

Enriching lives through innovation





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he chemical industry plays a key role in moving toward a circular economy, a regenerative economic system that eliminates waste and reduces use of vital natural resources.

One in which trash is removed from landfills and waterways and transformed into consumer goods people use every day. Where manufacturers adopt a new mindset to generate less waste and develop new ways to prevent its creation in the future. In our operations today, we're revising manufacturing processes to reduce energy use and CO₂ emissions and to recycle waste byproducts. We're also developing new chemistries to use waste as a resource or to eliminate waste altogether. In this report, we share how we're already moving from a linear "cradle to grave" approach toward a circular mindset that transforms, reduces and eliminates waste and moves us closer to a more sustainable future.

A Letter from the Chairman, President and Chief Executive Officer



his year, our sustainability report focuses on the transition toward a circular economy and how that is impacting the direction of our business. The past two years have seen many geopolitical, economic and environmental challenges, from conflicts in the Middle East and political turmoil in parts of Latin America to trade tariffs between the United States and China and the European Union (EU), to unease in Europe over Brexit and other weaknesses among the EU member states. Storms, droughts, wildfires and record temperatures (both high and low) reveal our fragile environment.

Society is more aware than ever of mankind's impact on the environment due to pollution and emissions, including issues such as plastic waste in the oceans and greenhouse gas emissions resulting in climate change.

All these reasons bolster our commitment to ensure our business is robust and resilient to weather these economic and environmental conditions, while becoming part of the solution to meeting society's needs and being good environmental stewards. We see chemistry as a driving force to help society meet the most pressing challenges of our time, and we look for opportunities where our products and innovations will meet the world's growing needs driven by macro-economic trends around demand for food, water and reduced emissions across all sectors.

That's why we are developing a circular mindset in our business. In a circular economy, there is emphasis on resource conservation; sustainable, renewable sourcing and energy; durability and maintainability of goods; recycling and reprocessing; energy recovery; emissions and waste reduction; upcycling materials and designing out waste. In this report, we highlight the ways we are currently addressing some of these aspects of circularity and how it will be a key component in our strategy going forward. This year's report also features both 2018 and 2019 reporting data, as we are publishing earlier in the year to more closely align with our financial reporting cycle and ahead of annual environmental, social and governance (ESG) ratings.

In 2018, we formally announced our strategy to grow our downstream differentiated business portfolio. We completed the sale of our upstream chemical intermediates and surfac-

tants businesses to Indorama Ventures in early January 2020, a transformational transaction moving us farther away from the production of upstream petrochemicals and closer to the actual consumer of everyday products that rely on our specialty formulations for their creation. We intend to stay focused on product innovation and development, particularly in markets that aim to improve energy efficiency and lightweighting.

> In 2019, we launched our refreshed corporate environmental, health and safety (EHS) strategy, called *Horizon 2025*, which sets global targets for our environmental, safety

and sustainability goals over the next six years. Together, these two strategies form the blueprint for our business going forward.

We have a plan in place to become a more sustainable business. Moving to a circular economy is a journey, as it may take years, even decades, to transform our processes and innovate new technologies to eliminate waste. But we believe it's important to get started.

Peter R. Huntsman Chairman, President and CEO

A Letter from the Corporate Sustainability Officer



untsman continues a strong health, safety and environmental record, and we are proud of our safety performance over the past two years. In 2018, we had record lows for the number and frequency of accidents and injuries within our operations. Our process safety performance was also the best recorded since we introduced consistent and well-defined measures of success in this area. Our 2019 performance in these key safety areas was amongst our best.

Our environmental footprint is being transformed as a result of our restructuring, which included the 2017 separation of our Pigments and Additives division by IPO, followed by the sale of our upstream chemical intermediates and surfactants businesses in January 2020.

The introduction of our *Horizon 2025* targets (see page 5) will provide focus across Huntsman for further environmental improvements within our operations. We've set specific targets that we will use to gauge our

health and safety performance. We are committed to eliminating Tier 1 process safety incidents and life-impacting injuries and fatalities. We're also targeting 10% reductions in greenhouse gas emissions and energy consumption and 5% reductions in hazardous waste and solid waste disposal and net water usage at our facilities in water-stressed regions of the world.

In 2018, Huntsman obtained its first global rating from EcoVadis, a sustainability rating agency used by many leading companies for supply chain sustainability assessments. We also participated in the Carbon Disclosure Project for the first time. As a result, we have seen our environmental, social and governance (ESG) ratings improve with sustainability research and rating agencies MSCI and Sustainalytics. We continue to explore ways to better meet the increasing demands of our investor community for comparable, consistent and quantifiable ESG information. These thirdparty verifications speak to our commitment to excel in these areas.

Our *Horizon 2025* targets will provide focus for further environmental

improvements

We have continued to work to ensure our corporate policies, procedures and guidance documents align with the United Nations Global Compact (UNGC) and submitted our 2019 communication on progress (CoP) to the UNGC. Our 2019 CoP is included in this report on page 10.

We are committed to the principles of the Global Reporting Initiative (GRI) to provide regular, reliable and transparent reporting on our sustainability performance. In 2019, we completed our first materiality assessment for sustainability with

important input from key stakeholders – our customers, investors, communities and associates – to identify the most significant areas of focus for our strategy and planning going forward. We have also worked to achieve a GRI-compliant annual sustainability report, with this report following the latest GRI Standards framework.

We continue to look for ways to elevate our sustainability reporting to better meet the needs of our stakeholders. We appreciate your comments, feedback and questions about our sustainability program via sustainability@huntsman.com. Your input is important.

Ron Gerrard Corporate Sustainability Officer



1 A key element of our commitment to the Responsible Care® Product Safety Code

- 2 Measured year over year
- 3 Per unit of production

A Letter from an Independent Board Director



s the CEO of a large chemical company and current president of CEFIC, the European Chemical Industry Association, I see firsthand the priority role the chemical industry has in helping nations around the world achieve sustainable development goals.

The world's population will increase by another one billion by 2030, bringing with it an increased demand for energy, goods and food ... and consequently greenhouse gas emissions, waste and pollution. As more than 95% of all manufactured goods are touched by chemistry in some way, our sector must play a leading role in responding to this growth.

In this scenario, the chemical industry faces two big challenges: contribute to the development of innovative solutions to meet increasing demand and help manage this growth by providing technologies that valorize waste. Waste can no longer be thought of as a problem, but rather as an available resource.

The implementation of a circular model is a necessary evolution of our economic system. By incorporating such concepts as reuse and recycle into the production and consumption phases of goods, circularity encourages both more efficient use of resources and the use of alternative feedstocks to enable the continuous reduction of carbon footprint and conscious consumer patterns.

Adopting a circular economy model is not only linked to the resolution of environmental issues, but is also fundamental from a competitive point of view for those who see it as an opportunity to enable further economic growth and job creation. Such a complex issue needs to put in place powerful global alliances to develop practical initiatives. Producers of raw materials, converters, brand owners, recyclers, consumers and institutions must work together to create truly valuable solutions for society – today's and, especially, tomorrow's.

As our industry is getting its mind around the challenges of transition towards the circular economy model, the Huntsman board of directors is committed to seeing Huntsman at the forefront of innovation in technologies to achieve a sustainable future. We intend the company to be responsive in offering the world more valuable products to improve life and to face global environmental issues.

Daniele Ferrari Huntsman Board of Directors CEO Versalis (Eni)



Board of Directors

Huntsman's highest governance body is our board of directors. Seven of its eight members are independent or "non-executive." Peter Huntsman serves as the president and chief executive officer of the company and chairman of the board. As of the issuance of this report, the board was structured as follows:



Peter R. Huntsman President, Chief Executive Officer and Chairman of the Board

Daniele

Ferrari

Director



Nolan D. Archibald Vice Chairman of the

Board, Chairman of the Nominating and Corporate Governance Committee and Lead Independent Director

Sir Robert J.

Margetts

Director



Dr. Mary C. Beckerle Director

Wavne A.

Reaud

Chairman of the Litigation

Committee, Chairman

of the Compensation

Committee and Director



M. Anthony Burns Chairman of the Audit **Committee and Director**

Vice Admiral

Jan Tighe,

US Navy

Retired

Director

Independent Committees of the Board

The board appoints members to its independent Audit, Compensation and Governance committees. Each of these committees has a written charter approved by the board and available on the company's website. Independent directors currently comprise in full the membership of each of these three board committees.

Audit

M. Anthony Burns, Chair Dr. Mary C. Beckerle, Daniele Ferrari, Sir Robert J. Margetts, VADM Jan Tighe

Compensation

Wayne A. Reaud, Chair Nolan D. Archibald, Daniele Ferrari

Nominating and Corporate Governance Nolan D. Archibald, Chair Dr. Mary C. Beckerle, M. Anthony Burns, Sir Robert J. Margetts

Sustainability Council

Led by Corporate Sustainability Officer Ron Gerrard, the council comprises senior representatives from the company's divisions and key functions. The council directs development of the corporate sustainability program and cultivates a common framework for sustainability, ensuring strategic alignment among the divisions, functions and executive team, led by Peter Huntsman. As of the issuance of this report, the council was structured as follows:



Ken Allinson **Global Sustainability** Coordinator



Rajiv Banavali Vice President, Research and Technology, Textile Effects



Gary Chapman Vice President, **Global Communications**



Twila Day Vice President and Chief Information Officer



David Nutt **Director, Legal Services**



Ralph DiGuilio Vice President, Global R&D, Performance Products



Amy Smedley Vice President and **Deputy General Counsel**



David Hatrick Vice President, Innovation Advanced Materials



Mike Whisson Vice President, **Global Purchasing**



Ivan Marcuse Vice President, **Investor Relations**



Bill McPherson Global HR Director, **Corporate Functions**



Payneet Mumick **Global Vice President** Technology & Innovation, Polyurethanes







untsman is a global, downstream, differentiated and specialty chemicals company. For 50 years, we have been using science and ingenuity to innovate products that enable more sustainable and comfortable lives for millions of people around the world. Our more than 9,000 associates work in approximately 30 countries. Through our four divisions, we serve a broad and diverse range of consumer and industrial end markets, including energy and fuels, transportation, construction, clothing and footwear, food preservation and aerospace.

Divisions

POLYURETHANES is a leading global producer of MDI¹-based polyurethanes focused on formulating innovative, differentiated products for key downstream markets including energy-saving insulation, lightweighting and performance materials for automotive, comfort foam for bedding and furniture, protective coatings, adhesives and elastomers for footwear.

ADVANCED MATERIALS provides specialty epoxy, acrylic and polyurethane-based polymer resin systems and adhesive products, which are replacing traditional materials in aircraft, automobiles and electrical power transmission. These products are also used in coatings, construction materials, circuit boards and sports equipment.

PERFORMANCE PRODUCTS manufactures a wide variety of chemical products that provide important properties in everyday items people want and need. The primary product categories of amines and maleic anhydride are used in coatings and adhesives, fuels and lubricants, urethane catalysts, composites, oilfield technology, gas treating and epoxy curing.

TEXTILE EFFECTS is a major global solutions provider of textile dyes, textile chemicals and digital inks that enhance color and improve fabric performance such as wrinkle resistance, faster drying properties, and water- and stain-repellence in apparel, home and technical textiles.

WHERE WE ARE LOCATED

Countries where we have operations relevant to the topics covered in this 2019 report are:

- Argentina
- Australia
- Belgium
- Brazil
- Canada
- China
- Colombia
- Germany
- Guatemala

- HungaryIndia

 - Italy
 - Mexico
 - New Zealand
 - Russia
 - Saudi Arabia
- Singapore
- Spain

EMPLOYMENT DATA (as of Dec. 31, 2019)

- Switzerland
- Taiwan
- Thailand
- The Netherlands
- Turkey
- UAE
- United Kingdom
- United States
- Vietnam

Highlights Since Our Last Report

- Published our *Horizon 2025* corporate environmental, health and safety strategy, establishing targets for our personal and process safety and environmental performance over the next six years. Together with our downstream business strategy announced in 2018, *Horizon 2025* is a key element of the downstream blueprint for our business.
- Agreed to sell our chemical intermediates and surfactants businesses to Indorama Ventures, significantly reducing our upstream footprint. The divestiture was completed on January 3, 2020.
- Following the 2018 acquisition of Demilec, one of North America's leading manufacturers and distributors of spray polyurethane foam (SPF) insulation systems, we announced our intention to acquire lcynene-Lapolla, nearly doubling the size of our existing SPF insulation business and moving Huntsman farther downstream. The transaction was completed on February 20, 2020.
- Opened a new polyurethanes systems house in Dubai, UAE, strengthening our downstream capabilities in the Middle East and North Africa. The site serves as the regional base for Demilec's SPF business.
- Daniele Ferrari, CEO of Versalis and President of the European Chemical Industry Association (CEFIC), and Vice Admiral Jan E. Tighe, United Sates Navy Retired, joined as independent members of the Huntsman board of directors. Seven of the board's eight directors are independent.

Region	Male	Permanen Female	ıt Total	Temporary ² Total	Male	Full-Time Female	e Total	Male	Part-Time Female	
Americas	2,883	836	3,719	718	2,875	830	3,705	8	6	14
Asia Pacific	2,295	1,011	3,306	261	2,293	1,002	3,295	2	9	11
Europe, Africa, Middle East	2,401	902	3,303	492	2,345	718	3,063	56	104	240
Totals	7,579	2,749	10,328	1,471	7,513	2,550	10,063	66	119	265

1 MDI: methylene diphenyl diisocyanate

2 Information on gender is not tracked for temporary workers.

Huntsman works to ensure our corporate policies, procedures and guidance documents align with the Ten Principles of the United Nations Global Compact. The table below identifies relevant Huntsman policies, procedures, systems and actions that illustrate our progress.



Principles	Huntsman Policies and Procedures	Systems and Actions
Human Rights Principle 1 Support for human rights Human Rights Principle 2 Elimination of human rights violations	Since 2012, our Business Conduct Guidelines (BCG) make specific reference to the UNGC and our commitment to operating under its standards in all communities where we do business. In addition, Huntsman's Vendor Code of Conduct applies to all vendors and their employees, agents and subcontractors. See also: Huntsman Human Rights Policy	 Corporate Ethics and Compliance (E&C) department reports human rights performance quarterly to the Audit Committee of the board of directors. "Speak Up" confidential reporting service for reporting concerns International Trade Compliance risk assessments for at-risk countries Pre-qualification due diligence of vendors with high-risk profiles Periodic due diligence review of high-risk vendors and all distributors
Labour Principle 3 Ensuring freedom of association	We are required by US law to ensure this right and to post this right in view of associates.	• 49% of Huntsman employees are covered under collective bargaining agreements, including both union and works councils.
Labour Principle 4 Abolition of all forms of forced labour Labour Principle 5 Abolition of child labour	In every region of the world, our Human Resources department is charged with ensuring that direct-hire Huntsman associates have necessary and legally required documentation to establish identity, legal age and work status. See also: Huntsman Human Rights Policy	 Standard contract documents require each vendor to agree to child and indentured labor clauses. Periodic E&C combined policy audits conducted for selected Huntsman sites include audits on human rights, child labor and forced labor.
Labour Principle 6 Elimination of discrimination	Huntsman upholds its Policy Against Discrimination, Including Harassment and Retaliation.	 E&C training Instructor-led training on Huntsman values is conducted in identified focus areas. Harassment in the Workplace online training US Purchasing groups offer technical assistance for small or disadvantaged businesses in preparing and submitting bids to Huntsman.
Environment Principle 7 Precautionary environmental protection	Huntsman's Product Stewardship Standard EHS-700 outlines global requirements to ensure responsible management of EHS issues relating to Huntsman products throughout their lifecycles. Huntsman's Environmental Standard EHS-600 outlines global requirements to identify and minimize the environmental impact of our operations and strive for continuous improvement.	 Product EHS Group actively manages product risk and is responsible for safety data sheets and REACH compliance. All Huntsman facilities are required to identify, quantify and minimize energy use and air, water, and waste releases from routine operations. Management of Change (MOC) procedures at most facilities require consideration of environmental impacts for new projects and changes in processes.

Principles	Huntsman Policies and Procedures	Systems and Actions
Environment Principle 8 Initiatives to promote greater environmental responsibility	On our website, www.huntsman.com, we publish our EHS Vision, EHS Protection Policy, EHS Vision and Policy Objectives, and Seven Strategic Focus Areas. Also, seven Global EHS Standards and a number of supporting procedures, in line with Responsible Care [®] , form the basis for our environmental management system. See EHS-600. In 2019, we published our first global targets on improving personal and process safety, and environmental performance. <i>Horizon 2025</i> sets production intensity targets in greenhouse gas emissions (GHGs), energy consumption, hazardous waste and total solid waste disposal and net water usage.	 In 2019, we began reporting SOx and NOx emissions to add greater detail to our overall air emissions figures reported previously. Membership in the Roundtable on Sustainable Palm Oil (RSPO) since 2011 Founding Bluesign® system partner to promote responsibility throughout the textiles value chain Contributor to Zero Discharge of Hazardous Chemicals (ZDHC) since 2019 to support the transition to a more sustainable and safer textile industry 29 sites certified to ISO 14001 8 corporate process safety management (PSM) audits in 2019 9 corporate EHS audits and 2 corporate EHS assessments in 2019 Community Advisory Panels (CAP) at major facilities Periodically we launch the Chief Executive's Award for Innovation in Sustainability and encourage entries from our associates globally. Most recently, the awards were granted in 2019.
Environment Principle 9 Development and diffusion of environmentally friendly technologies	In our EHS Policy and Commitment, our policy is to place care for human health, safety and the environment at the forefront of everything we do, and our mission is to provide products and solutions through the application of science that enrich lives and help create a sustainable future, while doing no harm to people or the environment. As a member of the American Chemistry Council (ACC), we support ACC's sustain- ability principles that commit to achieving measurable reductions in emissions and creating innovative products for a sustainable future and societal benefits.	 We recycle PET waste as a raw material in polyols, which are used to produce energy-saving polyurethane insulation. Since 2015, Huntsman recycled the equivalent of roughly five billion PET bottles. R&D efforts to improve low-VOC products Lightweight materials for automotive and aerospace sectors Energy-saving insulation for buildings and refrigerated transport Since 2016, we actively eliminated PFOA (C8) chemicals from our Textile Effects portfolio and are supporting the industry transition from PFC-chemistries to non-fluorinated alternatives. Our Textile Effects business is actively supporting the conversion from traditional to digital printing, reducing resource consumption. AVITERA[®] SE dyes reduce water consumption in textile manufacturing by up to 50%. In 2018 alone, our dyes helped save roughly one billion liters of water for customers.
Anti-Corruption Principle 10 Measures against corruption	Corporate E&C department oversees and supports our compliance with relevant laws, regulations and related Huntsman policies worldwide. See also: Huntsman Business Conduct Guidelines, Vendor Code of Conduct, Gifts & Entertainment Policy	 Reminders to employees plus an array of tools for reporting (3rd-party-run hotline, website, dedicated mailbox), investigating, tracking and correcting reported concerns We report statistics to the officers and senior leaders monthly and present detailed overviews to the board of directors quarterly. Periodic due diligence evaluation of vendors against a risk matrix to confirm compliance with all applicable laws, regulations and Huntsman policies Regular periodic audits of Huntsman sites





Technology for the manufacture of athletic shoes enables single-injection bonding of the midsole to the outsole and upper. Solvent-free adhesive creates flexible packaging in a healthier, more efficient and more sustainable way. or many years, Huntsman has been improving our operations and developing innovative products to enable a more sustainable world. That's why in 2011 we created the Chief Executive's Award for Innovation in Sustainability. It is a way for us to recognize our employees for changing the way we work and the products we develop to make a sustainable long-term impact and to encourage them to do more to address the world's most pressing challenges.

Over the past nine years, we have received more than 170 submissions from project teams across the globe. They highlight the ways our employees are reducing the environmental impacts of our operations, developing products that help reduce emissions and energy use and save precious natural resources, all while helping to improve the bottom line of our company and create savings for our customers and the end users of their products.

In 2019, Huntsman launched its 5th Chief Executive's Award for Innovation in Sustainability. We received 37 submissions highlighting projects that support the three pillars of sustainability – people, planet and profit.

Led by Chairman, President and CEO Peter Huntsman, the judging panel included: Corporate Sustainability Officer Ron Gerrard; Vice President and Deputy General Counsel Amy Smedley; and guest judge Enrico Frizzera, CEO of the Manni Group in Italy, a leader in high-tech steel products and design innovations.

Huntsman's Polyurethanes division teams from across the globe won Top Honors and three Highly Commended recognitions for their innovations in sustainability.

TOP HONORS

TEROL® POLYOLS CREATE ENERGY-SAVING INSULATION FROM WASTE PLASTIC BOTTLES

Through a proprietary process, severely distressed PET plastic bottles that otherwise would have been destined for landfills or found their way into our oceans are upcycled into TEROL[®] polyester polyols. These polyols are a key component in energy-saving spray polyurethane foam, produced by Huntsman subsidiaries Demilec and lcynene-Lapolla. Annually, the equivalent of more than one billion plastic bottles is upcycled. See the full story on page 21.

HIGHLY COMMENDED

DALTOPIR[®] INSULATION FOAM SYSTEMS REDUCE FOSSIL FUEL USE AND CO₂ EMISSIONS

These patented insulation foam systems deliver optimal fire and smoke properties without compromising energy efficiency and cost. The self-supporting, fire-resistant insulation panels enable buildings to be erected faster. Their long-term durability minimizes use of natural resources, while their excellent thermal performance reduces fossil fuel use and CO_2 emissions.

SINGLE-INJECTION BONDING TECHNOLOGY SAVES ENERGY AND ELIMINATES SOLVENTS

This novel polyurethane technology for the manufacture of athletic shoes enables single-injection bonding of the midsole to the outsole and upper. The technology reduces production steps from eight to two, saves energy, eliminates solvents and halogen-containing glues to improve worker safety, and enables the production of sports shoes that are lightweight, more comfortable and longer lasting.

SPEEDLAM[™] VOC-FREE ADHESIVE FOR FLEX PACKAGING IS HEALTHIER AND MORE SUSTAINABLE

A new generation of solvent-free polyurethane adhesive can be used to create flexible packaging in a healthier, more efficient and more sustainable way. Compared to traditional flexible packaging adhesives made using solvents, SPEEDLAM[™] adhesives are free from volatile organic compounds, making them safer for workers in flexible packaging factories. The adhesives can be processed at a faster rate for greater production efficiency and deliver exceptional bonding performance. The potential benefits are great. In China alone, approximately 600 billion flexible packets are produced for food and beverages, household and personal care products.

Field/Performance Indicator	Unit	2019	2018	2017
Economy				
Revenues	\$million	6,797	7,604	6,845
Net Income	\$million	598	650	741
Adjusted Net Income ¹	\$million	353	642	519
Adjusted EBITDA ¹	\$million	846	1,161	1,040
Capital Expenditures	\$million	274	251	234
Free Cash Flow ¹	\$million	389	454	472
Income Tax Benefit (Expense)	\$million	38	(45)	(20)
Total Products/Co-Products ²	million tonnes	7.19	7.52	7.21
Environmental Reserves ³	\$million	4	5	19
EHS Capital Expenditures	\$million	42	32	32
Debt	\$million	2,389	2,320	2,298
Net Debt ⁴	\$million	1,864	1,980	1,817
Equity	\$million	2,824	2,749	3,371
Environment ⁵				
Total Energy Consumption	terajoules (TJ)	39,141	44,163	43,439
Total Greenhouse Gas (GHG) Emissions	mmt CO ₂ e	2.78	2.69	2.58
Total Air Emissions ⁶ (excluding GHG)	tonnes	3,488	3,807	4,091
Total Water Discharge (Chemical Oxygen Demand)	tonnes	6,170	6,593	6,374
Total Nonhazardous Waste	tonnes	614,251	310,578	295,855
Total Hazardous Waste	tonnes	140,118	150,539	142,590
Society				
Regular Full-Time Associates		10,063	10,453	9,919
US-Based Associates		2,931	3,003	2,764
Non-US Associates		7,132	7,450	7,155
Contractors ⁷	FTE	1,471	1,378	5,338
Total Recordable Incident Rate		0.49	0.35	0.38
US Chemical Industry Average ⁸		TBD	1.9	2
Fatal Work-Related Accidents (Associates)		0	0	C
Fatal Work-Related Accidents (Contractors)		0	0	C

Note: The Chemical Intermediates and Surfactants businesses sold to Indorama Ventures on January 3, 2020, are treated as discontinued operations in all periods shown.

1 Reconciliations of non-GAAP measures to GAAP are provided on pages 41-46 of our annual report on Form 10-K for the year ended December 31, 2019, as filed with the SEC on February 13, 2020.

2 Based on US regulations, co-products are defined as materials that are produced intentionally during the production of another chemical and which, in their existing state, are ordinarily used as commodities in trade by the general public. For more information, see 50 Fed. Reg. 625 (January 4, 1985); 40 CFR § 261.1(c)(3).

3 Pursuant to SEC regulations, the company accrues liabilities (reserves) relating to anticipated environmental cleanup obligations, site remediation/reclamation and closure costs, and material monetary sanctions (i.e., enforcement penalties), which are recorded and can be reasonably estimated.

4 Net Debt calculated as total debt, excluding affiliates, less cash of \$525 million, \$340 million and \$481 million in 2019, 2018 and 2017, respectively. Net Debt does not include the approximate \$1.6 billion of net cash proceeds received associated with the sale of our chemicals, intermediates and surfactants business on January 3, 2020.

5 Environmental data is based on 72 manufacturing facilities reporting emissions and energy data.

6 Air emissions are releases of volatile organic compounds (VOCs), carbon monoxide (CO), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter and other contaminants.

7 Number of Full-Time Equivalents (FTE) based on annual reported hours worked by contractors in our safety statistics program and 2,000 hours per FTE.

8 The Bureau of Labor Statistics is expected to publish the 2019 rate by November 2020.

Innovating Toward a Circular Economy

Transform

Reduce

Eliminate

he traditional model of production and management of resources, products and services promotes shortterm consumption. And that leads to a lot of waste. A circular economy moves away from the traditional "take, make and dispose" economic model to one that is regenerative by design. The goal is to retain as much value as possible from resources, products, parts and materials to create a system that allows for longer life, optimal reuse, refurbishment, remanufacturing and recycling. It presents a huge potential for global economic growth and will help move society toward a sustainable future.

Huntsman is working to incorporate circularity into our manufacturing processes to make our operations more sustainable. One of the ways we're doing this is by reducing waste, recycling it and finding better ways to not create it in the first place. We're also developing new technologies to transform waste into something of value.

> Over the next few pages, we highlight some of the ways our circular mindset is helping us to transform, reduce and eliminate waste.

Guided by our support of the United Nations Sustainable Development Goals, Huntsman creates products and innovations to help solve some of the world's most pressing challenges.



ZERO HUNGER

- Polyurethane fertilizer encapsulation improves crop yield and reduces environmental impact.
- MDI¹-based polyurethane systems produce lightweight, insulated sandwich panels for cold chain food preservation.



GOOD HEALTH AND WELL-BEING

 Scavenger technology reduces emissions from automotive seating foams by a factor of 10 without compromising comfort.



CLEAN WATER AND SANITATION

- AVITERA[®] SE dyes reduce water consumption in textile manufacturing by up to 50%.
- Digital inks reduce water consumption up to 60% for the production of printed textile fabrics.



AFFORDABLE AND CLEAN ENERGY

• Epoxy curing agents, composite resin systems and structural adhesives enable larger, stronger wind blades that maximize energy and withstand weather.



INDUSTRY, INNOVATION AND INFRASTRUCTURE

 Thermoset chemistries extend the lifetime of infrastructure and equipment through more durable coatings.



SUSTAINABLE CITIES AND COMMUNITIES

- District Central Heating (DCH) project in China reduces PM2.5 dust associated with coal-fired electricity generation and improves ambient air standards.
- DaltoPIR[®] fire-rated panels deliver fire and smoke safety properties without compromising energy efficiency and cost.
- Spray polyurethane foam (SPF) insulation is the highest-rated insulant available in the market today.



13 CLIMATE ACTION

RESPONSIBLE CONSUMPTION AND PRODUCTION

- DCH project in China utilizes waste heat to warm millions of homes.
- Waste PET bottles are transformed into TEROL[®] polyols, a key ingredient in energysaving SPF insulation.
- 3D printing technology in the footwear industry eliminates waste by designing it out of the manufacturing process.
- Digital inks reduce water consumption, pollution, energy use, CO₂ emissions and waste.
- MDI binders turn waste rice straw and rubber crumb into raw materials for new products.
- Bio-based technologies enable automotive OEMs to achieve a 9%+ level of bio-based content.

CLIMATE ACTION

- DCH project in China reduces coal-fired power consumption.
- Araldite[®] adhesives and structural composite systems enable lightweighting in automotive and aerospace applications, reducing fuel consumption, energy use and CO₂ emissions.
- Carbonates create better lithium ion battery technology to power electric vehicles.

1 MDI: methylene diphenyl diisocyanate



Transform

One key aspect of a circular economy is taking discarded waste and transforming it into something of value. Huntsman is using waste to make new products and modifying our operations to turn waste streams into usable, environmentally friendly byproducts.



MDI RESIN CONVERTS AGRICULTURAL BYPRODUCT INTO RENEWABLE RAW MATERIALS

or decades, Huntsman has been providing MDI resin binders to help make medium-density fiberboard (MDF), an engineered wood product produced by using waste sawdust and shavings derived from lumber production. MDF is generally denser than plywood and stronger and denser than particleboard, and is widely used in cabinets, doors and floor substrates. Made from recycled wood, its use helps save trees.

Today, Huntsman is supplying a company in California with the resin binder that will enable it to produce the world's first MDF board products made of rice straw.

CalPlant I, LLC, is constructing a facility located in an important rice-growing region. The plant will take approximately 300,000 tons of rice straw per year from 100,000 acres, which is about 20% of the rice planted in California's Sacramento Valley, to make MDF panels with the same performance characteristics as wood-based MDF.

Until 2001, rice straw farmers typically burned off straw left after an annual harvest to prepare for the next growing season. After that practice was banned because of air quality concerns, farmers turned to flooding the fields after the harvest to induce and accelerate decomposition of the rice straw in preparation of spring cultivation. Besides using an estimated 100 billion gallons of incremental water per year to flood the fields, the rice straw decomposition process created methane gas emissions.

The entire process for producing the MDF from rice straw is an example of the transformative environmental impact of a circular economy. Feedstock will come from rice growers located near the plant, reducing fuel consumption and pollution associated with transportation of raw materials. Farmers will have a place to dispose of waste straw, rather than using critical water resources to flood fields after harvest, saving up to 19 billion gallons of water each year. The plant is expected to reduce methane emissions by approximately 62,000 tons annually, the equivalent of removing an estimated 295,000 cars from California's roadways each year. By using the rice straw as an annually renewable raw material, the operation will protect an estimated 4,200 acres of forests – the equivalent of more than one million trees every year.

REIMAGINING THE USEFUL LIFE OF RESOURCES

Through innovation and creativity, Huntsman transforms production waste into new raw materials and discovers second lives for water.

REPURPOSING PRECIOUS WATER SUPPLIES

Through reuse and recycling, Huntsman is extending the useful life of water in parched geographies.

In India, Huntsman is realizing operational efficiencies by finding alternative uses for water. At our Pune site, all treated wastewater is used onsite for landscaping, thereby conserving fresh water. The site has implemented a drip irrigation system, which applies water more directly to soil to reduce losses from evaporation.

Our Baroda site has installed recharge wells that meet regulatory requirements to replenish aquifers with rainwater. At a nearby village school, our associates installed one recharge well that in 2018 recharged an estimated 2,100 cubic meters of rainwater. An additional recharge well was installed in 2019.

In Indonesia, our Gandaria site reduces consumption of fresh water by collecting and using rainwater for onsite landscaping. Like Baroda, it has also installed recharge wells to replenish aquifers with rainwater.



BUILDING CHILDREN'S PLAYGROUNDS FROM SHOE PRODUCTION WASTE

t takes a lot of shoes to meet the demand of India's population of more than 1.3 billion people. As large shoe manufacturers there produce as many as half a million pairs of shoes every day to meet demand, they also generate a lot of production scrap.

As the leading supplier of polyurethanes to the footwear industry, Huntsman is working on a solution to transform post-production waste foam and rubber into a valuable material. Drawing on an established technology for turning car tire rubber waste into athletic tracks and playground surfaces, the company is applying the technology to recycling footwear production waste. By granulating it into small chunks and binding it together with a Huntsman polyurethane-based adhesive into the form of rubber crumb, the shoe waste offers several advantages, including lower density for an even better rubber surface.

It is a promising alternative for shoe manufacturers, who today either collect the shoe production waste and provide it to cement kilns to burn for energy or pay a waste treatment fee to chemically treat pieces of rubber and turn it back into a liquid to make new shoe soles, a longer-term and more costly solution.



To demonstrate the technology, Huntsman built a pilot unit at its Chakan manufacturing site for granulating, binding and producing prototype slabs of rubber crumb. As part of its longstanding support of a local school near the site, Huntsman installed its first demonstration project in late 2019, replacing a mostly dirt and concrete play area with one featuring the granulated rubber. Its smoother, ultraviolet-resistant top layer is a more aesthetic and safer play surface for the 120 children who attend the school.

Besides playgrounds, the rubber waste can be used for communal exercise and recreational spaces and walking tracks, a plus for a densely populated country like India where green space is limited and recycling is a national imperative.

Huntsman is now working to scale up the process. A number of key footwear manufacturing customers have expressed interest in recycling their waste and Huntsman is planning to install the next demonstration project in Calicut, located in the state of Kerala on the southwest coast of India, where many companies have offices and headquarters.

While shoes have a lifespan of six months to several years, rubber crumb surfaces can last up to 10 years, meaning the useful life of the polyurethane is extended by a factor of 10.

The potential of recycling waste to produce rubber crumb extends well beyond that of footwear production. In India, the goal is to one day recycle post-consumer waste of millions of pairs of discarded shoes, keeping them out of a landfill or from polluting the countryside and ocean.

CONVERTING WASTE HCL INTO RAW MATERIAL FOR MDI

Chlorine is an essential raw material for production of methylene diphenyl diisocyanate (MDI), a chemical used to manufacture polyurethane foam for a variety of products and industrial applications. Chlorine requires an electrolysis process, which consumes a large amount of electricity and energy, to convert it into hydrogen chloride (HCL) gas used in the production process.

In January 2018, Huntsman installed a 120,000-ton chlorine plant at its manufacturing facility in Caojing, China, for MDI production. The plant features an innovative proprietary HCL recycling process in which HCL gas is converted directly back into chlorine, reducing the amount of energy needed in the production process and eliminating 268,000 tons of caustic soda typically created as a byproduct. By converting the HCL back into chlorine to be used as a raw material, the process also substantially reduces CO_2 associated with production.

REDIRECTING WASTE HEAT TO ENABLE OPERATIONS

In Rotterdam, Netherlands, Huntsman is providing excess heat from its production process to enable another company located at the same industrial site to operate a demineralized water plant. The waste heat exchange reduces emissions and saves energy. Evides Industriewater, which supplies more than 100 million cubic meters of process water per year to industry in the area, uses excess heat piped from Huntsman to heat up cold water from a nearby lake before converting it to demineralized water. The process eliminates Huntsman's excess heat from going into the air and provides Evides with a valuable heat source, generating environmental savings along the way.

Due to the higher water temperature, less gas-based heating is required at both Evides and the companies in the area that take the demineralized water for their steam boilers. Overall, the partnership eliminates 127,000 tons of fossil-based steam generation and 15,000 tons of CO_2 , and provides significant energy costs savings.



TRANSFORMING PLASTIC WASTE INTO ENERGY-SAVING INSULATION

untsman does not produce polyethylene terephthalate (PET) plastic bottles, but we clearly recognize the impact plastic waste has on the environment and are doing something about it.

Through Huntsman's proprietary trans-esterification process, we upcycle low-quality PET scrap – that otherwise would have been destined for landfills or found its way into our oceans – into energy-saving polyurethane insulation, the most effective insulants available in the market, as measured by R-value.

Since 2015, Huntsman has used the equivalent of five billion 500ml PET bottles to manufacture 290 million pounds of TEROL[®] polyester polyols, enough to insulate more than 67,000 homes.

These polyols are a critical ingredient in the production of MDI-based polyurethane insulation products, which provide significant energy savings in residential, commercial and industrial buildings. They are a key building block for polyisocyanurate (PIR) boardstock systems and spray polyurethane foam (SPF), as well as pour-in-place applications, such as picnic coolers, entry doors, garage doors, refrigerators and freezers. These energy-saving polyurethane insulations benefit society by reducing the costs of heating and cooling homes and commercial buildings and prolonging the shelf life of perishable foods.

While all Huntsman's TEROL® polyols contain recycled content, five of them have been certified by Underwriters Laboratories (UL) Environment. In 2014, Huntsman became the first US polyester polyol manufacturer to receive the designation. UL verified Huntsman's pre-consumer recycled, post-consumer recycled and renewable resource content claims by reviewing our manufacturing practices and raw materials sources.

Huntsman is rising to meet the plastic waste challenge globally by expanding our capability to provide SPF insulation for residential and commercial applications. Since 2018, we acquired Demilec and Icynene-Lapolla, two of North America's leading manufacturers and distributors of SPF insulation. Both consumers of TEROL[®] polyols, they provide bio-preferred, renewable and recyclable products that reduce energy consumption through highly efficient insulation properties.

In Asia, our polyols production facility in Taiwan will begin using our well-proven TEROL® polyols technology to recycle distressed PET streams to satisfy the growing demand from the regional PIR foam insulation market.





Another key aspect of the circular economy is reducing waste to conserve precious natural resources.

IMPROVING THE ENVIRONMENTAL FOOTPRINT

In a special research report published in January 2020 on solutions for making the global fashion industry more sustainable, global banking and financial services firm Barclays cites Huntsman's AVITERA® dyes and the company's line of digital inks for improving the environmental footprint of the textile industry.¹

Barclays Sustainable & Thematic Investing, "Global Fashion: Green is the new black."

HELPING THE TEXTILE INDUSTRY SAVE WATER, ENERGY

ater is one of the world's most precious resources. According to the International Resource Panel of the United Nations Environment Programme, by 2030, the world could face a 40% shortfall in water supply if no changes are made in how water is managed.²

Textile dyeing and finishing processes consume vast amounts of water in the very parts of the world where it is most scarce. Conventional methods of dyeing 1 kilogram of cotton use up to 80 liters of water, 6.5 kilograms of steam and 2.2 kilograms of CO₂.

As prices rise, pollution increases and concern for the environment grows, converters, retailers, brand houses and consumers all over the world desire higher sustainability. At the same time, high pressure is being exerted to keep costs down. This has led to strong demand for shorter, more robust dyeing procedures and reduced water and energy consumption – in short, more sustainable products and processes, both from an environmental and a cost perspective.

Huntsman innovations are helping to produce textiles in a more sustainable way at a lower cost. Our AVITERA® SE dyes reduce water and energy consumption by up to 50%. By switching to AVITERA® SE technology, textile plants can reduce processing costs and achieve an additional four months of production each year. Since Huntsman introduced this groundbreaking product 10 years ago, total environmental savings by customers using AVITERA® SE products include water savings of 6.5 billion liters (equivalent to the annual fresh water requirements of 9.3 million people³), steam savings of 830,000 tonnes and the reduction of 450,000 tonnes of CO_2 emissions.

The use of AVITERA® SE dyes is set to grow quickly due to an increased awareness of environmental issues from all actors in the textile value chain, including consumers.

² www.resourcepanel.org/reports/options-decoupling-economic-growth-water-use-and-water-pollution

³ Assumes 700 liters of fresh water per person per year

HUNTSMAN DIGITAL INKS REDUCE WASTE

raditional printing of garments is a labor-intensive, environmentally unfriendly process that requires large amounts of water to wash and rinse products to cleanse them of excess dye. Many brands are moving to digital printing technologies, which reduce water consumption and pollution and decrease energy use, CO_2 emissions, waste materials and time.

Huntsman is the first company to develop industrial grade inks for digital textile printing. Digital printing of garments requires less time and uses less ink, which means less dye and less water used in the process, making it more environmentally friendly. Studies show that digital printing reduces water consumption by 60%, energy consumption by 55%, CO₂ emissions by 95% and waste materials by 85%.¹ It is estimated that in 2018, digital textile printing saved more than 40 billion liters of water worldwide.²

Over the past two decades, Huntsman Textile Effects has been a market leader in developing a wide range of reactive digital inks for the textile industry, which offer high-quality colors and highwash fastness. In 2019, the company introduced the next generation of digital inks, NOVACRON[®] ADVANCE, which achieves remarkable deep shades with perfect reliability and reproducibility compared to currently available technologies.

1 "Cleaning Up The Textile Industry," by Dr. Simon Daplyn

2 www.fespa.com/en

DIGITAL PRINTING REDUCES

ENERGY CONSUMPTION:

55%

WASTE MATERIALS:



WATER CONSUMPTION:

> CO₂ EMISSIONS:

OPERATION CLEAN SWEEP

an good housekeeping and containment practices to achieve zero pellet, flake and powder loss in plastics manufacturing help protect the environment? Yes, according to Operation Clean Sweep[®] (OCS), a voluntary international program designed to prevent the loss of plastic granules at all stages of the plastics value chain.

First adopted in North America, the OCS program was introduced in Europe in 2015 by PlasticsEurope, the pan-European association of plastic manufacturers. Huntsman Advanced Material sites in Bergkamen, Germany, and Pamplona, Spain, were the first European epoxy producer sites to pledge compliance with Operation Clean Sweep. By signing the OCS pledge, the sites commit to improve worksite setup to prevent and address spills, train employees in spill prevention and containment and conduct ongoing operations audits, with a goal to achieve zero industrial plastic material loss.

Since signing the pledge in 2018, our Bergkamen facility has adopted measures to reduce the loss of polyamide granules used for printing ink resins and hot melt adhesives. Besides recycling waste pellets and adopting production and cleaning procedures to limit loss, the site has also started using special octabin cardboard packaging to protect finished products from piercing during transport and at customer sites.

The Pamplona site is taking measures to prevent pellet release during its production of hardeners and is looking at ways to prevent release due to damaged packaging during transportation to its warehouse, which ships solid epoxy resins from other sites to customers in southern Europe.

SMALL CHANGES, BIG IMPACT

Huntsman manufacturing facilities continue to look for ways to reduce waste in our operations. Sometimes small changes can have big financial and environmental impacts.

PROCESS IMPROVEMENTS REDUCE WASTEWATER

In Jurong, Singapore, Huntsman Performance Products has two manufacturing units that make JEFFAMINE® polyetheramines and polyol precursors. Together, the units produce as much as 1,000 tons of wastewater per month from process and product change washouts.

To reduce the overall wastewater volume and eliminate costs to treat it by a 3rd-party vendor, the plant made several process improvements that reduced average wastewater by 27% and peak wastewater by 45%. The plant's target is to reduce total wastewater generation by 50%, translating into cost savings of up to USD \$2 million per year. The changes also are safer for workers as they no longer have to manually load wastewater isotankers.

AFTER PROCESS IMPROVEMENTS AVERAGE WASTEWATER REDUCED





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OPERATIONAL CHANGES CUT HAZARDOUS WASTE TO ZERO

Huntsman's plant in Conroe, Texas, produces more than 400 different specialty chemical products, primarily amines, polyols and carbonates. To meet customer demand, process units and storage tanks are frequently washed out to accommodate the next product. But these washouts put high levels of organic material through the plant's wastewater system and, over time, the material must be disposed as hazardous waste due to high benzene levels.

Huntsman determined one of the plant's raw materials contained cyclohexane, which was reacting with other materials to produce benzene. So the plant isolated the washout stream containing cyclohexane, preventing it from entering the storage tank and disposing of it in another tank. As a result, the benzene-free wastewater no longer required treatment as a hazardous waste

After the change, hazardous waste production at the plant dropped from 3.7 million pounds to zero, eliminating \$700,000 in hazardous waste disposal costs. In addition, the plant found a customer to use the organic layer that was stored in the separate tank to blend with its products and use in a beneficial way.

The project won a 2019 Texas Environmental Excellence Award for pollution prevention from the Texas Commission on Environmental Quality.



Eliminate

The ultimate goal in a circular economy is to eliminate waste altogether. It means everything we use can be remanufactured for use or returned to the environment as a raw material. It requires the design of new technologies that reduce waste and create products that can be reused, repurposed or recycled. And if an item is beyond repair or use, it can be destroyed and turned into energy.

That's the future that Huntsman is striving to create. And although we're not there yet, adopting a circular economy mindset today will get us closer to achieving a world without waste tomorrow.

GAME-CHANGING FOOTWEAR TECHNOLOGY

magine walking on a treadmill at your favorite shoe store and leaving with a pair of sneakers designed specifically for your feet. It's not as farfetched as it may seem. The use of 3D printing in the footwear industry is expected to reduce costs, simplify manufacturing and supply chains, and reshape the way products are designed.

Huntsman is working with the footwear industry to develop gamechanging 3D printing capabilities that can eliminate waste by designing it out of the manufacturing process.

SD printing in footwear can reshape product design 3D printing is expected to reduce waste in shoe production from start to finish. Shoes can be designed using less material by applying the product exactly where it is needed. Take for example a midsole. In conventional molding, there is one monolithic layer. With additive manufacturing, or 3D printing, a physical object is created by layering materials one by one based on a digital model, with material used only where it is needed. Process scraps can be completely eliminated, as there is no extra waste material typically produced in the traditional molding process. And supply chain costs can be reduced because printing can be done closer to the demand source, eliminating the need to transport product over long distances or to keep large inventories.

Recognizing the significance of 3D printing in eliminating waste in production processes, Huntsman Polyurethanes began working with the footwear industry in 2017 to develop a platform for 3D printing. A global team is studying three different ways to achieve 3D printing through powders, filaments and liquids. The company intends to be on the forefront of 3D printing technology that could revolutionize the shoe industry, as well as automotive and aerospace industries that rely on molded parts.

The ultimate goal is to develop footwear designed to individual needs – made faster and without waste byproducts – with a better-customized sole that can address injury prevention and pain relief. The potential impact for waste reduction and supply chain efficiencies is considerable given that revenue in the global footwear market reached \$230 billion in 2019.

The 3D printing technology also holds possibilities for automotive and aerospace industries, which can benefit from reducing weight and strengthening materials, rapidly producing parts on demand, alleviating supply chain constraints and required warehouse space and reducing waste.

Materiality Assessment

n 2019, Huntsman developed its first corporate sustainability materiality assessment. While stakeholder outreach had been done in previous years, 2019 marked our first formal materiality assessment to shape our overall approach to sustainability. What resulted is a robust view of top sustainability issues across the company.



INITIAL STUDIES

A number of early steps helped provide critical inputs to our study:

- **Customers** In 2018, we conducted a comprehensive customer outreach study with a representative sample of customers across a wide range of our divisions, geographies and market segments – representing 10% of our annual revenues.
- **Investors** We completed a gap analysis and benchmarking study focused on environmental, social and governance (ESG) issues, and incorporated studies conducted through the American Chemistry Council (ACC).
- **Communities** We attended a session of our community advisory panel at our largest site in Port Neches, Texas¹ – and spoke with Huntsman communications staff and local Corporate Social Responsibility (CSR) managers at a sample of our facilities across Huntsman to understand the top-priority issues for our neighbors.

MATERIALITY ASSESSMENT

We then developed a list of materiality issues. We considered input from various sources, including GRI topic-specific standards, industry best practices, recent ACC focus group survey data, and feedback from our Sustainability Council. We developed a scorecard methodology for ranking, and the Sustainability Council completed an initial ranking to arrive at a matrix of issues.

During the process, the Sustainability Council considered a number of different factors, including:

- relative influence on stakeholder decisions
- significance of Huntsman's impact
- our ability to influence
- impact on Huntsman's performance over the short and long term

We then summarized these rankings focusing on two factors: (1) the degree to which the issue influenced stakeholder decisions – in other words, would it affect a customer's decision on whether or not to buy from Huntsman – and (2) the impact on Huntsman and our long-term success. The results were presented to the corporate officers in May 2019, subsequently to members of the board of directors, and ultimately approved by the officers and Chairman, President and CEO Peter Huntsman.

BENEFITS

The completed materiality assessment is critical in structuring our report and also provides a strategic framework to evaluate risks and opportunities. It helps us to focus on what matters most. The process resulted in a matrix of ranked issues based on importance to stakeholders and importance to Huntsman.

1 Owned by Indorama Ventures as of Jan. 3, 2020.

Data on Performance

RELIABILITY

From our 2019 materiality assessment process, reliability ranked as the top issue. We see reliability as critical to meeting customer needs, which delivers commercial results and, ultimately, drives the success of our business. In our view, several aspects comprise reliability: roles and ownership, purchasing, supply chain, and our Manufacturing and Engineering Council.

ROLES AND OWNERSHIP

Plant managers at each of our facilities are in charge of site operations. Manufacturing leads for each division have accountability and oversight of the division operations strategy. They manage logistics, including raw material input and shipments of products to customers, as well as outputs with a dedicated supply chain group. This group works closely with corporate purchasing teams, which handle raw material purchases and vendor management.

PURCHASING

Purchasing plays a key role in reliability, of which sustainability is a significant part. The pragmatics of site facilities and supply chains make it critical to understand sustainability risks and opportunities throughout the process. For example, in 2017 we experienced significant disruption to parts of our supply chain in China from shutdowns caused by our suppliers' non-compliance and enforcement of environmental regulations. Suppliers were either directly or indirectly impacted with minimal advanced notice. As a result, we revisited our supplier strategy to fully understand how that supply chain flows into the bills of materials for our products and improved the reliability and sustainability of our supplier base.

Another example is fully understanding and analyzing our sourcing strategies for key materials and services. Sole sourced ue to logistics, geography, economics or other reasons. While we can never eliminate all interruptions, we will continually assess the viability of sources across the value chain to minimize impacts and improve our overall reliability, customer satisfaction and profitability. As we move forward, our strategic approach to sustainability will be taking these and many other challenges into account as we support our businesses in making reliability best in class.

SUPPLY CHAIN

Reliability is critical for our supply chain teams because they support business plans. Our goal is to meet our customers' needs efficiently by balancing customer demand with our supply capability. Historically, supply chain was primarily volumetric in approach. Over the last 10 years, however, we evolved our focus to drive customer alignment, enhance organizational responsiveness, network resilience and ultimately drive financial benefit.

One example of that change in focus is the drive for "track and trace" in our logistics capability. While our regional teams are implementing slightly different platforms across the globe, they have the shared overarching goal of increasing transportation visibility, augmenting responsiveness to customers, improving the performance of logistics service providers to deliver orders on time and in full, reducing lead times and inventory, and ultimately starting to take a more predictive rather than a reactive approach to logistics.

Huntsman also works collaboratively across divisions to ensure the maximum learning in the supply chain. The Huntsman Supply Chain Council identifies annually critical supply chain areas where there is benefit in driving common goals and activities. In 2019, the council concentrated on people development, including common internal and external training and harmonization of job profiles and the identification of required competencies within the supply chain to ensure future success within the function.

MANUFACTURING AND ENGINEERING COUNCIL

The Manufacturing and Engineering Council (MEC) was formed roughly eight years ago and is composed of executives responsible for leading and continuously improving Huntsman's manufacturing and engineering systems, processes, tools and organizational capability and culture within our manufacturing sites. Safety, engineering and operational excellence are key responsibilities for this council. Led by the senior vice president of EHS and corporate manufacturing, this council meets on a quarterly basis.

POLYURETHANES DIVISION CASE STUDY

Through its Global Reliability Improvement Program (GRIP), our Polyurethanes division is delivering predictable production capability and building a continuous improvement culture across three major sites in the US, The Netherlands and China. GRIP consists of five elements to deliver sustainable reliability.

3 Technical Pillars

- asset health
- operational excellence
- supplier reliability

2 Enabling Platforms

- people, leadership and culture
- performance management

The GRIP governance model includes the global groups and site teams led by assigned transformation officers and initiative owners. Together, these teams use agile, 12-14 week sprints to develop, plan and implement improvements targeted to improve reliability and deliver on business commitments.



CORPORATE GOVERNANCE

GRI 102-18 | Huntsman's highest governance body is our board of directors. Please see page 7 for more information. The executive officers team is the primary committee responsible for decision-making on economic, environmental and social topics.

For more information on Huntsman's corporate governance, including governance structure and committees of the highest governance body, see the Investor Relations pages of our website, www.huntsman.com/investors.

ETHICS AND COMPLIANCE

GRI 205-2 | Huntsman has zero tolerance for illegal behavior. The following describes how we communicate and how we conduct training on our anti-corruption policies and procedures.

Communicating Anti-Corruption Policies and Procedures

Governance body members: The governance body members consist of the eight members of Huntsman's global board of directors. Huntsman's anti-corruption policy and procedure are articulated in the two documents, Anti-Corruption and Bribery Corporate Policy and Anti-Corruption and Bribery Procedure. We communicate recently updated anti-corruption policy and procedure to all eight members of the board.

Employees: Nearly¹ 100% of our employees have access to Huntsman's anti-corruption policy and procedure. All employees receive a copy of Huntsman's Business Conduct Guidelines (BCG) when hired and have access to the company intranet where these guidelines and the anti-corruption policy and procedure are located. The BCG contains a section on anti-corruption and references the anti-corruption policy and procedure. The BCG is also available on our company website at www.huntsman.com. Additionally, both Huntsman's Internal Audit function and Ethics & Compliance group conduct site-specific audits, which depending on the scope of the audit, contain a review of some anti-corruption controls.

Business partners: Huntsman's business partners (direct suppliers, contractors, and joint venture partners), should receive a copy of Huntsman's Vendor Code of Conduct (VCC), which is a simplified version of Huntsman's BCG and contains language about anti-corruption. Both the VCC and the BCG are available on Huntsman's website. Additionally, Huntsman's contracts with business partners include anti-corruption language or clauses.

Training on Anti-Corruption Policies and Procedures

Governance body members: All members of our board of directors are provided and become familiar with the BCG when they are first onboarded and from time to time thereafter, including BCG-specific provisions barring bribery of public and private officials and officers, as well as other anti-corruption prohibitions. The full board of directors, as well as the Audit Committee, receive quarterly briefings by the company's chief compliance officer and general counsel. These briefings include among other things: applicability and enforcement of the BCG, including the anti-bribery and anti-corruption provisions, within the company; changes in or additions to relevant anti-corruption laws globally; and developments in and learnings from significant cases around the world to ensure they are able to fulfill their fiduciary duties of due care relating to proper oversight and governance. In addition to these briefings, Huntsman's executive and other corporate officers and members of its senior operational leadership receive specific training at least 10 times annually on how to comply with all provisions of the BCG, including the anti-bribery and anti-corruption terms. This training is conducted through both e-learning courses and personally by the company's chief compliance officer and general counsel counsel or members of the Ethics & Compliance or Legal departments.

Employees: Nearly² 100% of our employees complete Huntsman's anti-corruption training course, Global Corruption and Bribery – What You Need to Know, every year. Course completion is required and reviewed annually to ensure all associates complete their training. Additionally, nearly 100% of employees have received training on human rights. Other compliance training modules include Respect in the Workplace, Records Management, Anti-Corruption, Global Anti-Bribery and Huntsman Data Privacy Program. Courses are offered in both computer-based and instructor-led formats.

¹ After an acquisition, associates from the acquired entity may experience a delay in accessing Huntsman's policies and procedures until IT systems are fully integrated. 2 Some associates on extended medical leave are unable to complete assigned courses before year end. In those cases, training is completed after they return to work.

^{30 2019} Sustainability Report

PRODUCT STEWARDSHIP



GRI 416-1 | Huntsman has over 30,000 finished products and raw materials that are sold or used¹. We evaluated nearly 100% of these through our New Product Introduction or Hazard Communication processes. Our REACH review process is one example of how Huntsman continually reviews and evaluates our substances for improvement. Every year the European Chemicals Agency (ECHA) mandates that we update REACH dossiers for certain substances in our portfolio, based on new evaluations or health science data.

In 2019, we updated 30 substances as a part of the mandatory process, plus an additional 87 products. Updates included adding use case and exposure scenarios and incorporating advances in science and descriptions for read-across data applicability. In total, throughout 2019, Huntsman updated 117 REACH dossiers.

PRODUCT SAFETY SUMMARIES

Product stewardship demonstrates our commitment to the safe handling of potentially hazardous chemicals at every stage in their lifecycles, from the sourcing of raw materials, through manufacture and use, to eventual disposal. As part of this commitment, we have published our first four product safety summaries on our corporate website, with plans to publish a total of 30 by 2025. These documents provide the public with a general description of certain chemical substances. We prioritize the topics and order of publication based on the amount of potential risk a substance presents. We have published summaries for:

- aniline
- ethyleneamines
- MDI
- maleic anhydride

The summaries are available on our website at www.huntsman.com/sustainability.

HORIZON 2025 TARGET

Publishing at least 30 product safety summaries is one of the targets set in our *Horizon 2025* business strategy for environment, health and safety (EHS). This target is aligned with the American Chemistry Council's Responsible Care[®] initiative. The product safety summaries are not intended to replace the information included on the safety data sheets (SDS), product safety labels, or other safe use and handling literature for the chemical substances.

1 For SASB reporting, roughly 70% of our products contain Globally Harmonized System (GHS) of Classification and Labeling of Chemicals Category 1 and 2 substances.

RELEASES AND SPILLS

In our EHS Policy and Commitment, we pledge to identify and control EHS risks in all aspects of our business activity. We actively strive to reduce incidents through our EHS management systems, which include our Global EHS and Process Safety Standards and Procedures and our *Horizon 2025* targets.

We track chemical releases and spills at a corporate level across all Huntsmanowned and -operated facilities. The table below indicates incidents that resulted in chemical spills or loss of material from primary containment. Huntsman classifies these as significant spills not specifically allowed by a governmentissued authorization – such as a permit, license, or consent – and not contained on site. Releases to air are omitted, and volumes from air releases are tracked under air emissions. See pages 48 through 51.

A spill is defined by GRI as "accidental release of a hazardous substance that can affect human health, land, vegetation, water bodies and ground water."

GRI 306-3 | RELEASES AND SPILLS

Region	Number of Incidents	Amount Released (lbs.)
Americas ¹	4	30,557
Asia Pacific	1	44
Europe, Africa, Middle East	0	0
Total	5	30,601

1 Includes estimated releases from our Conroe, Texas, facility due to Tropical Storm Imelda.

TRANSPORT INCIDENTS

Incidents	Number
Incidents reported according to the US Department of Transportation 5800 report	24
Incidents reported based on the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) criteria	0
Other transport incidents, based on nationally recognized definitions, or consistent with the International Council of Chemical Association's (ICCA) Guidance for Reporting Performance	4
Significant Distribution Incidents ²	
A fatality or injury leading to intensive medical treatment, a stay in hospital of at least one day, or an absence from work of more than three days	0
Any release of more than 50 kg/L of dangerous goods or more than 1,000 kg/L of non-dangerous goods	2
Any damage of more than 50,000 Euro (including environmental cleanup) resulting from a transport incident	0
An incident leading to direct involvement of authorities and/or emergency	1

An incident leading to direct involvement of authorities and/or emergency services, evacuation of people, or closure of public traffic routes for at least three hours

2 Categories defined per SASB standards for the chemical sector

PRODUCT INNOVATION TOWARD A SUSTAINABLE SOCIETY

Huntsman's mission is to provide products and solutions through the application of science that enrich lives and help create a sustainable future. While sustainability broadly covers multiple aspects of society, we have selected the United Nations Sustainable Development Goals (SDGs) as a globally accepted standard, and therefore define sustainability as products that contribute to one or more of the SDGs.

Approximately 7.5% of total sales³ are from new products (less 5 years old) that meet this definition and contribute to a more sustainable society. This equates to \$480 million of new product sales globally.

3 Excluding recent downstream acquisitions



ALTERNATIVES FOR SUBSTANCES OF CONCERN

TODAY'S HUNTSMAN PORTFOLIO

Huntsman constantly evaluates its products for substances of concern throughout their lifecycles. This helps with future portfolio planning and prioritization of R&D efforts to support development of alternative chemicals to meet regulatory and market demands. The Substances of Very High Concern (SVHC) list under REACH is one of the widely recognized lists specifying substances of concern, which presents current and future potential risk of regulatory action.



Total product sales6 million tonnes Product with192,000 tonnes SVHC-listed substance

The chart above compares volumes of recent active sales, from March 2019 to March 2020, of products containing SVHCs1 (>0.1% by weight) versus all active sales. In this time period, Huntsman had approximately 192,000 tonnes of product sales that contained an SVHC-listed substance, out of nearly 6 million tonnes of total product sales. Just 3.2% of active sales volume contains a listed SVHC in the formulation.

The safety of our associates, business partners, customers and consumers is our top priority. We implement strong product stewardship programs to ensure all of the products we make can be safely transported, stored and used by our customers. To this end, we have several active programs that address the use of SVHCs across our businesses.

Products are assessed case-by-case on the following basis: use of the substance, existing and potential risk management options, ease of substitution and product benefits. We work with regulators, customers, suppliers and value chain partners to make these assessments and develop suitable risk mitigation plans, which could include phase out, reformulation or development of alternatives.

PROACTIVE SCREENING AND DEVELOPMENT OF ALTERNATIVES

We evaluate new product developments against defined substances of concern (SoC) lists at various stages in the development process, including stage gate reviews. Our Product EHS teams have developed an SoC risk evaluation tool specifically for this purpose.

R&D teams look for SoC issues at all stages of the development process as part of the selection of the preferred technical solution and when screening new raw materials from suppliers. Additionally, our Product EHS teams complete a formal hazard assessment during the new product introduction process.

Products with significant SoC impact may be eliminated or new product development projects terminated based on an SoC assessment or if the business case for further development is not viable. In some cases, if there is no viable or sustainable alternative, we may still choose to launch a product that contains SoCs. Such a product may require regulatory approval and would be manufactured and used under strictly controlled conditions.

Substances listed in the ECHA candidate list, plus substances listed in Annex XIV (authorization).



OCCUPATIONAL HEALTH AND SAFETY

PREVENT HARM THROUGH EHS EXCELLENCE

Our vision is to prevent all harm through achieving excellence in environmental, health and safety (EHS) performance in all aspects of our business. We aim to continually improve our safety performance for all associates and contractors, and we are committed to eliminating life-impacting injuries and fatalities.

In 2019, Huntsman had a US Occupational Safety and Health Administration (OSHA) Total Recordable Incident Rate (TRIR) of 0.49¹. While this is higher than last year's 0.35 TRIR, and we strive for zero, we remain significantly below the 2018² US chemical industry average of 1.9, as reported by the US Bureau of Labor Statistics, based on NAICS 325000 – Chemical Manufacturing.

of Injuries & Illnesses x 200,000 # of Work Hours

Injuries and illnesses are categorized according to internal guidance documents, based on US OSHA standards 29 CFR 1904.7. Additionally, injuries and illnesses are documented as required by the laws in the areas where we operate.

=

OSHA Total Recordable

Incident Rate

When the combination of associates and contractors is considered, the two most common types of work-related injuries are abrasions and lacerations, and sprains and strains.

Work-related hazards that pose a potential risk of highconsequence injury include hazards inherent to nearly all companies across the chemicals industry and can range from major events – such as exposure to toxic releases, fires, and explosions – to routine activities – such as confined space entries, working from heights or lifting heavy objects.

1 Including full-time, part-time, contract and temporary workers.

2 The latest available data at the time this report was developed.


GRI 403-9 | WORK-RELATED INJURIES

	Hours Worked ¹	Recordable TRIR	High Consequence ² TRIR	Fatalities TRIR
Associates	20,319,735	46 .45	5 .05	0 0
Contractors	10,087,533	28 .56	4 .08	0 0
Combined	30,407,268	74 .49	9 .06	0 0

1 Actual hours are recorded or calculated based on total number of work hours x total number of associates or contractors.

2 Also called a Life Impacting Fatality Event (LIFE), a work-related personal injury or illness that meets defined severity criteria due to its impact on the quality of the affected person's life, whether temporary or permanent.

HAZARDS CONTRIBUTING TO LIFE INJURIES

In 2019, the following hazards caused or contributed to our 9 high-consequence LIFE injuries during the reporting period.

Overexertion during lifting or handling
Vehicle operations
Rotating equipment1
Falling objects1
Slips, trips or falls1

Another significant hazard associated with many of these events is personnel being in the path of moving objects or energy. Our EHS Management System outlines the methods we use to identify work-related hazards and assess risks. For more information, see the reference to GRI 403-2 on page 36 and the discussion on process safety on page 38.

ACTIONS TAKEN

All LIFE incidents are formally investigated, and corrective actions taken to reduce or eliminate work hazards using the hierarchy of controls. Huntsman instituted engineering controls, including vehicle barriers and vehicle personal safety devices, to reduce the hazards present in vehicle operations incidents. Huntsman has implemented a variety of administrative controls in response to LIFE events, including review of vehicle operations on sites, vehicle operation procedures, lifting/handling procedures, and review of rotating equipment use/controls. We have also introduced global Risk Tolerance training to all associates to help identify why and where our people take risks to help address the hazards of line-of-fire and overexertion.

For more information on actions taken to address LIFE and other hazards, see the reference to GRI 403-2 on page 36, and the discussion on process safety on page 38.

OCCUPATIONAL HEALTH AND SAFETY

GRI 403-1 | Occupational health and safety management system

Huntsman has implemented an Environmental, Health, and Safety (EHS) system consisting of 7 standards, 68 procedures, and 87 guidance documents to support implementation of the requirements. The management system is based on principles of various recognized management system standards such as Responsible Care[®], ANSI Z-10, 29 and CFR 1910.119.

Our standards and procedures apply to all Huntsmanowned and -operated facilities and corporate functions. They do not apply to joint ventures in which Huntsman is a minority owner, nor to 3rd-party warehouses and tollers, unless by request from a member of the EHS leadership team.

GRI 403-2 | Hazard identification, risk assessment and incident investigation

Our EHS Management System outlines the methods used to identify work-related hazards and assess risks. The hierarchy of controls is outlined in guidance documents and procedural requirements and includes: pre-job safety inspections, job safety analyses and work permits (including hot work, confined space entry and work at height).

All manufacturing sites conduct Process Hazard Analysis (PHA) and Fire Risk Analysis (FRA) of their facilities to identify process and fire-related hazards and determine where additional layers of protection are needed to ensure the health and safety of people and protection of the environment.

The organization assesses the quality of the processes and the competency of the persons carrying out the tasks through site self-audits, corporate EHS and process safety audits, and through competent person assessments (for PSM-related activities). Additional requirements for training and competency are described in the EHS Management System, specifically EHS-113 Training and Competency. The results of the self-audits are used to make site-based improvements. The results of the corporate EHS and process safety audits are used to make both site-based and companywide improvements. Competent persons assessments are used to identify additional training/skill improvement opportunities.

Associates are encouraged to report work-related hazards through incident reports, near-miss reports and 60-second checks, as well as any methods an individual site has created. Associates are protected from reprisal by the company code of ethics and a robust series of HR policies and procedures.

All Huntsman associates have stop-work authority in situations when they feel there is a danger to themselves, co-workers or the public. Associates are protected from reprisal by the company code of ethics and a robust series of HR policies and procedures.

The process for a work-related incident investigation is outlined in our EHS Management System, specifically EHS-106 Incident Investigation. Based on the severity and likelihood of the outcome, a "5-Why" methodology may be used for lower severity incidents, while those of a higher consequence require the use of Apollo root cause analysis. Throughout the process of any incident investigation, the hierarchy of controls is to be used to institute robust measures to prevent recurrence. In addition to the investigation, the company conducts a quarterly analysis of incidents to identify potential gaps in the management system and recommend improvements.

GRI 403-3 | Occupational health services

Huntsman ensures occupational health services are provided for employees under the guidance of the global director of occupational health, a board-certified medical doctor. Each site contracts with either an on-site or local medical provider to ensure prompt access to occupational health and medical services when needed. The sites are to adjust their workloads to ensure the services are available to associates as required. The company has processes to protect worker privacy under HIPAA and GDPR practices, specifically EHS-505 Health Record Management and Confidentiality.

GRI 403-4 | Worker participation, consultation and communication on occupational health and safety

Huntsman includes worker participation in the development, implementation and evaluation of the EHS Management System by having site-based personnel involved and consulted on the development of new corporate requirements and the updating of existing requirements. Additionally, site-based personnel are directly involved in the roll-out of new and updated requirements via webinar, face-to-face training and other communication methods, depending on the extent of the update. Sites are expected to have frontline associates directly involved in the development of EHS practices and programs, for example, developing formal job safety analyses. Huntsman values input from sites to continue to improve our EHS practices.

Where formal joint management-worker health and safety committees exist, the responsibilities, frequency of meeting, decision-making authority and worker representation are based on local law and negotiated contracts.

The hazards in the workplace are communicated by making readily available safety data sheets for all raw materials, products and intermediates. Additionally, workers have ready availability to process hazards by accessing process hazard analyses.

GRI 403-5 | Worker training on occupational health and safety

Training requirements for associates are outlined in the EHS Management System, specifically EHS-113 EHS Training and Competency. Several corporate-level training programs are required for all associates. For example, the course titled Why EHS Matters prominently features Chairman, President and CEO Peter Huntsman discussing the importance of EHS to the company and all associates. Additionally, sites are required to develop training matrices for their operations to ensure competency and safe work practices. The effectiveness of these programs is assessed through corporate EHS and process safety audits. Huntsman has a corporate EHS Center of Excellence that assists sites in providing training to ensure safe work practices and compliance with local regulatory requirements. Tasks identified as EHS-critical require routine operator drills to ensure our capabilities for proper and timely responses.

GRI 403-6 | Promotion of worker health

Huntsman provides benefits to employees including: healthcare¹, employee assistance programs and voluntary health promotional programs. Additionally, some individual sites have developed comprehensive health and wellness promotional programs to encourage health and well-being.

GRI 403-7 | Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

Huntsman has developed an EHS Management System that incorporates aspects of occupational health, occupational safety, environmental safety, product EHS and process safety management. The goal of these programs is to prevent or mitigate the impacts that are directly linked to our operations, products and services. Huntsman's corporate Product Safety team has developed procedures for product hazard identification, hazard communication, risk assessment and risk management, specifically EHS-701 Chemical Hazard Communication, EHS-702 Product Stewardship, EHS-703 Product Risk Assessment and EHS-704: Distribution Risk Management.

Industrial hygiene

Our Industrial Hygiene (IH) teams continuously identify potential health hazards, assess risk and implement controls as outlined in our EHS Management System. All sites complete IH risk assessments. In 2018, Huntsman standardized how sites conduct risk assessments, which are used to develop annual sampling plans to quantify exposures. Exposure monitoring results are compared to published occupational exposure limits² to confirm existing controls are adequate. To reduce potential exposure to both acute and chronic health hazards, our sites incorporate the hierarchy of controls, starting with elimination if possible, substitution, engineering controls (enclosing, containing, isolating, automating, minimizing dispersion, or tools to avoid direct contact), administrative controls, and lastly personal protective equipment. As new controls are implemented, exposures are reassessed to keep workers safe.

- 1 Type of coverage is dependent on available plans where associates live.
- 2 Huntsman uses the lower of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values or the applicable regulatory exposure limits for the country where the site is located.

PROCESS SAFETY



Process safety is critical in keeping our people and facilities safe and working as intended. Process safety risks are managed in a number of ways, including: the application of inherent safety principles in the equipment design process; design and installation of engineered independent protection layers; use of procedures and training to assure operating competency; and use of personal protective equipment. As the chart above illustrates, we start with the most effective risk mitigation – eliminating the risk – and then systematically work through subsequent mitigations to continually improve the safety of our operations.

COMBINED INCIDENT RATE

Process safety performance is based on API-754 Recommended Practice, Process Safety Performance Indicators for the Refining and Petrochemical Industries. The API-754 standard is useful because it provides a consistent means of evaluating process safety performance across the industry. A Tier 1 event is defined as a loss of primary containment with the greatest consequence. A Tier 2 event is defined as a loss of primary containment with lesser consequence. Huntsman initiated the API-754 methodology beginning in 2016. While Tier 2 incident rates have been variable, Tier 1 incident rates have declined each year since 2016. The (PSM) Tier 2 incident rate increase from 2018 to 2019 was due in part to isolated equipment malfunctions and failures.



1 Process Safety Incident Count

2 The Process Safety Incident Severity Rate is defined as the cumulative (annual) severity-weighted rate of process safety incidents and is calculated as the Total Severity Score for all Process Safety Incidents multiplied by 200,000 and divided by the total annual hours worked by associates and contractors. We began collecting the PSISR for Tier 1 events in 2019. Before 2019, we did not track this data. Information around root cause and corrective actions implemented is maintained at the local site level and not currently tracked for corporate reporting.

PROCESS SAFETY CULTURE LEADERSHIP WORKSHOPS

As we strive for continual improvement in process safety, we have placed considerable focus on improving process safety culture. The chemical industry has recognized the importance that culture plays in determining the overall success of a process safety management program. In an organization with a positive process safety culture and highly effective management systems, a high degree of trust and transparency exists at all levels of the organization. Huntsman has developed a series of process safety cultural leadership workshops to align process safety core values and behaviors from the executive to the front-line worker levels. Workshop participants develop personal action plans that drive sound process safety principles and practices, provide clear leadership actions and behaviors required to move the culture toward operational excellence, and instill an understanding and passion for their role in the process safety management systems.

WASTE

BASELINE AND PRODUCTION INTENSITY

Beginning with the Total Waste graph on this page, we include both a baseline and production intensity trend line on each graph.

Baseline: With the recent divestiture of our surfactants business to Indorama Ventures Limited (IVL), our Huntsman emissions and energy footprint will change significantly in future years. This will be somewhat offset by any new acquisitions. Because the IVL sale was completed in early 2020, we plan to reconsider our baseline to determine the most appropriate year for comparison purposes.

Each year, environmental data and emissions estimates are reviewed for changes as part of our data validation process. As a result, figures and totals depicted in this year's sustainability report may include minor updates versus data published historically.

The GRI and SASB disclosures on which we are reporting can be found on pages 54 through 56.

Production Intensity: Production intensity is a demonstration of the impact of a given metric weighed against a unit of production. In the context of energy, for example, if you consider the absolute total for the amount of energy we used in a given year and divide that by the amount in tonnes of products and co-products we manufactured in that same year, the result would be the production intensity value of energy consumed per tonne of product for that year. Or, more simply, energy intensity. We use these values to demonstrate changes in the efficiency of our operations.

= Production Intensity

Total Energy Use

Tonnes of Product Manufactured

REDUCING WASTE

GRI 306-2 | It is Huntsman's corporate policy to prevent and reduce waste. We regularly carry out audits to inspect external waste management plants and ensure that our waste is disposed of correctly. We continually look for ways to reduce waste and improve operational performance.

Total waste increased in 2019 primarily due to an increase in nonhazardous waste with the installation of a deep well at our Freeport site. See nonhazardous waste, page 41.



WASTE

WASTE DISPOSAL METHODS

Huntsman sites confirm and report waste volumes and classifications. Sites utilizing onsite deep well injection, incineration or composting are cases where waste is disposed of directly by the organization. In most other cases, waste disposal method is provided by 3rd-party waste disposal companies. Disposal method is known from the disposal site used and or listed on the manifest.

GRI 306-2 | 2019 HAZARDOUS WASTE

Disposal Method	Tonnes
Recovery (including energy recovery)	77,119
Incineration (mass burn)	33,835
Landfill	7,736
Recycling	7,679
Deep Well Injection	4,073
Other (including 3rd-party treatment)	3,460
Reuse	2,614
Composting	0
On-site Storage (as of Dec. 31, 2019)	3,601





NEW ONSITE DEEP WELL

The increase in nonhazardous waste in 2019 was due primarily to the startup of a new onsite deep well for injection of nonhazardous wastewater at our Freeport, Texas, plant. Based on US regulations and permits, underground injection volumes are considered waste¹. This increase was slightly offset by less-significant decreases at our Port Neches site due to reductions in waste water solids and nonhazardous catalyst residue generated in 2019 versus 2018.

GRI 306-2 | 2019 NONHAZARDOUS WASTE

Disposal Method	Tonnes
Deep Well Injection	581,099
Landfill	10,557
Incineration (mass burn)	6,780
Other (including 3rd-party treatment)	6,207
Recycling	3,644
Reuse	2,524
Recovery (including energy recovery)	1,115
Composting ²	0.7

On-site Storage (as of Dec. 31, 2019)	2,327
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1 Previously these volumes were sent to 3rd-party wastewater treatment and reported as "water out." The wastewater was treated and discharged under a National Pollutant Discharge Elimination System (NPDES) permit, regulated under the Clean Water Act. Deep well injection is permitted and regulated under the Resource Conservation and Recovery Act (RCRA) and Safe Drinking Water Act (SDWA).

2 Composting volumes reported from Basel, Switzerland, and Atotonilquillo, Mexico, sites.

EMPLOYEE ENGAGEMENT & DEVELOPMENT

GRI 404-1 | AVERAGE TRAINING AND DEVELOPMENT HOURS

Employee Category	Female	Male	Total
VP	11.8	15.4	14.8
Director	44.4	23.1	27.0
Senior Manager	38.8	34.3	35.3
Manager	35.2	60.5	53.0
Team Lead/Supervisor	32.7	61.9	56.4
Individual Contributor	28.9	59.5	50.9
Average Hours	30.4	57.8	50.5

Huntsman provides associates with training and development to further enhance their professional skills. These training and development courses include EHS, compliance, soft skills, technical skills and leadership development. Compliance training hours include instructor-led and e-learning courses.

GRI 404-3 | PERCENTAGE OF EMPLOYEES RECEIVING REGULAR PERFORMANCE AND CAREER DEVELOPMENT REVIEWS

Employee Category	Female	Male	Total
VP	66.7	76.5	75.0
Director	94.7	93.7	93.9
Senior Manager	92.8	89.0	89.9
Manager	96.4	93.4	94.3
Team Lead/Supervisor	97.0	85.7	87.8
Individual Contributor	87.8	81.1	83.3
Average Percentage	90%	83%	85%

A key component of our business success is employee engagement and development. The majority¹ of eligible Huntsman associates are required to participate in an annual Performance Development Program (PDP) assessment, with their supervisor. In addition, numerous live and online training and development courses are offered to associates to help them develop soft and technical skills.

1 Associates at acquired locations are not currently required to participate in the PDP process. Others, such as some union workers, are prohibited by collective bargaining or contractual work agreements.

TRAINING HOURS IN LEADERSHIP

Employee Category	Female	Male	Total
Director	20.2	6.8	9.2
Senior Manager	11.9	6.6	7.8
Manager	6.9	6.4	6.6
Team Lead/Supervisor	5.6	3.2	3.7
Individual Contributor	2.9	1.7	2.0
Average Hours	4.1	2.6	3.0

In 2019, 2,295 associates participated in various leadership development courses that we offer for a total of 30,893 total leadership training hours.

Huntsman develops associates who are in or will assume supervisory or management positions in the organization to ensure they feel comfortable dealing with employeerelated matters, such as setting objectives, career development plans, coaching and performance management. This training is made available in local languages.

GLOBAL PROMOTIONS AND TRANSFERS

In 2019, 1,012 associates, or 9.8% of total headcount, received promotions and 1,259, or 12.2% of total headcount, were transferred to another internal role.





NEW ASSOCIATES

Region	Number
Americas	387
Asia Pacific	342
Europe, Africa, Middle East	305
Total	1,034

In 2019, we hired or acquired 1,034 new associates, which accounted for 10% of the total Huntsman headcount, including associates in systems houses

BREAKDOWN OF VOLUNTARY TURNOVER

Age Bracket	Percentage of Turnover
20 to 29	17
30 to 39	31
40 to 49	17
50 to 59	16
60 to 69	19
Total	100

In 2019, 822 associates voluntarily left the organization. This equates to a global turnover rate of 8% of total headcount.

CYBERSECURITY

Cybersecurity is a critical business issue that is continuously changing. Across our operations, we rely on information technology (IT) systems for management, supply chain and financial information and various other processes and transactions. Our ability to effectively manage our business depends on the security, reliability and capacity of these systems, as well as specific protection of the company's intellectual property and other sensitive business information.

Huntsman has invested and continues to invest in technology security initiatives and disaster recovery plans that help to protect against significant risks to our IT systems and data. We have put in place security measures designed to protect against the misappropriation or corruption of our systems, intentional or unintentional disclosure of confidential information or disruption of our operations. Our information security systems and processes are constantly reviewed, tested, updated and enhanced as needed.

Education is an essential part of protection, and we strive to reinforce a cybersecurity-aware culture within Huntsman. All Huntsman employees are required to complete an annual cybersecurity course that is regularly updated based on latest types of attacks and security best practices.

In addition to cybersecurity, data privacy is subject to frequently changing rules and regulations in countries where we do business. For example, the European Union adopted the General Data Protection Regulation in May 2018, requiring companies to meet regulations regarding the handling of personal data. Huntsman continuously monitors and updates data protection efforts as required.

Effective cybersecurity requires constant vigilance and regular updating of systems and processes. We take threats seriously and continue to work to improve our systems and processes so they provide the most effective security possible to protect our technology systems and data.

WATER

WATER QUALITY

GRI 303-2 | Water quality is a critical issue for Huntsman as a responsible member of the communities in which we operate. Our EHS Management System includes standards and procedures that manage effluent water quality at our sites. All manufacturing sites are required to report multiple effluent water quality metrics including organics, inorganics, solids and others.

We are complying with – and in many cases exceeding – increasingly strict water quality standards. We also understand water quality's direct connection with water scarcity. Keeping water clean goes hand-in-hand with the efficient use of water.

In the accompanying graph, our chemical oxygen demand (COD) indirectly measures the amount of organic compounds in water. COD is essentially a laboratory test to determine whether a specific wastewater will have a significant adverse effect on fish or aquatic plant life.







WITHDRAWALS AND WATER DISCHARGES BY SOURCE AND QUALITY

	ALL SITES				WATER-STRESSED SITES			
Sources of Water (m ³)	Freshwater ¹	Other Water ²	Not Measured ³	Total	Freshwater ¹	Other Water ²	Not Measured ³	Total
Withdrawals								
Surface Water	7,537,250	0	33,537,676	41,074,926	307,620	0	6,625	314,245
Rainwater	264,316	n/a	n/a	264,316	1,471	n/a	n/a	1,471
Ground Water	732,525	361,117	1,542,666	2,636,308	316,494	361,117	746,596	1,424,207
Seawater	n/a	0	n/a	0	n/a	0	n/a	(
Produced Water	228,661	0	1,651	230,312	19,900	0	1,651	21,551
Reuse (from onsite sources)	129,856	0	485	130,341	0	0	485	485
Total				44,336,203				1,761,959
3rd-party Withdrawals ⁴								
Surface Water	1,795,244	12,712	216,322	2,024,278	623,902	0	17,050	640,952
Rainwater	43,237	n/a	n/a	43,237	112	n/a	n/a	112
Ground Water	43,012	0	258,922	301,934	111	0	161,993	162,104
Seawater	n/a	0	n/a	0	n/a	0	n/a	(
Produced Water	103,166	0	0	103,166	57,337	0	0	57,337
Total				2,472,615				860,505
GRI 303-3 Total Withdraw	vals			46,808,817				2,622,464
Water Discharges ⁵								
Surface Water	11,789,482	680,699	24,719,682	37,189,863	651,666	680,699	3,482	1,335,847
Ground Water	0	0	0	0	0	0	0	C
Seawater	0	0	7,238	7,238	0	0	0	(
3rd-party Treatment & Other	1,150,958	168,785	650,466	1,970,209	59,765	16,347	445,134	521,246
3rd-party Sent to Other Organizations for Reuse	0	0	0	0	0	0	0	(
GRI 303-4 Total Discharg	jes			39,167,310				1,857,093
GRI 303-5 Consumption	(net water us	age)		7,641,507				765,371

1 ≤1,000 mg/L Total Dissolved Solids (TDS)

2 >1,000 mg/L (TDS)

3 TDS not measured.

4 Sources used (where known).

5 Discharge TDS levels measure TDS levels of discharge leaving Huntsman facilities and not the TDS levels of the receiving water body.

6 Consumption is measured on an aggregate basis across all sites and not tracked at the aquifer or source level.

WATER WITHDRAWALS

GRI 303-1 | Water can be withdrawn from multiple sources. The majority of water that Huntsman uses is withdrawn from surface water, such as lakes and rivers.

Water withdrawals in water-stressed regions represent roughly 6% of total water withdrawals¹ across Huntsman.

CONSUMPTION (net water usage)

Currently, we calculate consumption as:



Global net water usage is roughly 7.6 million cubic meters of water. Actual net water usage volumes may be higher, depending on the amount of rainwater included in our effluents. Aside from variations due to rainfall, the majority of water withdrawn for use is discharged after use and not consumed.

Net water usage in water-stressed regions is 10% of our total net water usage.

HORIZON 2025 TARGET AND WATER-STRESSED SITES

Our *Horizon 2025* targets include a 5% reduction in net water usage at facilities in water-stressed regions of the world, per unit of production. Working with a leading international consulting firm, we recently completed an updated global water study, following our previous study commissioned in 2014. Utilizing two leading water risk models – World Wildlife Fund's Water Risk Filter and World Resources Institute's Aqueduct model – we evaluated multiple drivers³ of water stress.

Focusing on three drivers – baseline water stress, drought risk, and overall basin risk – and considering trends in average annual net water usage, we identified 24 of our sites considered to be operating in waterstressed regions. We plan to further evaluate the list in collaboration with our sites.

We are sharing the results of the full water risk study with site teams. To increase resilience and improve long-term planning, all sites are encouraged to incorporate the results of the study and their site-specific profile as they consider potential water risks relative to their locations.

SITES CURRENTLY OPERATING IN WATER-STRESSED REGIONS

Australia – Deer Park Brazil – Tabao da Serra China – Advanced Technology Center China – Shanghai Caojing (HPS) China – Shanghai Jinshan (HPSC) China – Shanghai Minhang (HPUC) Guatemala – Fraijanes Hungary – Petfurdo India – Pune Indonesia – Jakarta Italy - Modena Mexico – Mexico City Saudi Arabia – HAPC Dammam Thailand – Bangkok (Mahachai) UAE – Dubai US – Arlington, Texas US – Conroe, Texas

1 Includes water purchased from 3rd parties.

- 2 We recognize that withdrawal and discharge sources typically differ, and that consumption is more precisely tracked by considering withdrawals and discharges for individual aquifers. We do not currently track data at this level of detail.
- 3 The models evaluated multiple drivers of water stress, including baseline water stress, scarcity, flooding, drought, quality, ecosystem services, seasonal variability, biodiversity importance, groundwater table decline, governance and others.

GHG AND AIR EMISSIONS

REDUCING EMISSIONS

Huntsman continues to focus on managing our environmental footprint and delivering solutions to help our customers manage theirs. We have committed to reducing our greenhouse (GHG) emissions by 10% by 2025, based on production intensity. In 2019, we participated in the Carbon Disclosure Project for the first time. Our response is publicly available at www.cdp.net. Only about 2% of our emissions are currently covered under emissions-limiting regulations.

Recent site-based initiatives to reduce direct emissions save cost and improve operations. These include: building insulated housing for tanks, converting to energy-efficient LED lighting, using new blowing agents with lower carbon footprints, upgrading to more energy-efficient equipment and optimizing plant operation systems.

Direct-reported emissions includes all major greenhouse gases – CO_2 , CH_4 , N_2O , HFCs, PFCs, SF_6 , NF_3 – as well as other non-combustion greenhouse gases.

Emission factors: We use emission factors global warming potential (GWP) rates from the IPCC Fourth Assessment Report (AR4), 100-year time horizon values. Certain new compounds may use more recent updated factors.

Consolidation approach: We report emissions on the basis of operational control.







GHG AND AIR EMISSIONS

NON-GHG EMISSIONS TO AIR

EMISSIONS

GRI 305-7 | Huntsman routinely monitors, tracks and reports chemical emissions to the atmosphere, whether specifically permitted, part of routine operations or the result of accidental releases.

Non-GHG emissions to air decreased in 2019 due in part to several reductions at our Geismar facility. Phosgene plant emissions and carbon monoxide decreased due to a catalyst changeout and NOx emissions decreased due to lower process heater and engine hours.

2019 NON-GREENHOUSE GAS (GHG) EMISSIONS TO AIR TOTALS

Emission Type	Tonnes
VOCs ¹	555.0
HAPs ¹	200.0
PM Other ² (not measured)	184.5
PM <10	138.2
PM <2.5	98.4
POPs	0

1 Based on US EPA data. Note that certain VOCs are classified as HAPs.

2 PM Other was not specified but could potentially be categorized as either PM <2.5 or PM <10.





TOTAL ENERGY CONSUMPTION

TOTAL ENERGY CONSUMPTION Production Intensity Trend (TJ/tonnes of production) 0.007 0.006 0.005 50,000 40,000 30,000 (Terajoules - TJ) 20,000 10,000 0 2015 2016 2017 2018 2019 2017 Baseline (43,439 TJ)

IMPROVING ENERGY EFFICIENCY

Huntsman continually strives to improve the energy efficiency of our operations to reduce energy impacts and save costs. We continue to evaluate energy usage at our sites to identify opportunities to improve the efficiency of steam and electricity generation, heating requirements and production processes.

Energy usage in 2019 decreased versus the prior year, due to decreases primarily at our Port Neches site and, to a lesser extent, our Geismar site. At Port Neches, one unit was shut down and another unit ran at reduced rates the last two months of 2019. Geismar produced less aniline, improved MDI usage rates and required less steam for process heat.

TOTAL ENERGY CONSUMED 2019

Energy Type	тJ
Total Energy Consumed	39,141
Percentage Grid Electricity ¹	9.6%
Percentage Renewable	0.8%
Total Self-Generated Energy ²	3,768
Total Energy Produced from Cogeneration	27.1

1 Including both non-renewable and renewable sources.

2 Including both consumed and sold.

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED

GRI 201-1 | For additional details on financial data, please refer to our annual report to shareholders.

\$million	2019	2018
Revenues	6,797	7,604
Operating Costs	5,252	5,686
Employee Wages and Benefits	1,076	1,091
Payments to Providers of Capital	261	319
Payments to Government	100	179
Community Investments ¹	2	3
Economic Value Retained	106	326

1 Community investments represent those that are tracked and reported centrally and may not include all donations done by individual sites.

REPORT PARAMETERS

This report has been prepared in accordance with the GRI Standards: Core option and is based on the GRI Standards (2016). We have followed the GRI Standards (2018) where indicated. We report our sustainability performance on an annual basis. Except where stated otherwise, this report includes data from January 1 through December 31, 2019. Prior to this 2019 report, our most recent sustainability report was published in October 2018 for the reporting year 2017. We published 2018 environmental data online.

For this 2019 sustainability report, we considered input from 3rd-party questionnaires, external ratings and general indices, as well as feedback from our key stakeholder groups: our associates, customers, plant communities and investors. The metrics and data provided in this report reflect that input and feedback and help us continue to enhance our reporting and improve our sustainability program.

The report includes data related to all Huntsman enterprises where we have operational control (more than 50%) and joint ventures where we have management control. The data reported have been obtained primarily from our financial management reporting systems, various human resources information systems and the Huntsman corporate reporting systems for environmental, health and safety performance indicators. We are confident in the overall reliability of the data reported, but recognize that some of these data are subject to some degree of uncertainty, inherent to limitations associated with measuring, calculating and estimating data.

Minor corrections in historic data may be due to data errors or other approved reasons. Each year, energy consumption and environmental emission estimates are recalculated and revised for all years in the annual sustainability report, as attempts are made to improve both the analyses, through the use of better methods or data, and the overall usefulness of the report.

Please contact us at sustainability@huntsman.com with any questions or comments about these changes.



A publicly held company, Huntsman Corporation's global headquarters is in The Woodlands, Texas, USA. As of December 31, 2019, total common stock outstanding was 224,295,868 shares. For more information, please see the Investor Relations section of our website, www.huntsman.com.

GRI INDEX

The GRI indicators shown in red are material topics for Huntsman. Please see pages 26 and 27 for details.

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102-45 102-46 102-47 102-48 102-49 102-50 102-51 102-52 102-53 102-54 102-55 102-56	Reporting Practice Entities included in the consolidated financial statementsExhibit 21.1, Huntsman 2019 10-K ¹ Defining report content and topic boundaries

1 Subsidiaries include additional locations beyond the 72 manufacturing facilities associated with reported environmental data.

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305-1	Direct (Scope 1) GHG emissions
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	306 Effluents and Waste
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403-6 403-7	Promotion of worker health
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships
403-9	Work-related injuries
	404 Training and Education
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404-1	Percentage of employees receiving regular performance and career development reviews
-+0+-0	
	416 Customer Health and Safety
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416-1	Assessment of the health and safety impacts of product and service categories

SASB REPORTING

RT-CH-110a.1 RT-CH-110a.2	Greenhouse Gas Emissions Gross global Scope 1 emissions, percentage covered under emissions-limiting regulationspage 48, 49 Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and an analysis of performance against those targets4, 48
RT-CH-120a.1	Air Quality Air emissions of the following pollutants: (1) NOx (excluding N ₂ O), (2) SOx, (3) volatile organic compounds (VOCs) and (4) hazardous air pollutants (HAPs)
RT-CH-130a.1	Energy Management (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy
RT-CH-140a.1	Water Management(1) Total water withdrawn, (2) total water consumed, percentage of each in regionswith high or extremely high baseline water stress
RT-CH-140a.2	Number of incidents of non-compliance associated with water quality permits, standards and regulationsnot reported Description of water management risks and discussion of strategies and practices
RT-CH-140a.3	to mitigate those risks
RT-CH-150a.1	Hazardous Waste Management Amount of hazardous waste generated, percentage recycled5, 40
RT-CH-210a.1	Community Relations Discussion of engagement processes to manage risks and opportunities associated with community interestsnot reported
RT-CH-320a.1 RT-CH-320a.2	Workforce Health and Safety (1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees Description of efforts to assess, monitor and reduce exposure of employees and contract workers to long-term (chronic) health risks
RT-CH-410a.1	Product Design for Use-phase Efficiency Revenue from products designed for use-phase resource efficiencynot reported
RT-CH-410b.1 RT-CH-410b.2	Safety and Environmental Stewardship of Chemicals (1) Percentage ¹ of products that contain Globally Harmonized System (GHS) of Classification and Labeling of Chemicals Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment
RT-CH-410c.1	Genetically Modified Organisms Percentage of products by revenue that contain genetically modified organisms (GMOs)no GMOs
RT-CH-530a.1	Management of the Legal and Regulatory Environment Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industrynot reported
RT-CH-540a.1 RT-CH-540a.2	Operational Safety, Emergency Preparedness and Response Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR) and Process Safety Incident Severity Rate (PSISR)
RT-CH-000.A	Production by reportable segmentnot reported

1 Calculated based on number of products. Percentage by revenue is not yet available.



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