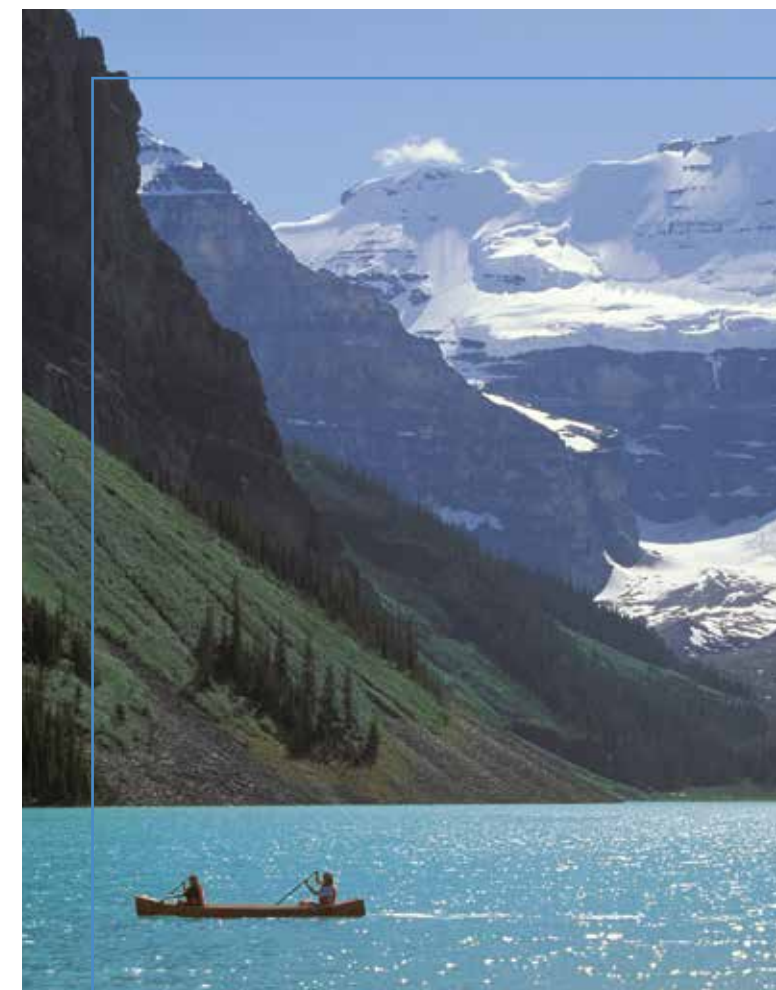


cleaner



#### TEAM IN CANADA IMPROVES AIR QUALITY

The team at our Edmonton, Alberta ethylene vinyl acetate (EVA) plant is collaborating with communities, Alberta and Canadian environmental agencies, as well as our own engineering, technology and environmental experts to develop and execute an emission reduction strategy. One method is using thermal oxidizers to collect and burn ethylene and vinyl acetate emissions. More than halfway through the six-year plan, we are on target to reduce VOC emissions by more than 50% while also improving fence-line air quality.



Celanese is achieving measurable reductions in greenhouse gas emissions and pollutants in the manufacturing process.

We constantly track trends, identify gaps and implement effective EHS solutions. In the case of a significant release, leaders meet within 24 hours to review initial learnings and discuss immediate required actions. Onsite teams analyze root causes, including behaviors that may have led to the release. We communicate findings companywide so everyone learns from our incidents to prevent them from happening again. We also evaluate and learn from circumstances around high-potential events when nothing happened but could have.

#### PROTECTING AIR, WATER, GROUND & CLIMATE

Our team continues to identify and implement initiatives to reduce, reuse and recycle waste and water. For example, plants in Edmonton, Alberta and Bishop, Texas recirculate cooling water multiple times to conserve water. The Octolan, Mexico plant boosts efficiency by prioritizing actions to address water and steam leaks. As to waste reuse, our Wilmington, N.C. plant identified a market for their polyphenylene sulfide solids, eliminating the need for disposing of this waste in a landfill. Just because we send waste to treatment and disposal vendors doesn't mean we forget about it. We are in the process of assessing each waste vendor against standard criteria to ensure they deliver on their agreements and manage waste appropriately.



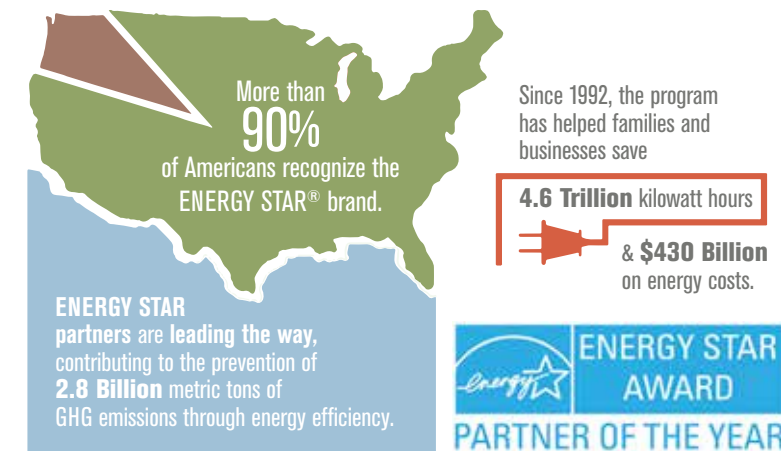
## ENERGY USE

People can be creative when they are passionate. To take advantage of this creativity, some sites conduct “energy treasure hunts” where teams race to locate savings opportunities, such as steam leaks and equipment using energy when not needed. An expert team at our Frankfurt, Germany site developed energy dashboards now used across many sites. By showing where energy is being used by asset, and whether the equipment is consuming energy at the optimum level, we can identify energy inefficiency and optimize energy consumption in our main units in real-time.

As a result of these and other efforts, energy intensity is down by 6% in 2016 and 33% since 2005. And with more than 180 energy-related projects, we realized \$17 million in sustainable cost savings in 2016. Last year, more than 30 energy leaders gathered at a summit to share best practices. To continue the momentum, site and energy leaders from across Celanese, along with our energy council, meet routinely to collaborate and share metrics and other effective practices to continue improving.

## MINIMUM CARBON FOOTPRINT IN FRANKFURT, GERMANY

When an airport expansion required us to relocate our polyoxymethylene (POM) facility in Frankfurt, Germany, 50 years of experience went into our newest facility’s construction and technology. But continuous monitoring pushes us to minimize our carbon footprint and energy use even more. This facility started operations in 2011 and produces 160 kilotons of POM annually, providing all of our POM supply for Europe. POM benefits our customers as well as end users because it is lighter weight than steel or other metal, which conserves energy. Our customers use POM in everything from automobile consoles to gears to medical devices. Tools such as the energy dashboard identify where energy is being used and define optimum energy targets as well as energy integration to reuse process heat elsewhere in the plant. These measures help us use every unit of energy possible, boosting energy use above 90 percent. The efforts already comply with local environmental regulations, but we continue to improve.



cleaner

The U.S. Environmental Protection Agency named Celanese an ENERGY STAR Partner of the Year in 2017 for its outstanding efforts to improve the energy efficiency of its buildings and facilities through sustained, companywide energy management. It takes operators, engineers and employees everywhere to achieve this milestone each year since 2014. In May 2017, the U.S. Department of Energy recognized Celanese in the Better Buildings, Better Plants Challenge for the second time for our goal achievement of reducing energy intensity within eight U.S. plants by 21% from a 2013 baseline.

## ON THE HORIZON

- We will continue identifying and implementing water conservation initiatives vital to operations and the environment.
- As a U.S. Department of Energy Challenge Program member, we targeted and achieved 15% energy intensity reduction in eight Celanese U.S. plants four years early. Additionally, we established a global internal goal of 15% energy intensity reduction by 2020.
- As an active American Chemistry Council member, we are working with them closely to develop an industry-wide sustainability initiative that will advance safe, innovative, effective, and economically viable chemical products and technologies that are key to unlocking sustainability solutions.



Celanese operates the world's largest POM manufacturing facility in Frankfurt, Germany at the Industriepark Höchst on the banks of the Main River.



Shanghai, China is home to Celanese's headquarters for the Asia region.



A photograph of a smiling grandfather with white hair, wearing a blue and black striped sweater, holding a young girl with dark hair in a red and white patterned shirt. In the background, a man and a child are sitting on a large tree branch, blurred. The image is set against a blue background on the right side.

# reliable

Reliability is mission critical to stewardship, and we are dedicated to continuous improvement.

"We are grounded in the belief that there are many factors contributing to best-in-class reliability. What makes us different is the cultural element. Just as there are no hazards in a safe environment, we foster the same culture in reliability."

—Jon Mortimer,  
Vice President Global Manufacturing

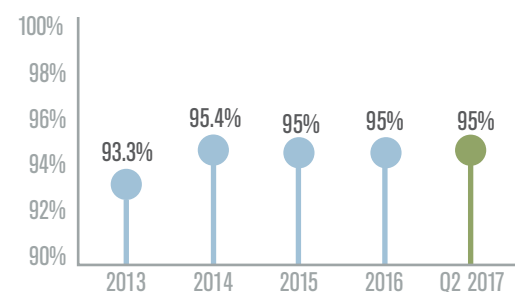


# RELIABLE

Reliability is instilled in our culture—from inspecting and monitoring our own and suppliers’ equipment to maintaining high quality standards.

## ON STREAM TIME MEASURES RELIABILITY

This chart shows Celanese reliability maintaining at a high level. Our new operational excellence focus is intended to drive even higher results



GOAL:  
**100%**  
RELIABILITY

An operating, running and reliable plant is a safe plant. Our ultimate goal is to ensure our manufacturing plants are running at 100% on stream reliability.

CLEAR LAKE,  
TEXAS  
PLANNED  
TOTAL SITE  
OUTAGE

**ZERO**  
RELEASES  
INCIDENTS  
INJURIES

**20** DAYS  
**1,800** WORKERS  
**1,000,000** WORK HRS.

### PLANNED UTILITY TOTAL SITE OUTAGE BOOSTS RELIABILITY

In conjunction with our partners, recently we successfully completed a planned 20-day total site outage at our Clear Lake, Texas facility. We addressed needed repairs such as replacing obsolete electrical power distribution equipment and aged sections of piping to avoid leaks in the steam line, fuel gas and water systems. The work completed during the outage will help ensure the plant operates safely and in an environmentally sound manner for many years.



We use a comprehensive reliability systems model to help ensure safe, environmentally compliant facility operations.

### A RUNNING PLANT IS A SAFE PLANT

Reliable equipment is one of the most critical factors to operating safe, environmentally compliant facilities. That's why our teams constantly monitor and inspect for potential supplier, equipment and process problems. Since assets are spread around the globe in many types of plants that use various technologies, there is no one-size-fits-all monitoring process. We use a comprehensive reliability systems model to rate equipment and systems in 75-plus areas. The process is tailored to each asset's complexity, technology, maintenance history, as well as the plant type, local regulations and more.

The reliability systems model includes new operational excellence assessments where subject matter experts review site equipment reliability and maintenance processes and practices. Correcting something as small as excessive vibration can prevent equipment failure or a catastrophic event. Assessments will continue through 2018 until all plants have been reviewed, with our ultimate goal being to improve on-stream reliability to 100 percent.

Standard quality management across all businesses and products guides operations and links with local quality control, both important parts of reliable operations. We work closely with clients to understand how they use our products so we are able to maintain high quality standards—from choosing the correct raw materials to effective packaging throughout the product lifecycle.

Our people are critical to reliable operations, so reliability is instilled in our culture. We continue to improve how we collaborate as a global technical community, helping each other solve difficult challenges.



### PREPARED FOR CRISIS

There is always the possibility that one of our facilities or surrounding areas will be affected by natural disasters, criminal acts or product recalls. Our crisis management plan defines roles, functions, teams and processes to implement in case of a crisis. It augments our emergency response plan, giving us the capabilities and the flexibility to respond to the most unexpected situations. Recently, it has been instrumental in at least two incidents involving product theft and a tornado.



# growing

Wherever we grow, we strengthen safety standards, protect the environment and improve communities—making the world a better place.

“Stewardship is our inherent responsibility to all stakeholders—employees, investors, customers and communities. Through our EHS programs, crisis management planning and volunteerism, Celanese is extending our footprint of impact. As we expand, the results of our stewardship efforts multiply with us.”

– Scott Sutton,  
Chief Operating Officer





# GROWING

As we acquire new companies, our stewardship culture expands with us. Our customers appreciate the addition of innovative solution options. Our employees welcome new team members as they share our core values and carry forward the responsibility we all have as stewards of the health and safety of our people and the environment.

## MARKET SECTORS

- Adhesives
  - Aerospace and Defense
  - Agriculture
  - Appliances
  - Automotive and Transportation
  - Building and Construction
  - Chemicals
- Coatings
  - Consumer Goods
  - Electrical and Electronics
  - Energy
  - Fluid Handling
  - Food and Beverage
  - Industrial
- Medical and Pharma
  - Oil, Gas and Mining
  - Packaging, Film and Printing
  - Personal Care and Cosmetics
  - Sporting Goods and Footwear
  - Textiles, Fibers and Filtration

## 2016 FINANCIAL HIGHLIGHTS

As one of our growth strategy imperatives, stewardship efforts reflect in the company's sales, earnings per share and other financial highlights.

Adjusted EBIT margin:

23.7%

Operating cash flow:

\$893 million

Net sales:

\$5.4 billion

Adjusted EPS:

\$6.61

Adjusted free cash flow:

\$623 million

### SO.F.TER. GROUP JOINS CELANESE TEAM

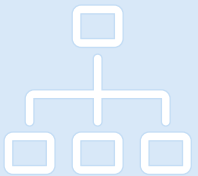
SO.F.TER. Group became a part of Celanese in 2016. The Italian thermoplastic compounder has established a reputation of providing specialty engineering thermoplastics and thermoplastic elastomers for the automotive, construction, appliance, footwear and sports sectors. These "soft materials" are new to our portfolio of mostly hard thermoplastics and enable us to solve a range of customer challenges. Teams of Celanese and SO.F.TER. individuals working in manufacturing facilities in Europe and the Americas have already made great strides in teaching and adopting our established environmental, health and safety culture and processes. SO.F.TER. will form an integral part of Celanese in a way that builds upon its vibrant entrepreneurial spirit.



### SOLVING CUSTOMER CHALLENGES

Our vision is to be the first-choice chemistry solution source for our customers. As customers continue coming to us first, we will continue to grow globally. To achieve this vision, we must continually enrich our products, capabilities and markets. In the materials and chemicals industries, the most successful companies are those that can solve problems more efficiently for their customers.

We work with every company we acquire to reach the high stewardship bar we set for ourselves. By adopting our stewardship culture and processes, these companies improve—from becoming safer and having less environmental impact to creating rewarding employee work environments and bettering the communities where they work and live. The passion we all have for what we do shows in our well-managed plants. Our safety record is also a testament to a culture where everyone looks out for one another.



### CELANESE ACQUIRES NILIT PLASTIC'S NYLON COMPOUNDING DIVISION

In mid-2017, the nylon compounding division of Nilit Plastics became the newest addition to our company. This acquisition adds a portfolio of nylon compounds new to Celanese that are used by many of our existing customers in the automotive, electrical and electronics, consumer goods and industrial industries. Nilit's high-quality portfolio of specialty compounds excels in thermal management and strength, two of the most prized attributes of thermoplastics materials. In addition, Nilit operates extremely well-invested, state-of-the-art facilities in Germany and China under a rigorous management system that will easily integrate into our established environmental, health and safety culture and processes.









Recent acquisitions of SO.F.TER. Group and Nilit Plastic's nylon compounding division are growing the Celanese engineered materials portfolio to include materials for field turf infill, footwear and various kitchenware products.

Our turf infill products are designed free from hazardous substances sometimes present in the recycled materials often used as infill.



# RECOGNIZED

While our efforts are to be better stewards and create an even better world, industry organizations and government agencies often recognize our efforts. This recognition is a valued pat on the back for the hard work from each employee. We are truly better together.

2017 ENVIRONMENTAL HEALTH & SAFETY RECOGNITION				U.S. Environmental Protection Agency ENERGY STAR Partner of the Year	 Association of International Chemical Manufacturers Responsible Care Chairman Award
	American Chemistry Council Responsible Care® Energy Efficiency Award  – multiple facility safety awards	Singapore Chemical Industry Council Excellence Award for Environment, Health and Safety  – third consecutive year of achieving a Gold standard		U.S. Department of Energy Better Buildings, Better Plants Challenge recognition	
2016 ENVIRONMENTAL HEALTH & SAFETY RECOGNITION				U.S. Environmental Protection Agency ENERGY STAR Partner of the Year	American Chemistry Council Energy Efficiency Award winner for Celanese program (exceptional merit) and Narrows Powerhouse replacement (multiple facility safety awards)
	China Petroleum and Chemical Industry Federation Award, Nanjing energy reduction	ISO - 50001 Energy Management Certified 3 German Sites		Recognition and Appreciation Award from the China Petroleum and Chemical Industry Federation (CPCIF)  – for contribution and engagement in China's economic growth and green development initiatives	

# GUIDE 5

## EHS Policy & Guiding Principles

### EHS POLICY

Celanese is committed to protecting the environment, preserving the health and safety of our employees, contractors and communities, and ensuring the safe operations of our processes. We believe in an inter-dependent culture where safety is considered a core value and employees and contractors are encouraged to demonstrate behavior consistent with this belief. When safety is a core value, it is part of everything we do, at work and at home with our families.

At Celanese, driving our safety culture is everyone's responsibility, and we expect our leaders to create an environment where unsafe situations are not acceptable and acted upon. In our effort to continuously improve environmental, health, safety and process safety performance, we use leading metrics and apply established science and state of the art programs.

### GUIDING PRINCIPLES

Celanese bears full responsibility for its environmental, health, employee safety, process safety and product stewardship performance standards. Our management and all of its employees and contractors adhere to the following Guiding Principles. We will:

#### TAKE LEADERSHIP ACTIONS:



- Take clear leading actions to prevent injuries, accidents and incidents
- Implement and escalate incident management and crisis communications processes
- Execute environmental stewardship programs to achieve world-class efficiencies in energy, waste management, air emissions and water use
- Establish aggressive EHS goals, objectives and targets

#### OPERATE IN COMPLIANCE:



- Comply with laws, regulations and permits globally
- Conduct effective audits to ensure compliance with laws, regulations, and Celanese policies, procedures and standards

#### DEVELOP EFFECTIVE MANAGEMENT SYSTEM AND PROCEDURES:



- Implement effective management systems to ensure compliance and manage risk associated with EHS, process safety, security and product safety requirements
- Foster interdependent EHS culture that drives accountability for safe work practices and responsible environmental conduct

#### OPERATE SAFELY AND RELIABLY:



- Design and operate our facilities safely and minimize the potential for adverse impacts on human health, the environment and communities where we operate
- Implement robust mechanical integrity programs to ensure reliable and safe operations of our manufacturing assets globally

#### MANAGE RISK:



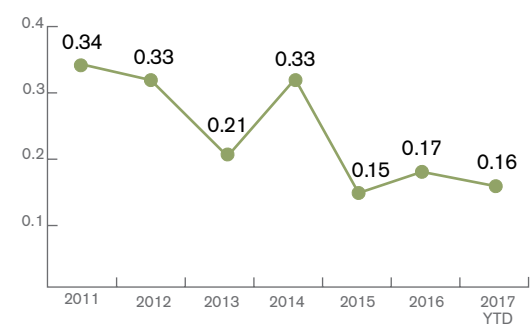
- Utilize sound science methodologies and recognized industry standards to define and manage significant risks from our activities and our products
- Produce and sell products that can be manufactured, distributed, used and disposed of in a safe, suitable and compliant manner
- Openly communicate hazards of our products and activities with stakeholders while sharing methods for EHS protection



# METRICS

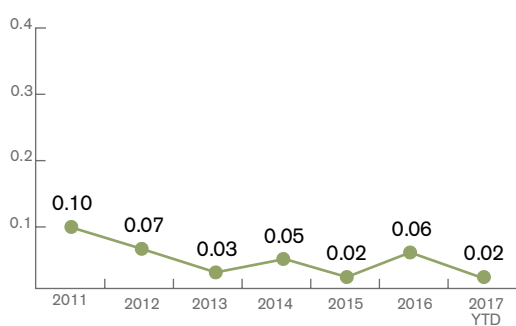
OSHA total recordable incident rate represents the number of total recordable injuries per year, per 100 employees working a 40 hour work week. For example, a rate of 1.0 for a company of 1,000 employees and contractors represents 10 OSHA recordable injuries that year. Lost Time incident rate measures more serious injuries where the worker was not able to return to work the next day due to their injury.

Employee & Contractor Total Recordable Incident Rate



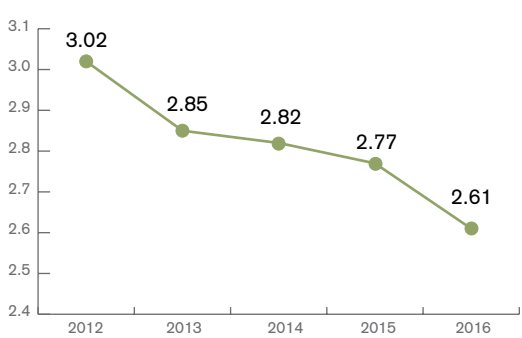
Celanese has demonstrated industry leading occupational safety performance with top decile results in employee and contractor total recordable incident rates.

Employee & Contractor Lost Time Incident Rate



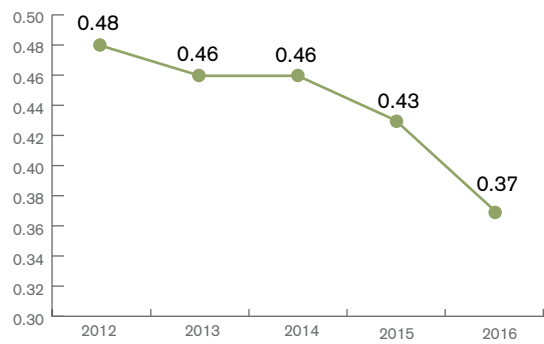
Celanese has demonstrated industry leading occupational safety performance with top decile results in employee and contractor lost time incident rates.

Energy Intensity, MBTU/lb



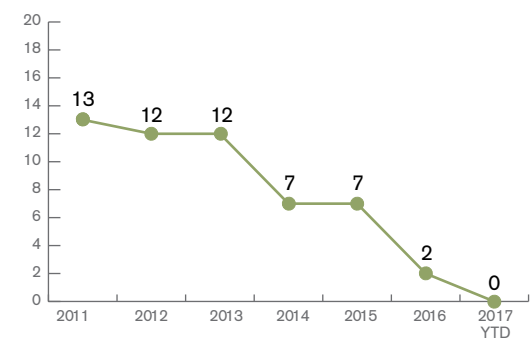
Celanese has reduced energy intensity by more than 13% from 2012, and by 6% from 2015 to 2016.

Greenhouse Gas Intensity, MT/MT



Celanese has reduced greenhouse gas intensity by more than 20% from 2012, and by more than 10% from 2015 to 2016.

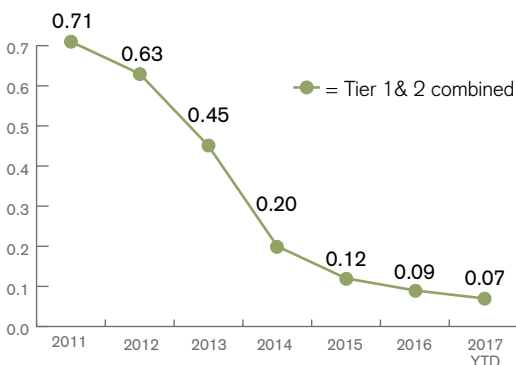
Major\* & Significant\*\* Environmental Releases



Celanese has demonstrated continuous environmental performance improvement as measured by the release to the environment metric.

\* Major: quantity of chemical which enters the environment and reaches 100% of the Reportable Quantity within any 24 hour window  
\*\*Significant: quantity of a chemical which enters the environment and reaches 15% of the Reportable Quantity within any 24 hour window. In the chart above, Significant environmental releases is inclusive of Major environmental releases.

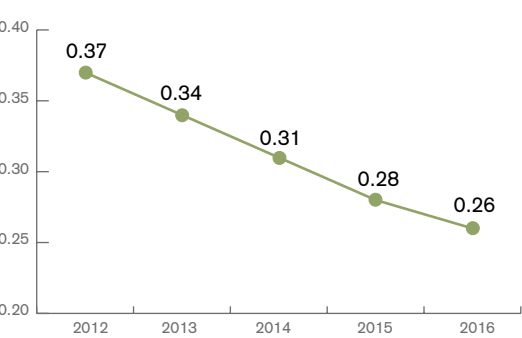
Loss of Primary Containment



Celanese has continuously improved process safety performance reducing incidents by 87% over the last 5 years.

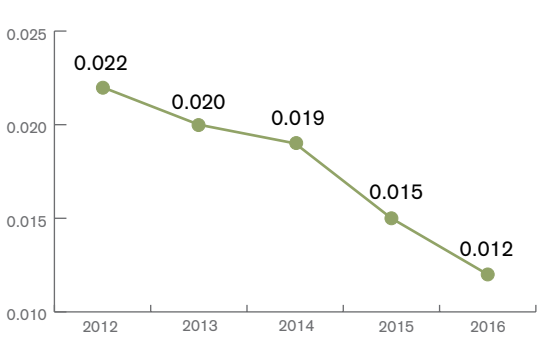
The process safety incident rate is calculated consistent with the industry standard API-RP-754 and therefore allows us to compare performance to other companies that use this standard. Similar to the OSHA total recordable incident rate, it represents the number of incidents per year, per 100 employees working a 40 hour work week. Tier 1 & 2 represent the severity of incidents.

Volatile Organic Compound Intensity, MT/MT




Celanese has reduced VOC intensity by approximately 30% from 2012, and by 7% from 2015 to 2016.

Solid Waste Intensity, MT/MT



Celanese has reduced solid waste intensity by more than 45% from 2012, and by 20% from 2015 to 2016.



A young girl with brown hair is captured mid-jump, diving into the ocean. She is wearing a blue and white patterned one-piece swimsuit with pink trim. Her hair is flying around her head, and she has a joyful expression. The background is a clear, vibrant blue sky. Water droplets are visible in the air around her, and a splash is seen at the bottom of the frame where she is entering the water.

At Celanese, we have a multi-faceted approach to stewardship. We focus on continuous improvements and safe behaviors because we care about our employees, our communities and our environment.

Ours is a stewardship that makes a difference, a human difference.