



#InThisTogether

TRONOX 

2019 Sustainability Report



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# Letter from the Chairman and CEO

## Welcome to our 2019 Sustainability Report

This past year was momentous for Tronox. On April 10, 2019, we completed the acquisition of the titanium dioxide (TiO<sub>2</sub>) business of The National Titanium Dioxide Company Limited of the Kingdom of Saudi Arabia, known as Cristal, a privately held global chemical and mining company. The transaction more than doubled our size and added new operations in Australia, Brazil, China, France, Saudi Arabia and the United Kingdom. Now, our rich diversity, unmatched vertical integration model, and unparalleled operational and technical expertise across the value chain, enable Tronox to serve the market as the preeminent TiO<sub>2</sub> producer.

We strengthened our commitment to vertical integration in May 2020 when we announced our intent to acquire a titanium smelting facility in Norway. By adding new chloride feedstock capacity, we will increase our ability to reliably serve pigment customers.

As we grow and strengthen our company, we maintain our uncompromising focus on safety, sustainability, environmental stewardship and governance within all aspects of our business.

## Our Global Business

As we are now operating in new countries, one key to our successful integration has been a focus on compliance with the ever-evolving requirements and expectations related to environment, society and governance in each country where we operate. We also value the diversity of our global workforce and are building a corporate culture that celebrates and respects the diverse cultures of our employees around the world.

TiO<sub>2</sub> is a leading indicator of global economic trends, and is particularly tied to the housing and construction markets. While preparing this report, the COVID-19 pandemic occurred, affecting global markets. We believe we are strongly positioned to serve post-pandemic rebounding markets around the world, actively aligning our operations to the dynamic market environment and leading with safety. You can read more about how Tronox is addressing COVID-19 challenges on **page 5**.

## Deepening Our Sustainability Commitment

One of our top priorities is to create long-term, sustainable value for our stakeholders while preserving our privilege to operate around the world. We believe we must earn the trust of our stakeholders by balancing the day-to-day needs of our business with the imperative to preserve the planet's long-term viability. Second, we must outperform our competition by becoming the industrywide standard bearer of safety, operational excellence and sustainability. We view these goals as complementary, since we believe operating sustainably leads to stronger commercial and financial results.



This will be a foundational year for our sustainability approach. We are taking advantage of best practices and successes of the Tronox and Cristal legacy companies to chart our path forward. In pursuit of this mission, we have appointed a Chief Sustainability Officer to lead our efforts to more clearly define our sustainability approach, goals and targets.

## Preserving Our Environment

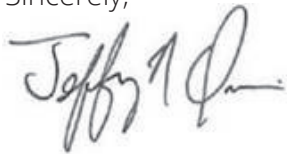
We are ensuring sustainability remains an integral part of daily operations, as well as developing a more comprehensive environmental strategy with respect to, among other things, the global climate crisis, the circular economy, energy efficiency and biodiversity. For example, one of our Australian rehabilitation teams is studying how native plants can best thrive in changing climate conditions, while our restoration efforts in Brazil have enabled the resurgence of a population of critically endangered species of capuchin monkeys. Continuing environmental programs like these will be integral, not just for Tronox, but for the future of our planet.

## Our Most Valuable Resource

Above all else, Tronox values our people – those who work for us, as well as those who live in the communities where we operate. We continue to adhere to the highest standards for the safe operation of our facilities and the protection of our environment, employees, contractors, customers and the communities we call home. We believe that all injuries and occupational illnesses, as well as process safety and environmental incidents, are preventable, and we operate with these in mind.

This report represents the story of two companies joining together, building upon what we do well and learning where we can improve. Sustainability is a journey – one that I am proud to be on with the Tronox team. We are in this together.

Sincerely,



Jeffry N. Quinn  
Chairman and CEO



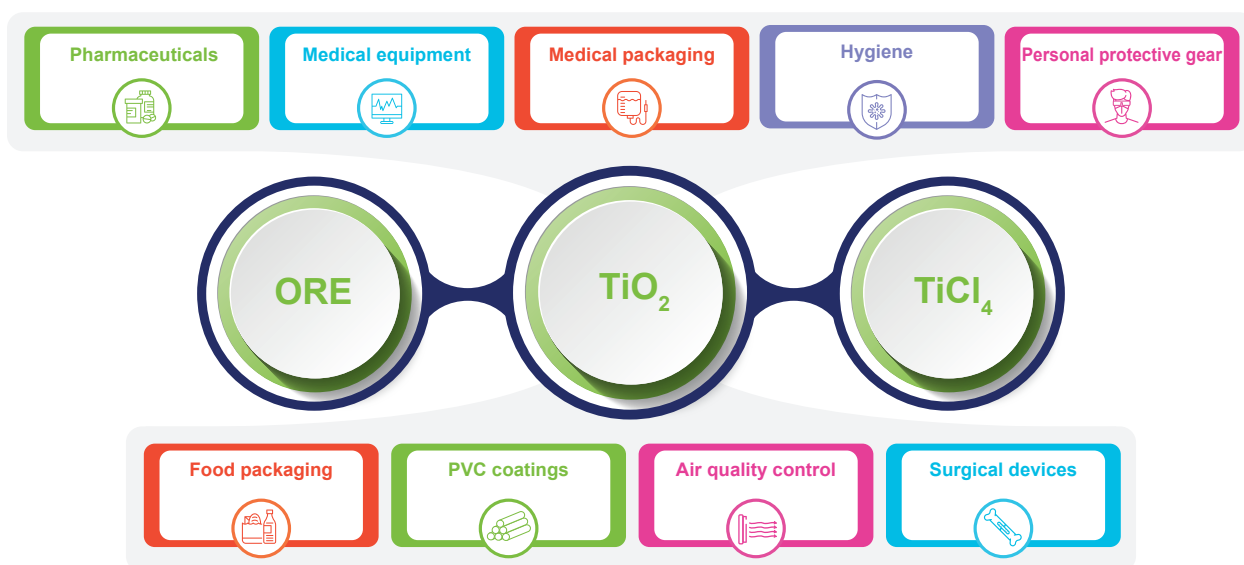
# Operating During a Global Pandemic

The most important value at Tronox is our commitment to the safety and health of our employees and our communities around the world. As we work through the dynamic COVID-19 environment and take actions to protect our people, Tronox continues to carefully monitor the impacts to our operations. Our team continues to work tirelessly to listen, learn and adapt to ensure reasonable measures are in place to keep our employees healthy and that our facilities are operating to provide essential products to our customers.

We put prudent and proportionate measures in place, such as restricted employee travel, remote working, staggered shifts, wellness checkpoints at our entrances, visitor restrictions, and more robust sanitization and disinfecting procedures. These proactive measures have been commended by officials within certain operating regions as exemplary standards designed to protect our people.

As we continue to navigate our business through the pandemic environments, all of our operations are complying with applicable governmental directions designed to minimize exposure risks. For example, Tronox's Fuzhou, China, factory was required to close for three weeks in February 2020 to reduce exposure and spread of the virus in the region, though we had no cases at our site. We reopened with increased safety and cleaning protocols, and were able to apply what we learned at that plant to other facilities.

Tronox was deemed essential to the global pandemic response in all of our operating regions as our products are used in the manufacture of many products needed to support life-saving medical care.



We are proud that our operations took swift precautions and have continued to work with the applicable governmental bodies in their regions to ensure we can support our customers that manufacture the very products needed to treat people with COVID-19 and other illnesses.



## HIGHLIGHTS

ACQUISITION COMPLETED APRIL 10, 2019

**\$89M**

total acquisition  
synergies achieved

**\$2.642B**

revenue

NEARLY

**7,000**

employees worldwide

**18%**

female board  
membership in 2019

2020

**22%** female board  
membership coincides  
with our nearly  
**20%** female workforce



**1,200**

customers

IN

**120**

countries

**Lowest**

total recordable injury  
frequency rate in Tronox  
company history

**\$1.5M**

invested in our  
communities

home to

**170**

critically endangered  
blonde capuchin monkeys

# Looking to the Future

We operate our business realizing the mark we leave extends beyond the minerals we extract or the pigment we manufacture. It is about the way we do business and the example we set. Operating safely and responsibly is an integral part of our business. We believe it is our role to enhance the quality of life in our communities around the world, and we strive to set an example of accountability in our approach to everything we do. We are one Tronox – with global responsibility led by local actions. For Tronox, our hope is that our legacy will be found in the strength of our communities, the lives of the people who are the heart of who we are, our responsible use and preservation of the earth’s resources, and the resilience of our business.

We foster an environment that compels everyone to lead with safety, promotes sustainable growth, invests in cleaner technologies, is transparent in our business operations, and is valued within our communities. Our approach to being a good corporate citizen focuses on proactive global initiatives in the following areas:

<b>Leading with Safety</b>	<b>Progressing Our Environmental Stewardship</b>
<b>Supporting Health and Wellness</b>	<b>Developing and Attracting High-Performance Talent</b>
<b>Unwavering Expectation of Human Rights</b>	<b>Investing in the Next Generation</b>

This is our foundation. We approach these areas with vigor and intention, realizing that expectations are perpetually moving forward. We continuously seek opportunities to leverage the combined strengths of Tronox and legacy Cristal to set goals for further sustainable growth as one Tronox.





## An Unwavering Commitment to Sustainability

Last year marked the start of a new beginning for Tronox – bringing together two companies with a legacy of responsible operations and products that brighten and even help clean our world. We maintained our commitment to sustainability throughout 2019 as we continued to integrate our business.

In 2020, Tronox will undertake a process to better understand the sustainability expectations of our stakeholders, our business operations and our world. We will engage with our employees, customers, communities, shareholders and other stakeholders to develop meaningful goals and sustainability-related initiatives to guide us to a brilliant future. We are actively mapping a sustainability strategy that leverages our global footprint for good, including clear commitments and a path to achieving those in a way that supports a sustainable business and the United Nations Sustainable Development Goals. Our future sustainability reports will provide updates on our progress.



*"We have a legacy of responsible operations and products that brighten and help clean our world. When it comes to understanding the impact of our business, we begin with the end in mind and look forward to engaging with our stakeholders to help us understand and map our sustainability goals. We will continue to grow with our customers around the world in a way that respects the communities in which we operate, invests in the success of our employees and upholds our commitment to responsible operations."*

**Melissa Zona**

Senior Vice President, External Affairs and Chief Sustainability Officer

### SUSTAINABLE DEVELOPMENT GOALS



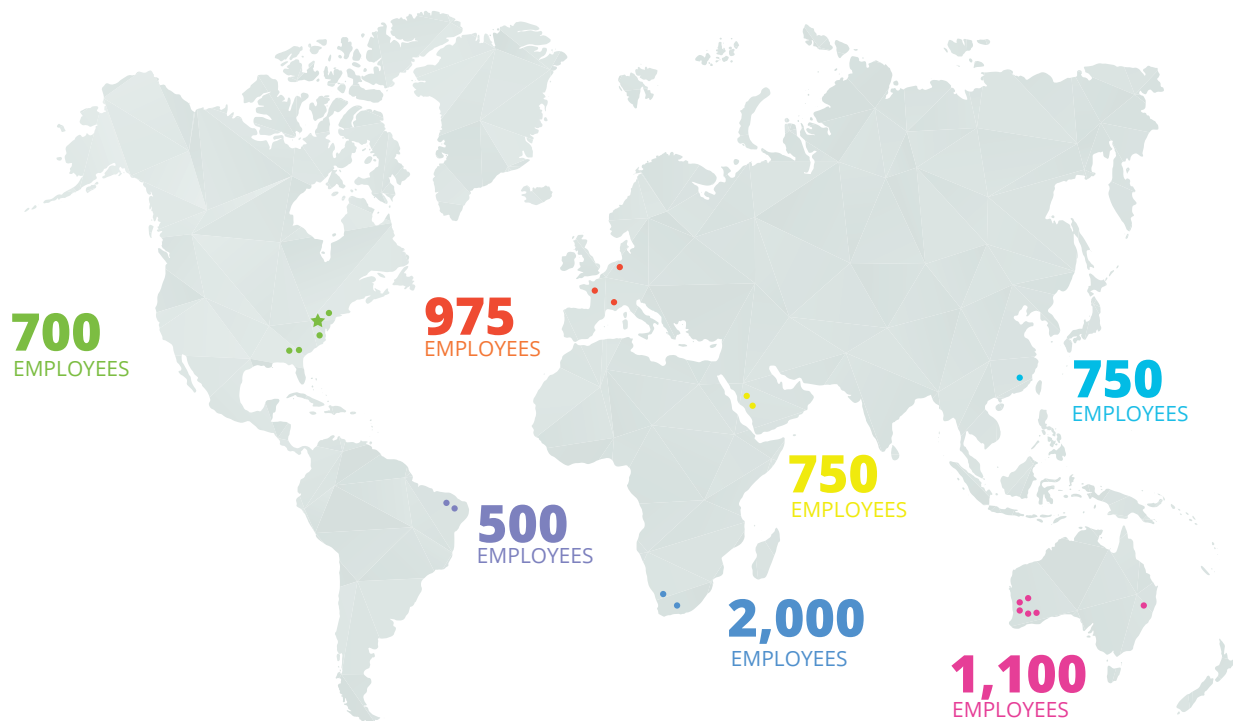
# About Tronox

Tronox is the world's leading vertically integrated titanium dioxide (TiO<sub>2</sub>) producer with an unmatched global footprint. We operate titanium-bearing mineral sand mines and beneficiation and smelting operations in Australia, South Africa and Brazil to produce feedstock materials that can be processed into TiO<sub>2</sub> for pigment. We produce high-purity TiO<sub>2</sub> in our pigment facilities in the United States, Australia, Brazil, United Kingdom, France, the Netherlands, China and Saudi Arabia.

With nearly 7,000 employees around the world, our rich diversity, vertical integration model, and unparalleled operational and technical expertise across the value chain position Tronox as the preeminent TiO<sub>2</sub> producer in the world.

## Global Locations

We more than doubled our size with the 2019 acquisition of Cristal, adding operations in Australia, Brazil, China, France, Saudi Arabia and the United Kingdom.



NEARLY

**7,000**

global employees

NEARLY

**20%**

of employees are female



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Our Annual Report >>



## Markets and Products

TiO<sub>2</sub> is a naturally occurring oxide of titanium, which has been used as a pigment for generations. Today, Tronox mines and processes titanium ore, zircon and other materials to deliver safe, quality, low-cost tons for our customers.

Tronox is proud to offer the broadest TiO<sub>2</sub> product portfolio in the industry that adds brightness and durability to paints, plastics, paper and other everyday products. TiO<sub>2</sub> also has excellent photocatalytic properties, and is widely used to help leverage the power of sunlight to purify and clean the air. Coming full circle, we also recover secondary products from our TiO<sub>2</sub> production process, then market those for use in other industries – an example of how we are reducing waste and creating additional value.

### TiO<sub>2</sub> Products

TiO<sub>2</sub> pigment is an inorganic white pigment found in an array of end uses. The most common uses – coatings and plastics – account for more than 80 percent of its global consumption. It is also commonly used in paper and inks.

**TiONA® | TiKON™**

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### Ultrafine and Specialty TiO<sub>2</sub> Products

As a specialty TiO<sub>2</sub> leader since its inception three decades ago, our products are at the core of technologies that contribute to creating a cleaner world through high-performing applications, like industrial catalysts and self-cleaning coatings and paint.

**CristalACTiv™**

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### Mineral Sands

Naturally occurring minerals (ilmenite, leucoxene and rutile) are mined to produce TiO<sub>2</sub> feedstock. Our mineral processing generates valuable secondary products for many industries.

**Zircon | Pig Iron | Staurolite | Activated Charcoal**

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### Titanium Chemicals

Tronox is the world's largest supplier of titanium chemicals (TiCl<sub>4</sub> and its derivatives) for use in pigments, powders, catalysts and more.

**Titanium Tetrachloride (TiCl<sub>4</sub>) | Titanium Oxychloride (TiOCl<sub>2</sub>) |  
Titanium Oxysulfate (TiOSO<sub>4</sub>)**

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### Secondary Products

Secondary products produced during the manufacturing of TiO<sub>2</sub> benefit industries as diverse as agriculture, organic and inorganic chemicals processing, construction, and water treatment chemicals – making them vital ingredients in our everyday lives.

**Caustic Soda Flakes and Liquid | Gypsum | Hydrochloric Acid | Iron Chlorosulfate and Sulfate | Sodium Hydrochlorite | Sulfuric Acid**

# About This Report

We integrate sustainability into every aspect of our business, from our culture and our strategy to our operating practices. This report is one way we communicate our approach to living our values and sharing our expectations and progress.

The first step was to identify the issues that are of highest priority and interest to external stakeholders and most relevant to the responsible operations of the Tronox business. We solicited input from thought leaders throughout our business to identify the topics that were material to stakeholders, including: employees and prospective employees, investors, lenders, customers, suppliers, governments and regulatory bodies, communities, and nongovernmental organizations. Following the Global Reporting Initiative (GRI) Standards, below are the identified material topics for the 2019 Tronox Sustainability Report. Other relevant issues and topics were evaluated, but not deemed material at this time. That does not mean they are not important nor that Tronox is not already engaged in addressing the matter. We will repeat this process of identifying material topics in 2020 to ensure we are continuing to address what is most important to our stakeholders.

## Material Topics

<u>Environment</u>	<u>Employees</u>	<u>Communities</u>	<u>Responsible Business</u>	<u>Governance</u>
Energy	Health and Safety	Indigenous Rights	Economic Performance	Board Governance
Water	Labor/ Management Relations	Local Communities	Products for a Cleaner World	Business Conduct
Biodiversity	Training/ Development			Stakeholder Engagement
Emissions	Diversity and Inclusion			
Effluents and Waste				

The 2019 Sustainability Report was prepared in accordance with the core option of the GRI Standards and its Mining and Metals Sector Disclosure Supplement. This report covers Tronox's global operations in mining, processing and manufacturing, and land rehabilitation. This includes mineral sand mines, beneficiation and smelting operations in Australia, South Africa and Brazil, and pigment facilities in the United States, Australia, Brazil, United Kingdom, France, the Netherlands, China and Saudi Arabia.

We welcome feedback on our report and additional material topics not currently covered. Some previously reported data has been restated within this report as a measure of our expectations and improvements. Contact Melissa Zona, senior vice president, external affairs and chief sustainability officer, at [sustainability@tronox.com](mailto:sustainability@tronox.com).





# Leading with Safety

We have an uncompromising focus on operating safe, reliable and responsible facilities. It is a core value because it is foundational to our vision to make high-quality products at a low cost in a safe and sustainable manner.



**Tronox is committed to creating a safe and healthy workplace and driving continuous safety and health improvements.**

We believe everyone has responsibility for safety. Our leaders are expected to foster an all-encompassing culture of safety, and every employee is expected to understand the risks inherent in our work and maintain our high standards for safety compliance. We proactively identify and manage risk, conduct ourselves responsibly, exercise good judgment, and take accountability for our actions.

**We are on a Journey to Zero – Zero injuries. Zero incidents. Zero harm.**

We have an unwavering commitment to safety. Throughout 2019, sites continued to leverage safety programs and tools to embed this goal within our operations – whether at a mine, beneficiation facility, pigment plant or office building. The first companywide initiative was to set consistent, high expectations for safety and living our core values across all sites.

We measure lost-time, disabling and recordable injuries and review the results daily at our sites. Safety, Health and Environment leaders review reports monthly as part of our commitment to safe operations. Safety, we know, is an important topic both to Tronox and our stakeholders as we set our sustainability strategy, goals and targets in 2020.





## CASE STUDY



### Learning from Leading Indicators

Safety programs often analyze two types of data: lagging indicators that reveal what happened after an incident occurs, and leading indicators, which measure the prevention efforts and positive safety behaviors that are done proactively to avoid an incident. Engagement through visible, felt leadership – while also focusing on leading indicators – helps Tronox strengthen our safety programs and maintain operational efficiencies, too.

In 2019, Tronox developed a new multilingual app to facilitate safety-based conversations and capture leading indicators that showcase our strengths and identify opportunities to improve safety.

*“Focusing on leading indicators helps us identify and encourage the right behaviors to prevent incidents before they even happen. In sharing learnings across the global organization, and taking personal ownership in safety, we drastically reduce our risk of having things go wrong.”*

**Kym Cramer,**

Director of Safety, Health, Environment and Quality in Australia

One way we are institutionalizing leading indicators into our operations is through increased engagement between leaders, supervisors and employees. Through intentional interactions called safety contacts, employees and contractors across the organization are working together to observe any barriers that exist to completing a task safely, compel everyone to lead with safety, commend responsible actions and seek opportunities for improvements.

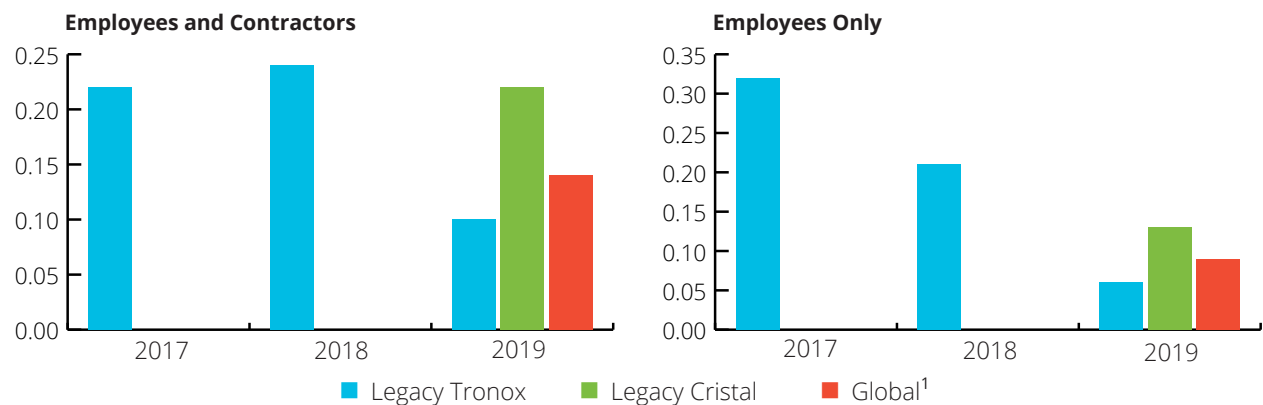
The app enables leaders and supervisors globally to document safety contacts in real time. Previously, each site used a different method for tracking these encounters, which resulted in disjointed and less timely data. We are already seeing improvements in the accuracy and ease of reporting of these safety engagements, and believe this data will reveal additional ways we can help reduce the likelihood of incidents.

Several locations in Australia, South Africa, China and the United States are already using the app, and we are rolling it out to our other locations in 2020.

## Work-Related Injuries (403-9)

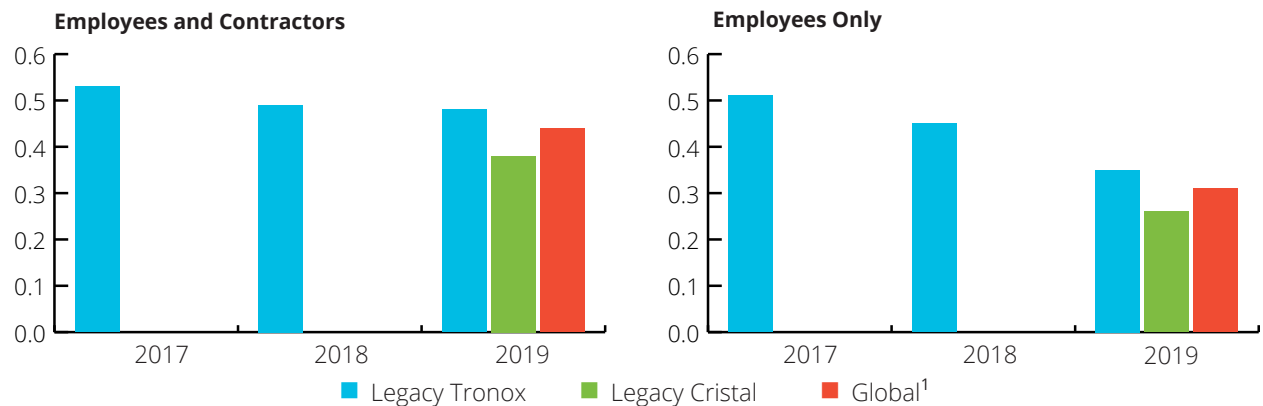
### Disabling Injury Rate

Disabling injuries are defined as fatalities, lost-time injuries and restricted work cases. Disabling Injury Frequency Rate is the number of disabling injuries per 200,000 hours worked.



### Total Recordable Injury Frequency Rate

Recordable injuries are defined as disabling injuries and medical treatment cases. Recordable Injury Frequency Rate is the number of recordable injuries per 200,000 hours worked.



<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019.

**Legacy Tronox and the new Global combined company achieved the lowest total injury frequency rates in Tronox history.**



	2017 Legacy Tronox			2018 Legacy Tronox			2019 Legacy Tronox			2019 Legacy Cristal			2019 Legacy Global <sup>1</sup>		
Fatalities	0	0	0	0	0	0	0	1	1	0	1	1	0	2	2
Lost-Time Incidents	3	1	4	6	7	13	2	2	4	2	1	3	4	3	7
Restricted Work Cases	7	1	8	1	0	1	0	1	1	1	3	4	1	4	5
<b>Disabling Injuries</b>	<b>10</b>	<b>2</b>	<b>12</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>5</b>	<b>9</b>	<b>14</b>
Medical Treatment Cases	6	11	17	8	7	15	10	13	23	3	3	6	13	16	29
<b>Recordable Injuries</b>	<b>16</b>	<b>13</b>	<b>29</b>	<b>15</b>	<b>14</b>	<b>29</b>	<b>12</b>	<b>17</b>	<b>29</b>	<b>6</b>	<b>8</b>	<b>14</b>	<b>18</b>	<b>25</b>	<b>43</b>
Reversible Occupational Health Illnesses	0	0	0	0	0	0 <sup>2</sup>	0	0	0	0	0	0	0	0	0

□ Employee

□ Contractor

□ Total

<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019.

<sup>2</sup>2018 reversible occupational health illness data have been corrected.

In 2019, Tronox employees worked more than 11 million hours with 18 recordable injuries. Contractors worked more than 8 million hours with 25 recordable injuries. The most common injuries included lacerations as a result of hitting or being hit by a moving object. Sadly, in 2019, two contractors sustained fatal injuries, one at our KwaZulu-Natal Metal Processing Site and one at our Eastern Operations Mine. Accidents, especially those resulting in a fatality, are a loss to all of us, and it is important for us to understand the actions that contributed, so we can prevent something similar from happening in the future. We immediately activated a global investigation team to determine the cause of the incidents, and we have shared the learnings of the investigations with all operating facilities. For everyone at Tronox, zero fatalities is the only acceptable target.





A gazelle stands in a dry, desert-like environment. In the background, there is a green mesh fence. The gazelle has a light brown body with a white underbelly and distinctive black and white facial markings. It has small, spiraling horns and is looking towards the right. The ground is sandy with sparse, dry vegetation. The overall scene is brightly lit, suggesting a sunny day.

# Committed to Our Environment

When it comes to managing our environmental impact, we begin with the end in mind. We implement innovative technologies and practices at our operating sites to protect our land, water, air and ecosystems today, then rehabilitate our land to preserve the earth's scarce resources for the future – because we only have one planet.

## **We strive to be responsible stewards of the environment and have processes in place to understand how to minimize our environmental impact.**

We know our business – mining and chemicals manufacturing – requires an unwavering focus on protecting our environment. We disturb the ground to extract minerals and ore, we use large quantities of water in mineral separation, we emit carbon dioxide when we beneficiate ilmenite into titanium slag or synthetic rutile in our furnaces/kiln, we emit carbon dioxide and other gases from our TiO<sub>2</sub> pigment plants, and we dispose of waste tailings from our mines and solid waste from our pigment plants.

That is why we strive to set an example of accountability and proactively approach environmental stewardship as an essential component of our business. Tronox supports the precautionary approach to evaluate and address potential environmental impacts as part of our Code of Ethics and Business Conduct, which also holds managers and employees responsible for:

- Pursuing a business strategy that builds on sustainable innovation, operations and business practices to grow our businesses and improve the quality of people's lives everywhere
- Conducting our business in a manner that is protective of public and occupational health, the environment, and employee safety
- Giving environmental considerations priority in manufacturing our products and planning for new products, facilities and processes
- Complying with all environmental laws and regulations
- Striving to reduce emissions and waste, and using energy and natural resources efficiently as we grow
- Actively soliciting input from our employees, suppliers, customers, neighbors and shareholders on how we can better manage our environmental impact

We are continuously improving our environmental footprint monitoring and data collection, whether that is reclassification of data to better align to our global definitions, or adjustments to the conversion factors we use, that can result in slight changes to historical numbers reported in prior reports. Significant changes are noted and explained.

In 2019, Tronox team members from both legacy companies undertook a collaborative process to align on data reporting definitions and collection to produce this, our first combined sustainability report. We are now in the process of analyzing our environmental performance across both companies, and identifying opportunities for improvement as the new Tronox.





## Energy

It takes considerable energy to produce high-quality mineral sands and TiO<sub>2</sub> products, particularly at our slag furnaces at the two smelter sites in Saldanha (Western Cape) and Empangeni (KwaZulu-Natal), South Africa. We work to manage our energy consumption in order to mitigate our impact on the local environment and on the climate from greenhouse gas emissions.

Energy availability issues have a direct impact on our operational efficiency.

Tronox regularly invests in efficient energy-generation options, the reuse of process emissions, and renewable energy sources. Some of our energy projects include:

- A wind turbine farm in Paraíba, Brazil, supplies renewable electricity to satisfy approximately 90 percent of the mine's energy needs
- A combined heat and power plant generates electricity and steam for the Kwinana and Stallingborough TiO<sub>2</sub> pigment plants
- A carbon monoxide (CO) gas facility reuses CO gas formed during our furnace smelting operations for various needs in KwaZulu-Natal
- A cogeneration plant utilizes previously flared furnace gases to fuel eight General Electric Jenbacher gas-fired engines for electricity production at the Saldanha Smelter
- A neighboring waste incineration plant in Botlek, the Netherlands, supplies renewable steam to satisfy 100 percent of the TiO<sub>2</sub> pigment plant's steam needs

We measure our energy consumption and energy intensity at each of our operating sites. We will review our energy mix and amount of energy use as we set our sustainability strategy, goals and targets for Tronox in 2020.



**In 2019**, Tronox announced an ambitious, multi-year business transformation project, newTRON. It is designed to improve all aspects of our global business, leveraging technology to improve efficiency, such as process control automation designed with sustainability in mind.



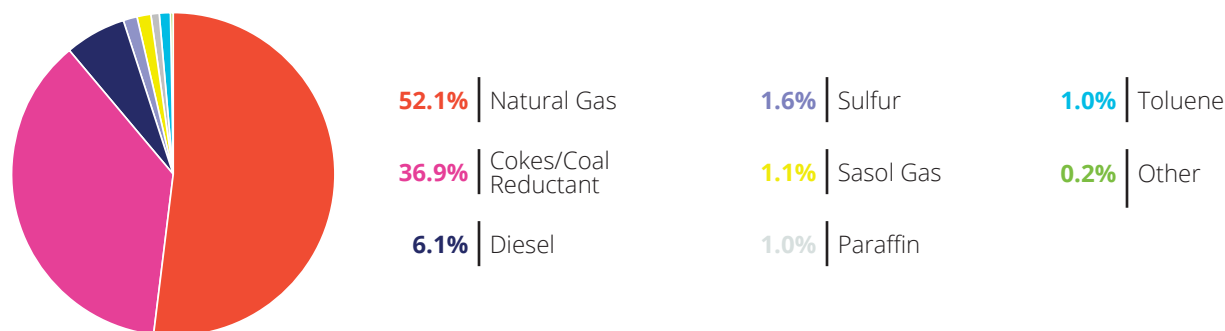
## Energy Consumption within the Organization (302-1)

### Total Direct Primary Energy Consumption

millions of gigajoules	2017	2018	2019		
Non-Renewable Fuel Sources	18.5	18.5	18.9	11.2	30.0
Renewable Fuel Sources	0	0	0	0	0
Electricity and Steam Sold	-0.8	-1.0	-1.0	-0.2	-1.2
<b>Total Direct Primary Energy Consumption</b>	<b>17.7</b>	<b>17.5</b>	<b>17.9</b>	<b>11.0</b>	<b>28.8</b>

■ Legacy Tronox ■ Legacy Cristal ■ Global<sup>1</sup>

### 2019 Non-Renewable Fuel Sources



### Total Indirect Primary Energy Consumption

The Botlek plant in the Netherlands is the only site that consumes imported steam. Since 2018, this steam is generated by the incineration of 100 percent renewable waste (biomass).

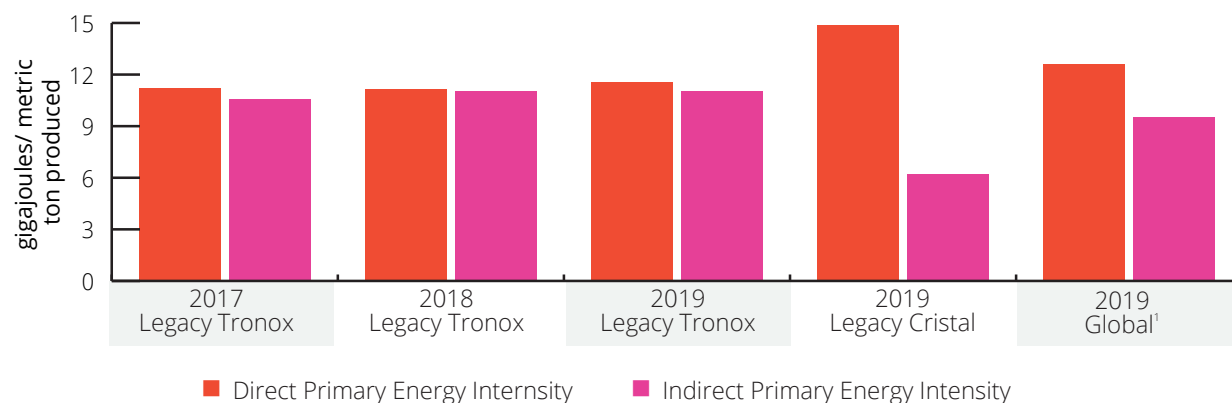
millions of gigajoules	2017	2018	2019		
Electricity	15.9	16.7	16.5	4.6	21.1
Steam	0.7	0.7	0.6	0	0.6
<b>Total Indirect Primary Energy Consumption</b>	<b>16.6</b>	<b>17.4</b>	<b>17.1</b>	<b>4.6</b>	<b>21.7</b>

■ Legacy Tronox ■ Legacy Cristal ■ Global<sup>1</sup>

<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

The energy intensity required to produce our products is influenced by multiple factors, such as transportation distances, the energy mix of the fuel sources used, and the production load of the pigment plants. Direct and indirect energy intensity remained fairly consistent for legacy Tronox operations from 2017 to 2019.

### Energy Intensity (302-3)



<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

In 2019, Namakwa Sands in South Africa experienced an increase in direct energy intensity compared with 2018 due to longer hauling distances for both mining and land rehabilitation activities, and a furnace reline in September. The Botlek Pigment Plant in the Netherlands continues to decrease its consumption of imported energy per metric ton of TiO<sub>2</sub> produced, in line with the national Energy Efficiency Plan.

Tronox will use 2019 data from the combined legacy companies as a baseline for the global company data, and work is underway to review and improve our energy intensity performance, as well as drivers and opportunities for improvement.







## Water

Fresh water is a precious natural resource, vital to our communities and essential to our operations. At Tronox, our value to operate responsibly means we must manage water more sustainably. To do this, we focus on water reuse and recycling systems at several of our operations, as well as rainwater, so fresh water remains available for allocation as efficiently as possible. For example, we use almost exclusively recycled water for the water-based mining process at our KwaZulu-Natal Sands Fairbreeze Mine in South Africa. This responsible reuse also means we do not need to draw water from the nearby uMhlathuze River except for weekly quality testing.

We also match the quality of water used in operations to a specific process in a fit-for-purpose approach, such as using seawater or recycled industrial wastewater instead of fresh water, which reduces our reliance on municipal water around the world.

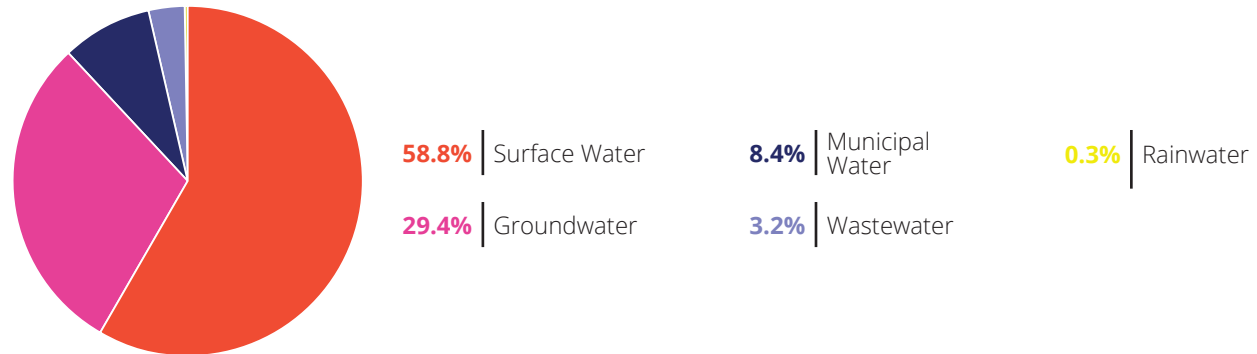
In addition to fit-for-purpose water, Tronox relies on multiple water reuse and recycling systems so scarce fresh water can be allocated as efficiently as possible. We collect and consume rainwater at KwaZulu-Natal Sands in South Africa, and at Broken Hill Mineral Processing Plant in Australia.

We measure our water withdrawal to understand our use of water for the first time (not reused or recycled water). We will review our water use as we set our sustainability strategy, goals and targets for Tronox in 2020.

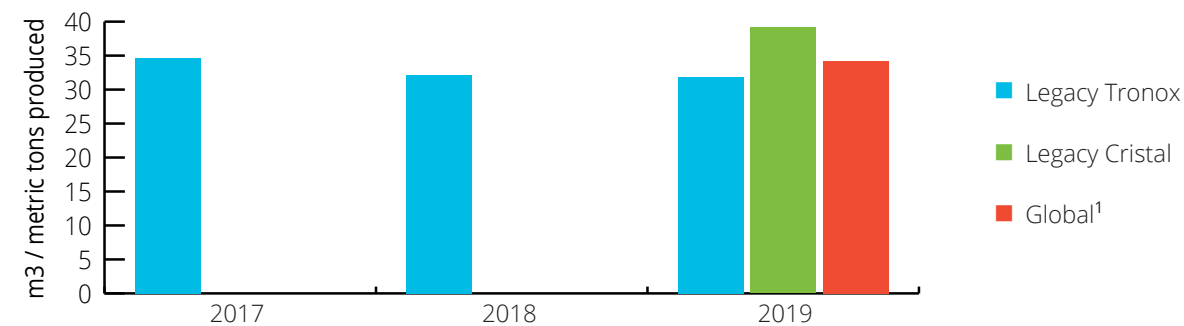
## Water Withdrawal by Source (303-1)

millions of cubic meters	2017	2018	2019		
<b>Total Water Withdrawal</b>	<b>54.6<sup>2</sup></b>	<b>50.8<sup>2</sup></b>	<b>49.6</b>	<b>29.0</b>	<b>78.5</b>
	■ Legacy Tronox	■ Legacy Cristal	■ Global <sup>1</sup>		

### 2019 Water Withdrawal by Source



### Water Intensity



<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

<sup>2</sup>2017 and 2018 data have been corrected to exclude the rainwater not used for operational purposes at KwaZulu-Natal Sands.

Water intensity decreased slightly from 2017 to 2019 in the legacy Tronox operations. One factor in the 2019 reduction was the significant increase in ilmenite feedstock processed in Australia and sourced from Australia mines other than just our Cooljarloo Mine. This resulted in decreased groundwater consumption at the Cooljarloo Mine, while production of synthetic rutile at Chandala increased. In addition, the KwaZulu-Natal Sands Processing Plant in South Africa performed a furnace reline in 2019 resulting in reduced production and increased water intensity at the plant, and tempered the overall decrease in legacy Tronox water intensity.

We intend to assess our water use practices in 2020 as we review our overall sustainability approach for the new Tronox.



## Biodiversity

We understand our operations are often in areas that are home to unique animals, plants and wildlife. Our mines and plants disturb the land, so it is imperative that we protect this biodiversity. The first mission is to mitigate impacts as we operate, and then we rehabilitate these sites to protect and restore land and local ecosystems, so they can thrive long term.

Because of the nature of our mining, we shift our active mining area frequently, and immediately implement rehabilitation efforts, such as planting native vegetation. This approach enables us to disturb the land for only a short time, and allows animals to move easily throughout the area without having the full habitat impacted. We also put proactive measures in place to protect animal and flora species. For example, at our Cooljarloo Mine in Australia, nesting boxes are designed to shelter the endangered Carnaby's Black Cockatoo, and at Western Australia's Northern Operations, we implemented plans to eradicate invasive pathogens, including *Phytophthora cinnamomi* (dieback), to protect indigenous plant species on the site. In addition, we often transplant rare plants from our operations to rehabilitation areas to support such plants' continued survival.

We conduct studies as part of our environmental management programs (EMPs) and environmental impact assessments so we can include environmental considerations as we determine which areas we mine and develop, which should be restricted areas, and the mining approach to minimize or avoid environmental impact. Rehabilitation measures are included in the EMPs, Rehabilitation Guidelines and Procedures, as well as integrated into our way of doing business from early in the mine's life. These measures are monitored and reported on a consistent basis to certify that closure objectives are met. In some cases, Tronox focuses rehabilitation efforts on offset areas in addition to returning the mine footprint to the minimum standard. For example, at the KwaZulu-Natal Sands Fairbreeze Mine in South Africa, an Offsets Advisory Committee consisting of various stakeholders and biodiversity experts determines an offset requirement commensurate to impacted water resources and ecosystems. The Fairbreeze Mine offset obligations are to compensate for affected wetland and biodiversity that could not be mitigated.

*"Our approach to rehabilitation is to create the best possible conditions with the available resources so our natural systems can recover. I feel lucky to work with a company with good environmental values."*

**Sarah Broomfield,**  
Rehabilitation Specialist in Australia



The Paraíba Mine's environmental recovery program is recognized by the Brazilian Institute of Environment and Renewable Natural Resources as a model for the re-composition of dunes. The mine's efforts to restore the environmental characteristics of the land includes re-establishing the local fauna and flora, and involves the local producers and the community in purchasing and in planting seedlings and sharing best practices. The site also supports animal release efforts, with up to 1,889 animals released since mining operations began at the site – 1,687 birds, 24 mammals and 178 reptiles.

We have a successful rehabilitation record in Australia. Our wetland rehabilitation project at Gwindinup North Mine won the Revegetation Industry Association of WA Award for Excellence in Rehabilitation in 2018. At our Eastern Operations in Australia, Tronox prepared a Flora and Fauna Management Plan in 2019, in accordance with Development Consent requirements, for the construction and operation of the mine and associated infrastructure. The plan specifies how we will manage vegetation clearing, protect threatened species, and reinstate, monitor, and manage native flora and fauna habitats. We work to monitor and rehabilitate vegetation at our other mine sites as well, and plan to begin rehabilitation at the Crayfish Mine site in 2021.

At our Northern Operations location in Western Australia, rehabilitation monitoring is conducted by a contractor to track the site's development over time, confirm successful practices and identify improvement opportunities. Tronox has developed formal rehabilitation performance criteria with clearly defined objectives, plans and success measures. These are outlined in the Cooljarloo Mine Closure Plan, as endorsed by the government. The rehabilitation data is presented to the Mineral Sands Agreement Rehabilitation Coordinating Committee each year.

We measure the amount of land disturbed by our operations, as well as rehabilitated, protected or restored, and will review our approach to biodiversity as we set the sustainability strategy, goals and targets for Tronox in 2020.





### Blonde Capuchin Monkeys Flourish at Paraíba Site

Our Paraíba Mine site is now home to 170 critically endangered blonde capuchin monkeys – including at least nine new babies in 2019 – because of Tronox’s rehabilitation approach.

Native to Northeast Brazil, blonde capuchins are one of the top 25 most endangered primate species in the world due to deforestation and hunting. When a small population was found at Paraíba, we authorized researchers at the Federal University of Pernambuco to come to our site. For 10 years, we have provided accommodations, food and local guides to the researchers so they can study the blonde capuchins more closely.

Tronox also works to limit the impact of our operations on the monkeys’ natural habitat. We focus our mine operations on a small area at a time, which allows animals like the blonde capuchin to move from one segment to another without habitat disruption, and strive to rehabilitate the land quickly. We also concentrate on protecting local vegetation, like the mangrove areas that are vital for blonde capuchins. These efforts have created one of the healthiest populations of blonde capuchin monkeys in the world, and the research conducted at Paraíba has helped to create Brazilian public policies to protect the species.

*“We also have hosted more than 11,000 children at the Paraíba site to learn about the blonde capuchins and the biodiversity of this region. By instilling children’s sense of awe and respect for nature, we’re hoping to create “mini guardians” of the capuchins and their environment.”*

**Virgilio Gadelha Pinto,**

Laboratory and Environmental Superintendent at the Paraíba Mine in Brazil

## Habitats Protected or Restored (304-3)

### Amount of Land Disturbed or Rehabilitated (G4-MM1)

Data represents a snapshot at year end (December 31 of that year). The land use footprint includes all Tronox operations; however, more than 95 percent of total land use can be attributed to our six titanium feedstock mines in Australia, Brazil and South Africa.

hectares	2017	2018	2019		
Area Protected	32,731	32,969	31,782	2,482	34,264
Area Disturbed	5,200	5,096	5,323	4,244	9,567
Area in Rehabilitation	2,250	2,242	2,440	522	2,962
Area Restored	4,518	4,749	4,895	1,695	6,590
<b>Total Land Use</b>	<b>44,699</b>	<b>45,056</b>	<b>44,440</b>	<b>8,943</b>	<b>53,383</b>

■ Legacy Tronox ■ Legacy Cristal ■ Global<sup>1</sup>

<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is reported pro forma.

Total area in rehabilitation increased in 2019. Namakwa Sands' Brand-se-Baai Mine in South Africa increased the footprint of land in rehabilitation to 2,289 hectares at the end of the year. Similarly, KwaZulu-Natal Sands started ramping up rehabilitation activities at its Fairbreeze Mine in South Africa – the 15 hectares that were in rehabilitation at the end of 2018 grew to 40 hectares at the end of 2019.

### Restored Habitats at Our Mines

Mine	Area Opened During Fiscal Year hectares	Area Restored During Fiscal Year hectares	Expenditures on Rehabilitation During Fiscal Year USD
Australia Eastern Mining	468	37	\$844,651
Australia Western Mining	134	27	\$402,125
KwaZulu-Natal Sands	26	6	\$690,259
Namakwa	301	87	\$3,922,534
Northern Operations	56	53	\$719,843
Paraíba	14	23	\$323,725
<b>Total</b>	<b>999</b>	<b>234</b>	<b>\$6,903,137</b>

The KwaZulu-Natal Sands mining operations had several changes in 2019, resulting in a significant drop in expenditures on rehabilitation. Its Fairbreeze Mine advanced into a thicker ore body in 2019, which resulted in a smaller area opened up for mining activities, compared with 2018. Also, the first six hectares of mined out land were restored with indigenous grass species at the Fairbreeze Mine. Prior to 2019, the focus of rehabilitation at KwaZulu-Natal Sands was on the closed Hillendale Mine. Rehabilitation efforts were completed in 2018, and in 2019, we maintained the quality level of the restored land.

The Namakwa Sands' Brand-se-Baai Mine increased expenditures on rehabilitation from 2018 to 2019, even though efforts resulted in 87 hectares of restored land – same as 2018. The main reason for this increase was machine costs: diesel prices went up, hauling distances increased, and machines experienced more breakdowns in 2019.

Additionally, less land was opened up in 2019 at Northern Operations' Cooljarloo Mine, compared with 2018, as the dredge was moved to previously disturbed solar drying cells, and dry mined areas were left open for dredge mining. Leaving the dry mined areas open to allow the dredge to pass through the area again to reach a new ore body in the future also meant less land was restored. This decrease in activities did not result in a proportional decrease in rehabilitation expenditures as Tronox continued diligent monitoring of the land in rehabilitation.

### **Community Partnerships for Biodiversity**

We believe in the value of constructive discussions with stakeholders in our communities as part of our commitment to being good stewards of our environment.

As part of Tronox KwaZulu-Natal Sands' impact mitigation measures at the Fairbreeze Mine, the company has established protected areas, such as the Siyaya Biodiversity Offset (230 hectares / 568 acres). We have partnered with Eco-Pulse, a reputable environmental consulting company, to build a state-of-the-art offset management planning. We also participate in the uMhlathuze Catchment Management Agency, where we play a critical role in ensuring catchment protection and efficient water utilization. As part of our environmental stewardship, we have partnered with the Mtunzini community to form an Environmental Oversight Committee (EOC) comprising representatives of Tronox and the community. The EOC's primary function is to ensure that Tronox delivers on our environmental and biodiversity impact mitigation promise, and is chaired by an independent leader.

Our Northern Operations in Australia has provided a total of over US \$225,000 in annual grants since 2005 to the Department of Parks and Wildlife (DPAW) to fund important conservation projects within the catchment area of the Chandala Processing Plant. Each year, DPAW submits a list of projects to Tronox. We select projects focused on improving the health of the environment, such as:

#### **Swan Coastal Plain Nature Conservation Survey (2010 to date)**

The monitoring program will produce the most comprehensive macroinvertebrate inventory of an area on the Swan Coastal Plain with a photographic reference record that has ever been conducted.

#### **Feral European Honey Bee Survey And Control Programs**

Funding supports efforts to control the feral European honey bee, which is a recognized threat to biodiversity due to competition with native bees and other insect pollinators. They also impact native animals that utilize tree hollows for shelter and nests, including the Carnaby's Black Cockatoo, which is a threatened species.

#### **Supporting The Chittering Wildlife Caretakers (2012-2016)**

Funding enables a local wildlife caretakers group to care for sick, injured and immature native wildlife in order to re-establish rehabilitated wildlife into their natural environment.

#### **Western Shield Feral Predator Program (2001 to date)**

The Western Shield fox baiting program in the Cooljarloo area distributes baits for the eradication of the feral fox. In 2018, this baiting program was extended to include Eradicat, which is a bait for feral cats. Both foxes and cats pose a serious conservation problem in Australia and have a significant impact on fauna native to the Cooljarloo area.



### Other Environmental Projects Sponsored By Northern Operations Include:

A partnership with the Chittering Landcare Group since 1990. Tronox supplies financial funding and office facilities where the group works. Chittering Landcare Group carries out monitoring on all local waterways. They also receive government funding each year to carry out various environmental projects, such as planting of native flora on eroded lands.

Sponsoring the West Midlands Natural Resource Group, which is responsible for promoting sustainable farming practices, reducing environmental impacts and improving productivity. This includes fencing of creek beds to stop erosion, planting perennial grasses on light soils, various deep ripping and cropping practices, and conducting fertilizer and grain trials. West Midlands also runs regular community meetings with guest speakers.

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## Emissions

Climate change is an increasing concern to companies, communities and citizens around the world – including us. We are proud to offer products like catalysts for power plants and diesel trucks that leverage the photocatalytic properties of TiO<sub>2</sub> to reduce air pollution. We are seeking ways to reduce our greenhouse gas (GHG) emissions from the production of all our products. Most of Tronox's GHG emissions are generated from our TiO<sub>2</sub> slag furnaces in South Africa, synthetic rutile kiln in Australia, and TiO<sub>2</sub> chemical plants in the United States, United Kingdom, France, Brazil, China, the Netherlands, Australia and Saudi Arabia.

A significant portion of GHG emissions are a direct result of the combustion of fossil fuels for electricity generation. Our energy-efficiency improvements, which are a key element of our operational excellence initiative, have the added benefit of reducing our GHG emissions. These include programs to reduce steam losses at our TiO<sub>2</sub> pigment plants and optimize our coke usage at those TiO<sub>2</sub> plants that utilize the chloride process. We also use infrastructure like baghouses to stay below permit limits on particulate matter emissions. In 2019, two such baghouses were added to our Central Processing Complex in South Africa. In addition, we employ strategies to minimize high-carbon content energy sources where possible, such as buying renewable energy through power purchase agreements.

The amount of GHG emissions (measured in CO<sub>2</sub> equivalents) is often used as a measure for environmental sustainability. As a member of the Titanium Dioxide Manufacturers Association, Tronox has contributed to a cradle-to-gate analysis that mapped the carbon footprint of our TiO<sub>2</sub> operations. This analysis was later expanded to a full-size cradle-to-gate life cycle assessment, measuring additional parameters beyond carbon footprint. Tronox uses the results from these studies to engage with supply chain partners to advance product life cycle sustainability.

We measure our GHG emissions (Scope 1 and 2), as well as our emissions intensity, to help us manage our impact. We will review this as we set our sustainability strategy, goals and targets for Tronox in 2020.



### Preparing for Climate Change Impacts on Our Business

We have been rehabilitating sites for decades, but now with climate change, we need to think about whether what we do today will be able to withstand the future.

Tronox is studying the potential impact of climate change on the rehabilitation of formerly mined land in partnership with Kings Park Science (part of Western Australia's Department of Biodiversity, Conservation and Attractions), and the University of Western Australia, the University of Adelaide, and Hanson, a construction materials producer. Together, we are testing how native seeds from different regions of Western Australia respond in different climates, such as hotter temperatures, or shorter, more intense rainfall. University students are looking at response to the climate, as well as the microbiome of the soil, including the fungal community, pH levels and nutrients present that will ultimately impact the plant's growth.

These observations will reveal which plants can best withstand the changing weather patterns that are expected over the next years and decades. Our rehabilitation team will use this data to pick plants that can be most successful for the long term as we replant our mine sites, returning them to grazing lands and native vegetation.



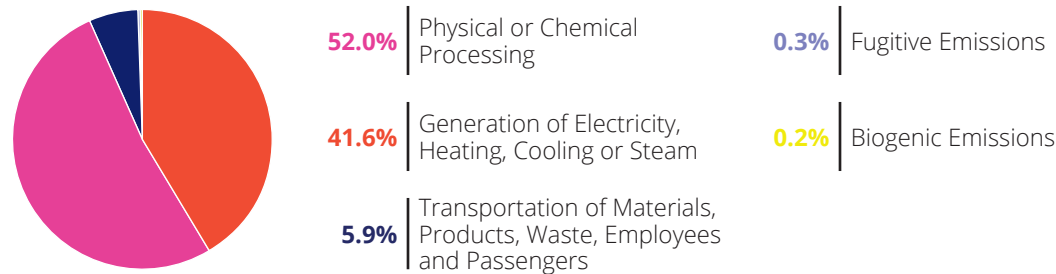
## Direct (Scope 1) GHG Emissions (305-1)

Data represents direct GHG emissions from operations that are owned or controlled by the Tronox TiO<sub>2</sub> business.

millions of metric tons of CO <sub>2</sub> equivalents	2017	2018	2019		
<b>Direct GHG Emissions (Scope 1)</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>0.8</b>	<b>2.2</b>

■ Legacy Tronox ■ Legacy Cristal ■ Global<sup>1</sup>

## 2019 Direct GHG Emissions (Scope 1) Sources



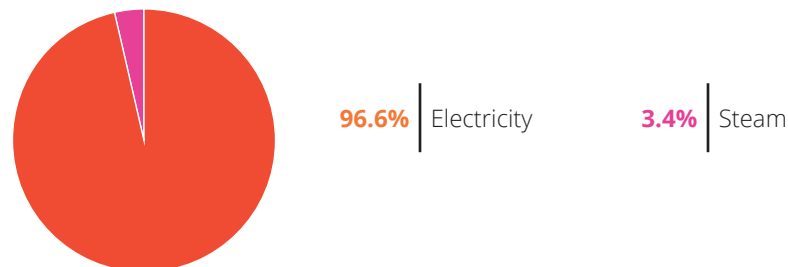
## Energy Indirect (Scope 2) GHG Emissions (305-2)

Data represents indirect GHG emissions that results from the generation of purchased or acquired electricity, heating, cooling and steam consumed by the Tronox TiO<sub>2</sub> business.

millions of metric tons of CO <sub>2</sub> equivalents	2017	2018	2019		
<b>Indirect GHG Emissions (Scope 2)</b>	<b>1.6</b>	<b>1.7</b>	<b>1.6</b>	<b>0.3</b>	<b>1.9</b>

■ Legacy Tronox ■ Legacy Cristal ■ Global<sup>1</sup>

## 2019 Indirect GHG Emissions (Scope 2) Sources



<sup>1</sup> Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

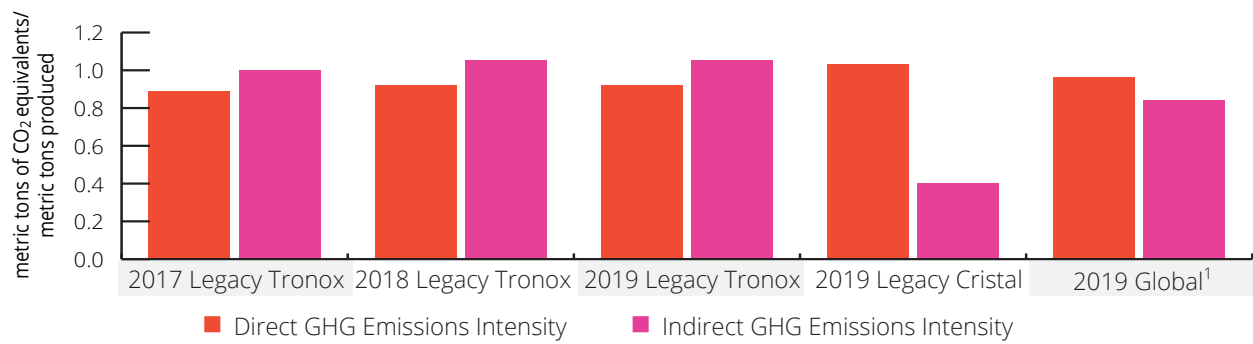
## Renewable Steam

The Botlek Pigment Plant in the Netherlands is the only Tronox site that imports steam. Since 2018, this steam is generated by the incineration of 100 percent renewable waste (biomass). The steam is imported from neighboring company AVR, which has been Tronox's steam supplier for over 15 years. Previously, AVR's biomass plant, where non-recyclable waste wood is processed, was only suitable for the extraction of electricity. In 2019, this process was adjusted to produce and supply steam to Botlek, resulting in a significant reduction in Botlek's Scope 2 GHG emissions, as well as to provide residual heat to the Rotterdam heating network.

Tronox and AVR are partnering on a new project to research how to link the residual heat in the steam's condensate that remains after treatment of the pigment into the district heating supply from AVR, with the goal of improving heat efficiency.



## GHG Emissions Intensity (305-4)



<sup>1</sup>Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

Legacy Tronox GHG emissions intensity remained flat from 2018 to 2019. As a new combined company, we will use 2019 as a benchmarking year for our combined global GHG intensity.



## Effluents and Waste

While we strive to maximize the use of resources, our processes do generate waste. Mining and upgrading result in overburden and waste rock, and our TiO<sub>2</sub> pigment operations generate chemical waste.

Tronox manages waste according to local waste management procedures based on the principles of cradle-to-gate. This means taking accountability from extracting that resource from the ground until it leaves our factory gate for the customer. All waste leaving our sites is labeled, weighed, and only handled by contracted and/or authorized service providers. However, some waste stays at our sites. For instance, waste rock is used to fill and contour mined-out areas while tailings, the ground-up rock left over after processing ore, are deposited in sedimentation lagoons. Other types of waste are placed in landfill pits specifically designed for either hazardous or non-hazardous waste.

We monitor and report on our waste type and disposal to help us manage our impact. We will review this as we set the sustainability strategy, goals and targets for Tronox in 2020.

Instead of a take-make-use-dispose model, Tronox continuously seeks alternatives for waste streams. Read more about how we sell valuable processing byproducts to reduce waste in Products for a Cleaner World (**page 56**).

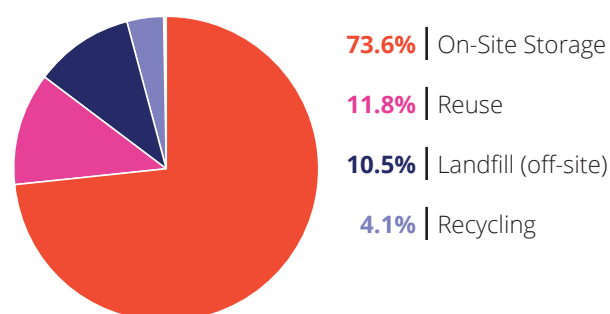
- At our Fuzhou Pigment Plant in China, we are treating and reusing sulfuric acid, reducing waste generated by 10 percent in 2019.
- At our Botlek Pigment Plant in the Netherlands, we are piloting a process to recover scandium from waste acid and filter cake. If successful, Tronox would be the first company in Europe able to supply this highly valued, but extremely scarce, element for the aerospace and 3D-printing industries.
- The Bunbury Pigment Plant in Western Australia also is exploring ways to repurpose waste for road base mix, diverting it from landfill.
- At our Thann Pigment Plant in France, we believe a new technique will enable Tronox to recycle and reuse sulfuric acid in the TiO<sub>2</sub> process, reducing our need to import more sulfur and decreasing the amount of water and gypsum discharged.
- The Bahia Pigment Plant in Brazil is testing the quality of recovered sulfuric acid and its potential use as fertilizer.

## Waste by Type and Disposal Method (306-2)

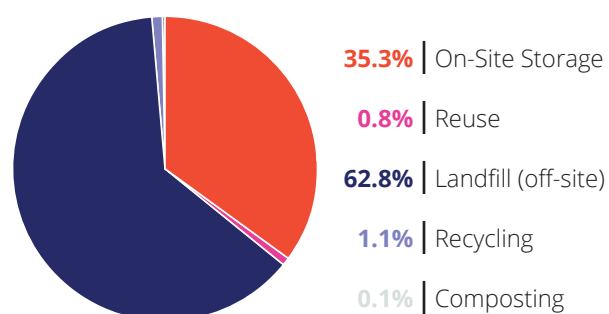
<i>metric tons x 100,000</i>	2017	2018	2019		
Hazardous Waste	1.3	1.4	1.0	0.1	1.1
Non-Hazardous Waste	6.3	6.4	6.6	9.9	16.5

■ Legacy Tronox 
 ■ Legacy Cristal 
 ■ Global<sup>1</sup>

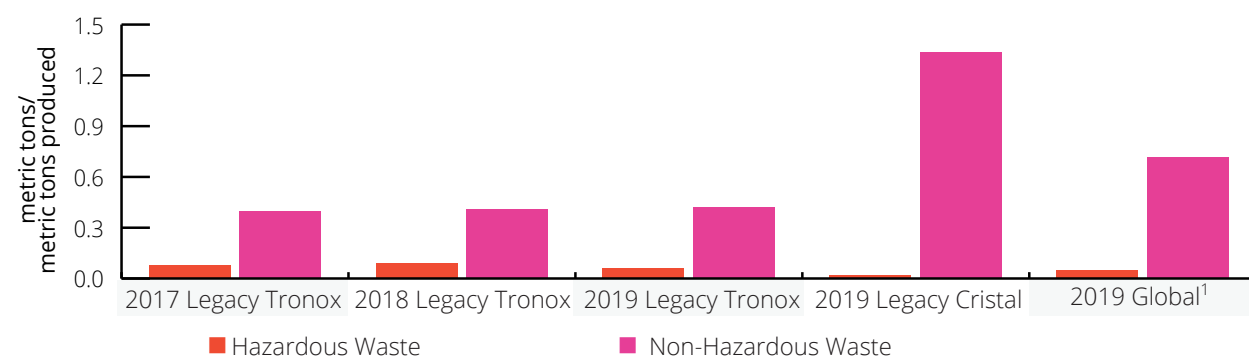
### 2019 Hazardous Waste



### 2019 Non-Hazardous Waste



## Waste Intensity



<sup>1</sup> Tronox acquired the TiO<sub>2</sub> business of Cristal on April 10, 2019; data is as reported.

Overall waste intensity at legacy Tronox operations slightly decreased from 2018 to 2019 due to a decrease in hazardous waste intensity at the South African operations. In 2017 and 2018, the Namakwa Sands Mine in South Africa pumped smelter underflow with excess water to the residue storage facilities to maintain water availability during periods of drought. This practice was not carried out in 2019, when the waste was disposed of at a higher average waste density, thus lowering the hazardous waste intensity.

The 2019 legacy Tronox non-hazardous waste intensity marginally increased compared with 2018. Factors that caused this increase included: 1) an ongoing campaign at the Kwinana Pigment Plant in Australia to reduce solids in their evaporation ponds; and 2) a decreased efficiency of operations at the KwaZulu-Natal Sands Processing Plant due to a furnace reline that reduced production. KwaZulu-Natal Sands has a relatively low waste intensity; a cut in production, therefore, has a negative effect on the global waste intensity.





## CASE STUDY

### Reducing Paint Solvent Waste

Our Hamilton Pigment Plant typically produces 4,500 pounds of waste from used paint solvents annually. In September 2019, we launched a new program with Safety-Kleen to reduce our hazardous material waste stream. A “minimizer” distills used paint solvent, separating the liquid from the solid paint. The solvent can be repurposed for cleaning paint equipment, and Safety-Kleen uses the paint solid waste as fuel in their recycling processes, and further distills any paint solvents that are able to be recycled on-site.

Since implementing this program, we have reduced our hazardous material waste from used paint solvents by approximately 85 percent, and saved costs by reducing the amount of paint thinner we would need to purchase.

## Tailings Storage Facilities

Tailings storage is one of the most significant design decisions in the development of a mine. The aim is to safely contain the tailings under any and all circumstances. There are many factors to be considered in selecting the optimum site and construction method, such as topography, rainfall, seismic activity, mineral characteristics and proximity to people.

As a result, each tailings storage facility is unique. Depending on the location of the facility and the chemical characteristics of the tailings, the storage compound may use a variety of lining methods designed to prevent impacts to surface and groundwater systems. As the tailings slurry is collected in the compound, the water separates from the heavier sand and silt particles as those sink to the bottom. The tailings pond water is then recycled back into the operation for reuse, and the tailings may be reclaimed to minimize the impact on the environment.

The construction method also ensures safe operation of a facility. Tailings storage facilities follow one of three wall construction designs, or hybrids of these. In some cases, we store tailings within our completed mining pits or in excavated or underground storage, which generally will not require the construction of a dam wall. All Tronox facilities are designed through qualified engineering expertise, and stability monitoring is conducted frequently in accordance with local regulatory requirements.

As part of the integration process of legacy Tronox and Cristal in 2019, a detailed review of all tailings storage facilities was conducted, including facilities that were recently closed, currently operating and those under construction. Our tailings storage facilities were confirmed to be stable, and there were no notable stability concerns or incidents reported in 2019.

At the beginning of 2020, global Centers of Excellence were established to review, among other things, current tailings storage facility management practices, so we can share technologies and best practices across the Tronox sites, including:

- Tailings storage facility management, such as environmental and construction considerations, inspections, and deposition methods
- Long-term monitoring, inspections and maintenance of tailings storage facilities until deposition stops
- Tailings facility closure, capping and rehabilitation





# Committed to Our People

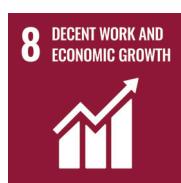
Our global diversity is unmatched in the industry and evident across our organization – where we work, the languages we speak, our unique backgrounds and perspectives – yet we are united in our values. We are proud of our high-performance culture, where we invest in our people, believe in earning our privilege to operate each day, strive to be leaders within our communities, and are honored to provide value to our customers and shareholders. We are proud to be one global, diverse, unified Tronox.



## Tronox employs nearly 7,000 people globally.

We strive to be an employer of choice in our communities by providing meaningful work. This includes fair compensation, a safe work environment, respect for and inclusion of diverse cultures and backgrounds, and opportunities for skills development and career advancement. We invest in our people, growing talent within the organization, knowing that together we will accomplish great things. In some of our very remote mining regions, we provide additional services for employees, including transportation, overnight accommodations and meals.

The Tronox Code of Ethics and Business Conduct defines expectations for social sustainability, ensuring we treat the stakeholders of our business with integrity and respect. Behavior reflecting high ethical standards is expected of all directors, employees and others who are bound by the Code, regardless of position or location. We strive to conduct our activities in a responsible and ethical manner, adhering always to our values.



### DOWNLOAD

Tronox Code of Ethics and Business Conduct »

## High-Performance Culture

We are a global organization comprising diverse perspectives and backgrounds, united and guided by our Core Values. We know it is our responsibility to put our values into action and believe that through living our values we unleash our full potential.

We believe everyone has responsibility for safety. Our leaders are expected to create and model an all-encompassing culture of safety, and every employee is expected to understand the risks inherent in our work and maintain our high standards for safety compliance. We proactively identify and manage risk, conduct ourselves responsibly, exercise good judgment, and take accountability for our actions.

### Our Values

- We have an uncompromising focus on operating safe, reliable and responsible facilities.
- We honor our responsibility to create value for stakeholders.
- We treat others with respect and act with personal and organizational integrity.
- We build our organization with diverse, talented people who make a positive difference and we invest in their success.
- We are adaptable, decisive and effective.
- We are trustworthy and reliable, and we build mutually rewarding relationships.
- We share accountability, and have high expectations for ourselves and one another.
- We do the right work the right way in every aspect of our business.
- We celebrate the joy of working together to accomplish great things.

## Learning and Development

Investment in the success of our people is an investment in the success of our business. Our global learning and development (L&D) team provides support, tools and resources needed to enable our leaders to improve their ability to lead and develop their teams, to build a sustainable talent base, and to create a powerful learning culture for all employees.

Following the Cristal acquisition, Tronox formed a Learning and Development Center of Excellence made up of our L&D leaders from around the globe to share existing best practices and meet the future learning and development needs of the business. In 2019, we benchmarked our current practices against high-performing learning organizations using the Towards Maturity model and Learning Health Check methodology. We used these insights to set our L&D vision and mission, and developed a five-year strategic plan aligned to the broader business strategy and goals.

To achieve this vision, we are developing a global learning technology ecosystem. We are also defining career development pathways for operational, professional and managerial roles. These will provide the foundation for targeted, high-impact L&D programs and resources that build and maintain the skills we need today and tomorrow, establishing sustainable talent pipelines for the future.

### Some of our current L&D initiatives include:

#### Leadership Training

We cultivate future leaders through in-person and virtual training that prepares new supervisors, further develops existing supervisors and prepares senior leaders to guide business strategy. Local universities help facilitate many of these programs.

#### Internal Skill-Building Programs

Many programs help current employees build new skills to develop in their careers. At our Hamilton Pigment Plant, hourly production operators have the opportunity to complete maintenance curricula and assessments to qualify for mechanic positions. We also partner with a local community college to provide classes that help current employees close skill gaps.

#### Training the Next Generation of Employees

We provide apprentice programs for mechanical and electrical technicians, lab technicians, research and development, engineering, and IT. University students intern in both operational and administrative roles at many of our global facilities. Our facilities in South Africa also offer a bursary program, providing two years of work experience for recent graduates in engineering, human resources and finance roles.

All new employees complete training to understand Tronox's Code of Conduct, employee handbook and job expectations. We frequently train our employees about how to apply the code in their daily work through a variety of methods, including in-person and online training.

#### Our Learning and Development Vision

Our people are the heart of our organization. We will develop our people for the work they do today and will be doing tomorrow, and will enable and empower them through deliberate investment in their development to deliver excellence.

## Labor/Management Relations

Tronox respects our employees' rights to collectively bargain. As of December 31, 2019, approximately 36 percent of Tronox employees worldwide are represented by a union or collective bargaining agreement. Our employees in the U.S. are not represented by a union or collective bargaining agreement.

There are no records of strikes or lock-outs at any Tronox location in the last 10 years (GM-MM4).



*"Tronox values diversity and equality. It does not matter if you are male or female, or what your role or seniority is, as long as you are good at what you do. I am inspired to see women in leadership at Tronox, all the way up to the Board."*

**Nada Malki,**  
Senior Corporate Communications  
Specialist in Saudi Arabia

## Diversity and Equal Opportunity

As a global company, it is imperative that we foster a workforce composed of people with varying backgrounds and perspectives, reflecting our customer base and the communities in which we operate.

We believe our business is most effective when it is diverse, and our people enjoy a

fair and supportive work environment. We expect our employees to listen to others with diverse perspectives; support new and different approaches; promote fairness and equality in the workplace; encourage others to be open-minded and to appreciate alternative cultural perspectives; and not tolerate discrimination.

Our Outward Mindset training carries these beliefs into all of our regions. Facilitators at all of our operating sites help employees consider the perspectives of our customers, peers, direct reports and managers, so we can each be more respectful of the needs and challenges we face, better understand one another, and support our collective success.

In South Africa, the Mining Charter obligates us to specific objectives for employment equity and human resources development.

We also sponsor the Tronox Diversity and Inclusion Network that collaborates with all employees to bring diversity and inclusion education to our sites through educational interactions, team sharing opportunities and social events.

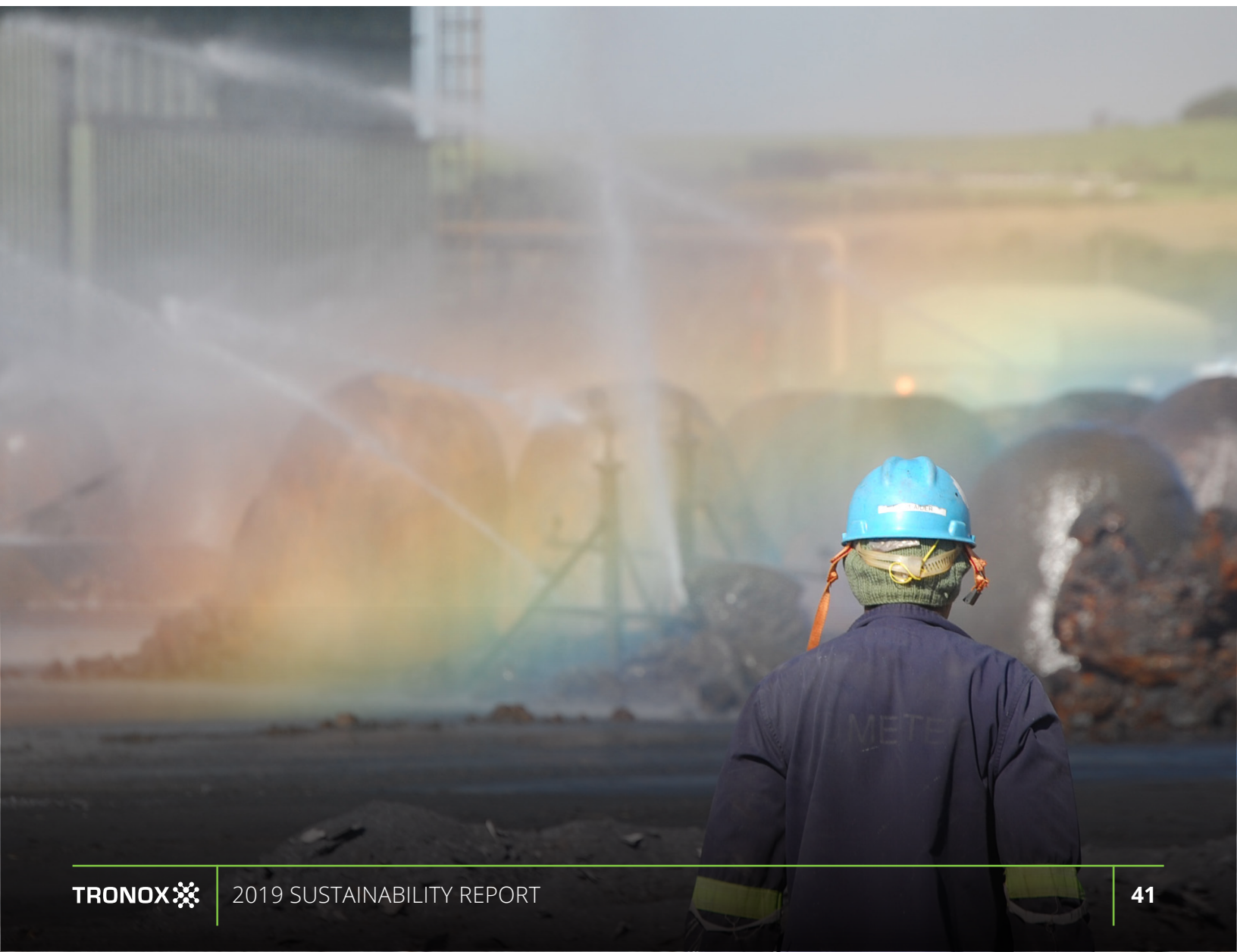


### Tronox Diversity and Inclusion Network (TDIN)

Diversity and inclusion are important in ensuring we have access to the best ideas. TDIN chapters influence and develop practices and systems to encourage diversity and inclusion; educate others on the benefits of diversity and inclusion in the workplace; and support and engage with Tronox leaders so they proactively encourage diversity and inclusion.

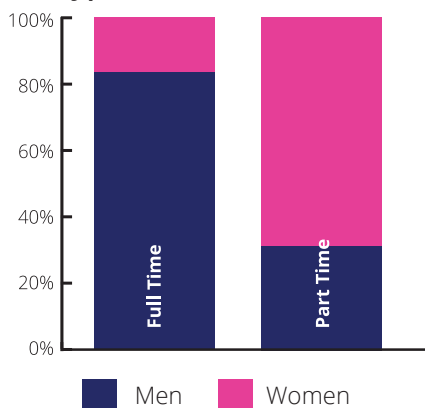
Oklahoma City publishes a quarterly newsletter. Stamford hosts an initiative called Lunch Roulette, which encourages employees to have lunch with colleagues whom they might not otherwise see or interact with. The TDIN chapter in Botlek engaged with outside consultants to facilitate weekly sessions during which small groups of employees learned how to better appreciate others' differences in work habits and communication styles.

We also foster inclusion by removing barriers to best accommodate all employees. TDIN members in Australia are looking at the ergonomics of equipment to make sure that it is accessible to everyone, regardless of height or physical strength. The same is true in Hamilton, where team members have made many small adjustments to ensure that work can be done as efficiently as possible.

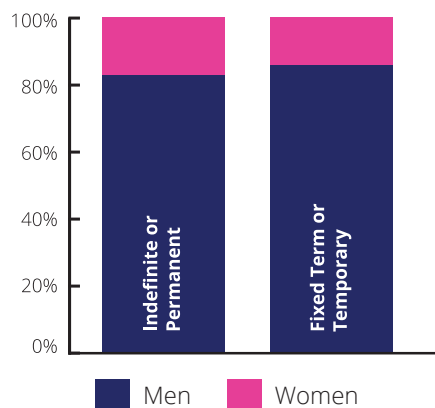


Diversity of Governance Bodies and Employees (405-1)  
Information on Employees and Other Workers (102-8)

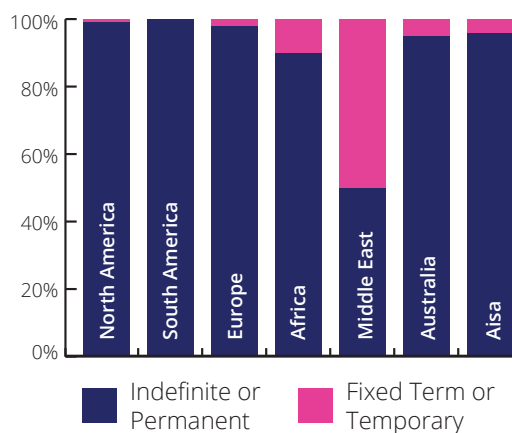
Employees by Employment Type and Gender



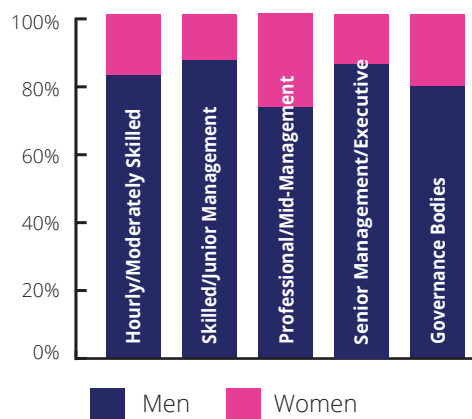
Employees by Employment Contract and Gender



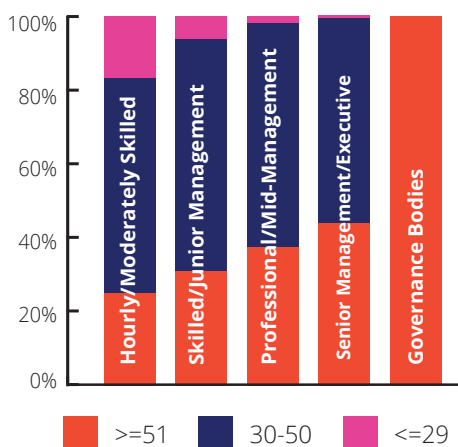
Employees by Employment Contract and Region



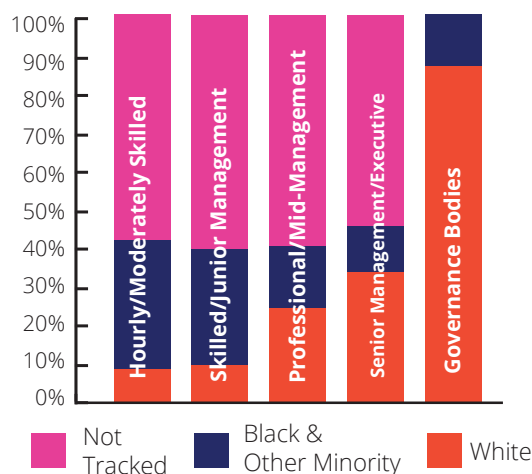
Workforce Representation by Gender



Workforce Representation by Age



Workforce Representation by Minorities





## CASE STUDY



### Groundbreaking First: Women Work at Yanbu Plant in Saudi Arabia

Tronox operates within many diverse local cultures. In 2019, we began operating in Saudi Arabia as a result of the Cristal integration. We actively support the country's movement to increase women's participation in the labor market, a major component of the the country's Vision 2030 reforms, by making a bold move – welcoming women to work at our Yanbu location for the first time in the site's history.

In partnership with Yanbu University College, we hosted 10 student interns, including eight women, in early 2020. While it's common in Yanbu for women to hold administrative jobs in places like banks and hotels, it is very unusual for them to work in an industrial company. In fact, only a handful of women had ever set foot in our Yanbu factory, and none had been employed there.

Yanbu employees were eager to mentor the interns and welcomed them with a heartfelt celebration to mark this important milestone. Over the 14-week internship, the women gained hands-on experience in finance, human resources, and IT to complete their degree programs and even had the opportunity to give a presentation to the management team. All the students felt supported by the team and said that the Tronox training was far more comprehensive than the internship experiences their friends had completed at other companies.

**Employee diversity is one of our core values, and we are proud to set an example for the region.**



A young girl with dark hair and a pink flower in her hair is looking intently at a colorful children's book. The book is open, showing two pages with illustrations and text. The left page features a cartoon boy in a red jacket with a white star, holding a green bag. The right page shows a cartoon girl in a pink dress. The girl's hand is visible, pointing at the book. The background is a simple, light-colored surface.

# Committed to Our Communities

Global vision with local action. We are honored to be trusted with the privilege to operate in our communities around the world. For Tronox, we believe this is more than providing meaningful work for our local people. We strive to be valued contributors to local economies, respect indigenous cultures and support the quality of life in our shared communities.



## Tronox now has active operations in nine countries around the world.

In each of these regions, it is important for us to provide enduring benefits that enhance the community, while also respecting native cultures. We are committed to resolving situations where operational goals conflict with community goals, and to promoting positive engagement with the community. In 2019, we invested over \$1.5 million USD into strengthening our communities. We are proud that 100 percent of our operations have community engagement and development programs based on local communities' needs, and the majority have completed impact assessments.



## Local Communities

Our employees live and work in the communities surrounding our operations, so we understand the important role – and opportunity – we have in shaping the quality of life in these communities. Our employees are ambassadors for the community within our organization, fostering a culture of employee volunteerism and promoting community initiatives related to education in science and the arts.

We value the engagement and interests of our communities and employ various feedback mechanisms so community members may openly communicate with members of our team. We meet frequently with stakeholders in our operating regions – including government officials, local leadership and our neighbors – to share perspectives and information about our operations. This often allows us to identify opportunities to respond to our communities' needs, such as investing in infrastructure improvements. We will continue to review our current community engagement and opportunities for improvement as we set the sustainability strategy, goals and targets for Tronox in 2020.





### Improving Water Access in South Africa

Water supply was a major issue raised by members of the Matzikama Municipality community, which includes more than 1,200 Tronox employees. In 2019, we invested R5 million (about \$340,000 USD) to ensure a more stable water supply for the area.

The region has faced drought conditions since 2015, and dilapidated water infrastructure added to concerns. Matzikama Municipality approached Tronox, the largest employer in the region, to lead the upgrades, which included a five mega-liter raw water dam, new pump station and piping. Construction began in March and was complete in August. The municipality now runs the water facility.

*"We are part of the communities where we operate, and we should play a leadership role in improving the quality of life in those communities. That's what it means to be a good corporate citizen, and we strive to live that value every day."*

**Stanley Boloko**, Stakeholder Relations Specialist, Communities and Corporate Affairs in South Africa

The project helped the government create jobs in an area that faces high unemployment rates. Tronox also plans to create a self-sustaining project to provide a small stipend for young, unemployed people to maintain the grounds at the site under the tutelage of our rehabilitation specialists. We hope the skills they learn empower them for future jobs.

Tronox contributed R4.3 million to its social investment programs in South Africa in 2019, supporting education, sports, tourism, health care, social development and community security initiatives.

#### South African Mining Charter Scorecard

One showcase of our corporate citizenship approach is evident at our South African operations, where we work alongside the Department of Mineral Resources and Energy and local municipalities to invest in major projects that improve the communities where we operate. Our South African operations annually measure and report on their progress against the Broad-Based Black Economic Empowerment criteria posed by the Department of Mineral Resources in South Africa.

**View the South African Mining Charter Scorecard on page 70.**





### Community Outreach in Brazil

In the areas where we operate, we are fully a part of the community. Our employees live in those communities, their children go to school there, and we want to invest in programs that improve the quality of life for everyone.

Near our Bahia Plant, Tronox employees are making the community a better place for all ages.

The Tronox Reading Club was created in 2007 to build children's literacy skills. Employees lead reading circles, story time, writing projects and puppet shows at two local libraries. We also provide reading-related activities for students at public schools in Areias, Arembepe and Jauá.

Tronox's Best Age Project promotes well-being for women over 40 through aerobic, muscle strengthening and flexibility exercises. Many local women joined the project to improve their health, help control chronic diseases, and as a fun and active way to socialize with neighbors.

## Indigenous Rights

We respect the cultural heritage of those who have lived in regions long before we began operating there. Some of our operations in South Africa and Australia are in or adjacent to Indigenous Peoples' territories. Tronox promotes the entry into formal agreements with these communities so we can work together respectfully.

### **KwaZulu-Natal Sands, South Africa**

In South Africa, we have formal benefit agreements (e.g., Local Community Procurement Forum) with seven Traditional Authorities (Amakhosi) in KwaZulu-Natal. These agreements form part of the KwaZulu-Natal Sands Local Economic Development Projects, which aligns with the KwaZulu-Natal Sands Social and Labor Plan (SLP). The SLP is a compliance document initiated through a legislative framework called Mineral and Petroleum Resources Development Act (MPRDA). Each mining company is required to submit its SLP to the Department of Mineral Resources every five years to indicate the type of Local Economic Development Projects that the company will embark on during that time period. In this plan, projects and beneficiary communities are committed, along with the budget. The community projects must be in line with Municipalities' Integrated Development Plan.

Various Indigenous Territories that KwaZulu-Natal Sands is on or adjacent to include:

- Dube Traditional Authority
- Somopho Traditional Authority
- Mkhwanazi Traditional Authority
- Macambini Traditional Authority
- Nzuza Traditional Authority
- Ogagwini Traditional Authority
- Madlebe Traditional Authority

### **Eastern Operations, Australia**

At our Ginkgo Mine, Tronox entered into an agreement with the Barkandji people, which has provided sponsorship for various educational, sporting and cultural endeavors. We adopted a Cultural Heritage Management Plan (CHMP) for Eastern Operations that addresses a consultation program with the local indigenous community and the identification, assessment, monitoring, conservation and management of archaeological heritage.

The plan includes results from Aboriginal heritage surveys and assessments of Ginkgo Mine (ML 1504), Crayfish Mine (ML 1735), Snapper Mine (ML 1621), the Highway Access Road and Electricity Transmission Line. Surveys and assessments were completed in accordance with New South Wales Office of Environment and Heritage requirements, and in consultation with representatives from local Aboriginal organizations.

The objectives of the CHMP were achieved in 2019 with impacts controlled in accordance with statutory conditions.

As part of the CHMP, we inspect for artifacts regularly. The Aboriginal archaeological sites in the Crayfish Mine study area contained a very low density of Aboriginal stone artifacts. Since operations began, five stone artifacts have been recorded, collected, curated and stored in the "Keeping Place," located at the Ginkgo Administration building.



### **Northern Operations, Australia**

We have land access agreements with relevant native title claimants in respect to our operations and prospective operations at Falcon, Dongara and Cooljarloo West, including the Yued and Whadjuk people and the Southern Yamatji. These agreements enable the continuation of Tronox's operations while providing benefits to the native title people in keeping with the respect Tronox has for this native region.

Each confidential agreement is specific to the project and claimant group, but generally include provisions, such as:

- Work-ready training and mentoring programs
- Educational scholarships
- Apprenticeships
- Traineeships
- Cross-cultural awareness
- Business opportunities
- Indigenous community support programs and funding

### **Southern Operations, Australia**

Tronox is party to a Heritage Protection Agreement with the South West Boojarah People, which establishes protocols for the preservation of Aboriginal heritage through the protection of Aboriginal sites and objects, while enabling the grant of certain of Tronox's exploration tenements.







# Committed to Creating Value

As one new Tronox, we believe we are well positioned to provide value to our customers and shareholders by delivering products that enhance our world. This includes evolving our products to meet our customers' needs, engaging responsible supply chain partners and having a relentless focus on operational excellence. Our smart business practices will sustain the company, so we can continue to be the one to offer essential titanium dioxide and zircon to fulfill global demand.



**We understand that we must operate our business in a responsible and sustainable manner so we can continue to meet the expectations and needs of our employees, customers, investors, suppliers, communities, and lenders.**

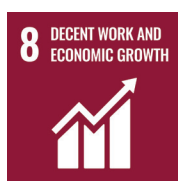
With our broad global footprint, we are acutely aware of the direct and indirect positive economic impact we have for our employees and shareholders, as well as the communities and countries in which we operate.

This includes:

- Taxes paid to governments
- Employee wages
- Contributions to the communities where we operate
- Indirect economic impact, such as spending with local suppliers and businesses

Tronox operates in cyclical commodity markets, and it is important that we remain a low-cost provider to sustain our business. To maximize value for our stakeholders, we must invest in our business in a way that will have the greatest impact. The acquisition of Cristal is one such investment, positioning us to better serve the TiO<sub>2</sub> market with expanded operations and product offerings.

Tronox is a publicly traded company. Our annual 10-K report, filed with the U.S. Securities and Exchange Commission, is the primary mechanism we use to report our economic performance. We also share earnings updates quarterly, as well as produce an annual report to recap our performance for the year and our outlook for the future. These materials are available online at [investor.tronox.com](https://investor.tronox.com).





### One New Tronox

2019 was a transformational year for Tronox and Cristal as we combined both global companies into the largest vertically integrated TiO<sub>2</sub> producer.

Our priorities, after finalizing the acquisition in April 2019, were to meet our ongoing commitments to our customers and shareholders, while outlining the right operations, business strategy and culture for a brilliant future. This included:

#### **Core values that provide a path for success**

A cross-functional team from both companies developed values that speak to everyone in our diverse global workforce. We also relied on our trusted management and human resources teams in each country to guide us on how best to work within cultural differences and practices, so we could also respect each other's personal values.

#### **Operational excellence that benefits our customers**

Integration planning spans from the small things, like ensuring everyone receives payroll, to the larger organizational design and best-practice sharing. There is more work to be done in 2020 to identify the best structure and processes for the new company, and we are excited by the prospects ahead. We believe our combined network and unmatched global footprint provide more resources for continuous innovation and cost savings, as well as more stability and flexibility to our customers. We have already seen this benefit in action when one of our facilities experienced a brief shutdown in July 2019 and our global operations network was able to supply our customers – delivering seamless service.

#### **Synergies that leverage our combined power**

We fought for approval of our transaction because we believe strongly in the promise of our combined companies. We identified significant opportunities to realize synergies between the two companies and began executing on those in 2019. For example, we are optimizing the use of feedstock by taking advantage of our larger combined network and flexibility of our pigment plants. We are able to reassign stock to different locations, minimizing cost and maximizing production. We also are leveraging the combined buy of our global business to find efficiencies and savings in our supply chain.

We're ready to continue execution in 2020 and beyond as we move forward together.



# Economic Performance

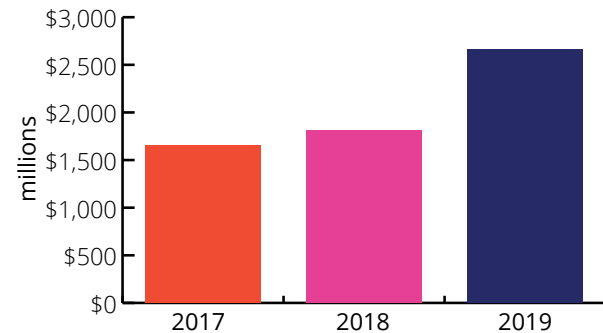
Our employees deliver results because they have an uncompromising focus on reliable operations. We actively foster a culture of accountability. We encourage creativity and innovation in our processes, then set clearly defined and challenging objectives to continuously deliver better results.

Tronox delivered strong results in 2019, which showcase the benefits of our vertical integration and the acquisition of Cristal, with revenue of US\$2.642 billion and Adjusted EBITDA of \$615 million. These results were driven by strong execution on the many operating and commercial initiatives that were within our control, such as delivering synergies through our accelerated acquisition integration program, optimizing our global vertically integrated footprint, managing our cost structure and wisely allocating capital.

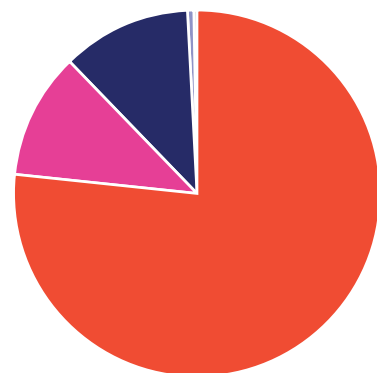
## Direct Economic Value Generated and Distributed (201-1)

*This indicator reflects the economic value generated (including community investment), distributed, and retained, during the fiscal year for the legacy Tronox business for 2017 and 2018, and the combined Global company for 2019 as reported.*

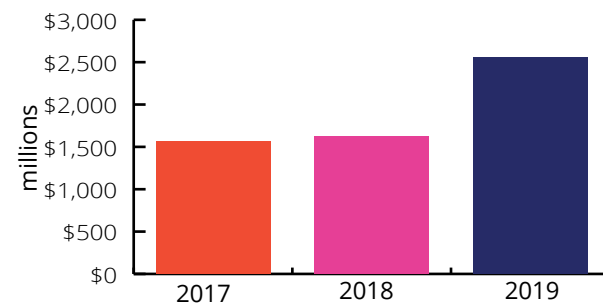
### Direct Economic Value Generated



### Components of 2019 Economic Value Generated

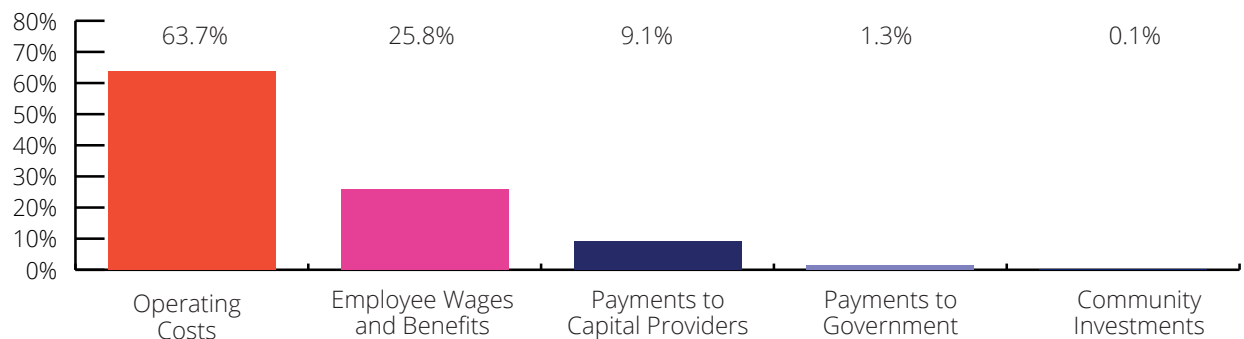


### Economic Value Distributed

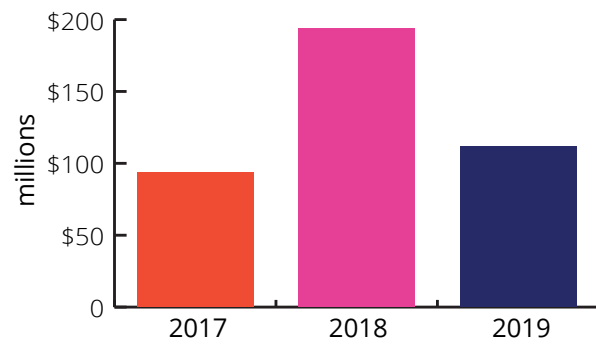


- 76.9% | TiO<sub>2</sub>
- 11.4% | Feedstock and other products
- 10.9% | Zircon
- 0.7% | Interest Income
- 0.1% | Other Income

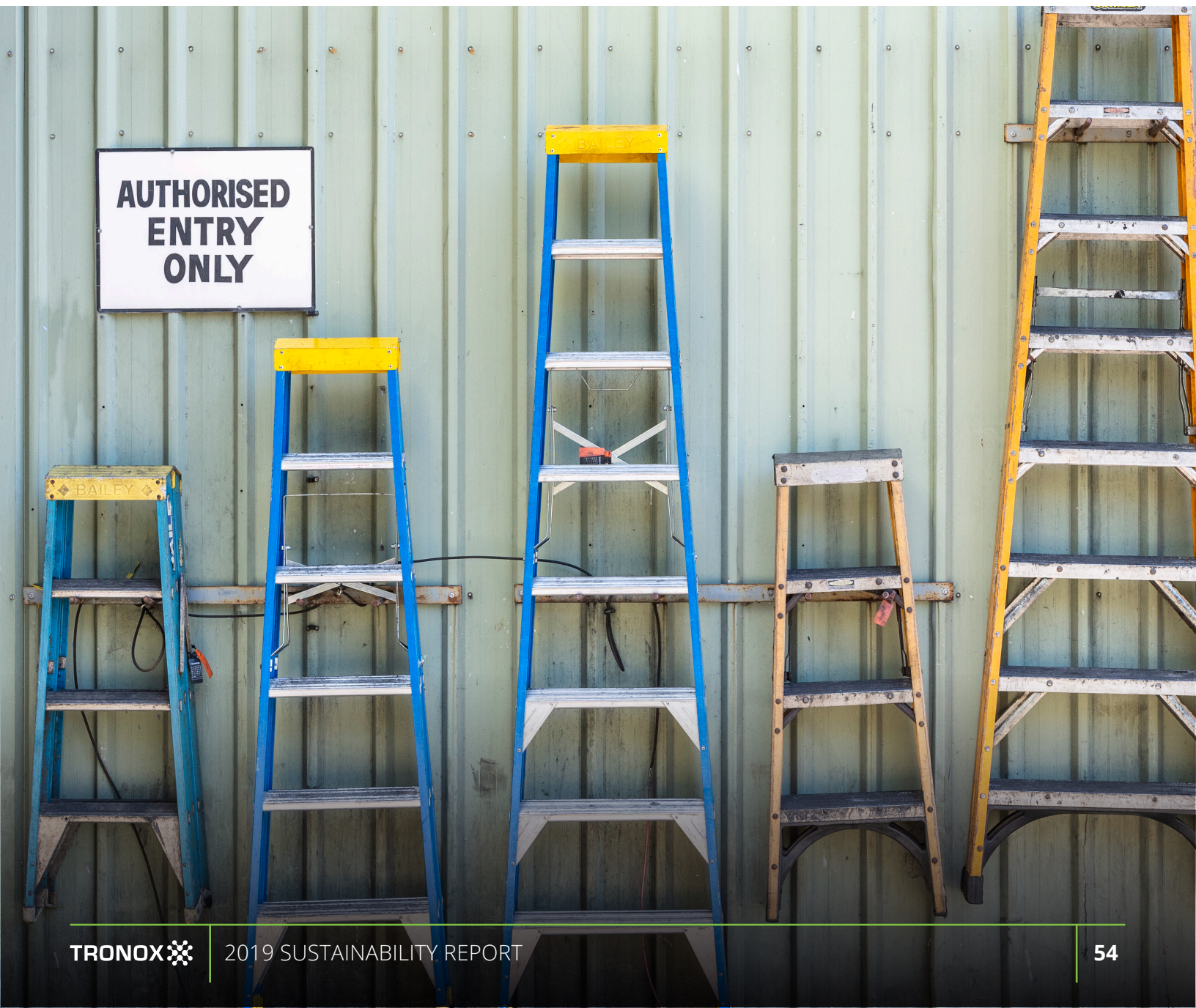
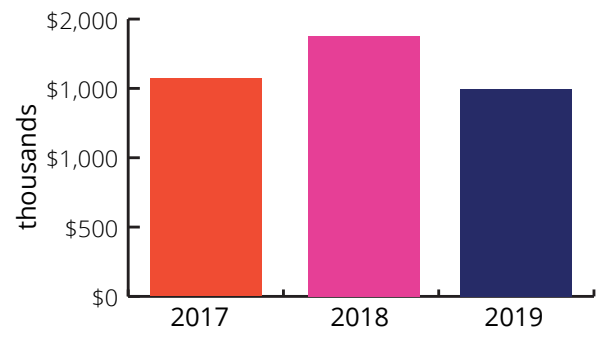
### Components of 2019 Economic Value Distributed



Economic Value Retained



Community Investments





### Sharing Best Practices Across Our Global Footprint

We believe our diversity makes us stronger, with colleagues adding value from every corner of the world. That is why one of the most important steps of our integration is sharing best practices across our expanded global footprint.

In 2019, colleagues from our titanium dioxide pigment plants and mining operations embarked on a multi-year project to leverage the experiences of both Tronox and Cristal to drive continuous improvement. For example, senior leaders and engineers from the Hamilton plant in the United States and the Kwinana plant in Australia have been traveling regularly to the Yanbu plant in Saudi Arabia to share improvement opportunities. In addition, the Hamilton site hosted several Yanbu plant employees for six weeks to enable them to observe the plant operations and see firsthand a comparable, more progressed chloride process in action. Learning and sharing best practices enables us to continually improve on our commitment to product quality and reliability.



## Products for a Cleaner World

We are proud to offer products to meet the demands of today and tomorrow by finding innovative applications that harness the unique properties of  $\text{TiO}_2$  to make the world a brighter, cleaner and more brilliant place. We work with our employees, suppliers, customers, contractors and commercial partners to promote responsible management of our products and processes through their entire life cycle, and for their intended end use, worldwide. We implement these standards through management and employee engagement, allocation of sufficient human and capital resources, and rigorous measurement, review, and corrective action systems. These efforts help us deliver high-quality, meaningful products for our customers.

Our employees continuously work to design and develop materials that meet existing and future environmental regulations and respond to the needs of new applications. We are driven by partnerships, constantly looking for innovative solutions for tomorrow's challenges.

### CristalACTiv™

Tronox has an unrivaled range of products that help the environment. Harnessing the power of sunlight and  $\text{TiO}_2$ , we created a set of CristalACTiv™ photocatalytic solutions that can be incorporated into building materials, paints and coatings to degrade air pollutants like nitrogen oxides ( $\text{NO}_x$ ) or sulphur oxides ( $\text{SO}_x$ ).

We also produce environmental catalysts that depollute air at the source. These catalytic converters are used to reduce  $\text{NO}_x$  emissions from diesel engines and power plants.

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### Zircon

Zircon and zirconia chemicals have a diverse range of end uses, including ceramics, refractory, catalysts, and coating electronics and biomedical-related products. Opacifying properties and whiteness, coupled with resistance to abrasion and moisture, make them key ingredients in ceramic tiles, sanitary ware and tableware. A **life cycle** assessment by the Zircon Industry Association also found zircon has 16 percent less global warming potential and about 20 percent less primary energy demand when compared with alumina in the preparation of ceramic tile mixture (not including tile production, use stage or end-of-life stages).

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### Putting Byproducts to Use

A number of secondary products are produced when we manufacture  $\text{TiO}_2$ . Instead of a take-make-use-dispose model, Tronox seizes the opportunity to reduce waste and generate additional value to our customers and shareholders by selling these products – ranging from acids, salts and solids to liquids and gases – to a diverse set of industries.







### **CristalACTiV™ Helps Heavy Industry Reduce NO<sub>x</sub> Levels**

Launched in September 2019, CristalACTiV™ MC-508 continues our history of providing customers with DeNO<sub>x</sub> catalyst technologies to meet the most stringent NO<sub>x</sub> regulations worldwide.

We began working on our CristalACTiV™ MC-5 Series patented technology nearly a decade ago. Since we work in close partnership with our customers, we are able to better anticipate their needs when new emissions regulations for the auto industry come about.

“We have to know the industry and the impact of regulations all the way through the value chain,” said Jean-François Pasquier, director, Commercial, Specialty Chemicals and Materials. “It is a must. If we are not connected to our customers’ needs, we cannot anticipate and react quickly enough.”

In this case, we anticipated that more stringent regulation would mean our customers could no longer use the same type of TiO<sub>2</sub>-based products in their catalysts. CristalACTiV™ MC-5 Series was developed to help our customers adapt.

We also can tailor the product formulation to our customers’ needs with more or less of specific ingredients, providing the best possible solution for their catalyst technologies.

These new products are produced at our facility in Thann, France. We made capital investments in 2016 and again in 2019 to scale up technology for the CristalACTiV™ MC-5 Series as we anticipate demand growth and the launch of future products in the series.



### Photocatalytic Coating Concept Proven to Decrease Pollution

Over the past three years, Tronox has supported a European-funded LIFE-Photoscaling project. The goal is to test if it is possible to reduce air pollution through the use of photocatalytic construction materials like pavement coatings. When applied to streets and sidewalks, elements within these coatings or suspensions – mainly ultrafine  $\text{TiO}_2$  – react with sunlight to help remove nitrogen dioxide ( $\text{NO}_2$ ) from vehicle emissions from the air. We provided CristalACTiV™ product and our technical advice so the project team could test the application of this type of photocatalytic coating and develop a standard for measuring effectiveness.

A real-life street trial tested the CristalACTiV™ PC-S7 sol photocatalyst in Madrid in early 2019, with promising results – a statistically meaningful reduction in  $\text{NO}_2$  with no adverse side effects reported. The project team is hopeful that this work will encourage wider use of photocatalytic materials in the ongoing challenge of reducing air pollution in urban areas.

The project was coordinated by Instituto Torroja, a recognized independent Spanish research organization, in collaboration with Madrid Council. For more information, see <https://www.life-photoscaling.eu/>.



## Product Stewardship

Product stewardship is an integral to sustainability and increasingly a focus for how we operate around the world. Our recent progress in product stewardship includes:

- Development of a new database that helps customers get the information they need to validate their product claims
- Improved processes for providing customers up-to-date safety information through Safety Data Sheets (SDSs)
- Participation in the regulatory process at appropriate levels to enhance awareness of what our products do and how we make them

The global regulatory landscape continues to evolve at a rapid pace as countries, such as Turkey and South Korea, adopt specific registry requirements similar to the European Registration, Evaluation, Authorization and restriction of Chemicals (REACH) regulations. Ongoing compliance for our REACH registrations remains a high priority as we navigate through the uncertainty for UK REACH as a result of Brexit, as well as the recently published REACH requirements for the identification and characterization of nanomaterials. The European Chemicals Strategy for Sustainability is setting out a roadmap for the next phase of REACH with the “one substance, one assessment” goal. While there is always work that comes with adapting to new regulations, we are in a good position because the focus of Tronox’s own sustainability program, including the use of clean technologies and waste reduction, aligns with Europe’s sustainable innovation and a circular economy approach.

## Supply Chain and Sustainable Procurement

Tronox operates an integrated supply chain to support its business. Through a “hub and spoke” process, we are able to leverage economies of scale to supply and produce the necessary feedstock and other raw materials needed to support our business operations and our global customers. At the same time, we are mindful of our responsibility to support local communities and also seek opportunities to work with local business partners, which contributes to socioeconomic advancements in our communities.

<i>Country/region</i>	% Of Spend On Local Suppliers	Total Suppliers (#)	Local Suppliers (#)
Australia	<b>81%</b>	<b>2,236</b>	<b>2,008</b>
Europe	<b>87%</b>	<b>2,242</b>	<b>2,181</b>
Gulf Cooperation Council (GCC) Region	<b>38%</b>	<b>516</b>	<b>379</b>
USA	<b>84%</b>	<b>2,181</b>	<b>1,318</b>
Brazil	<b>100%</b>	<b>1,265</b>	<b>1,265</b>
South Africa	<b>75%</b>	<b>1,722</b>	<b>1,523</b>
China	<b>89%</b>	<b>476</b>	<b>471</b>

We value our supplier partnerships. Our mutual success is built on open communication and a commitment to common principles and business practices. We have set high standards for business conduct in the areas of regulatory compliance, social responsibility, and environmental stewardship, and it is the responsibility of each supplier to ensure its employees and representatives understand and comply with Tronox's Supplier Code of Conduct. Suppliers are expected to maintain management systems and controls to promote and facilitate compliance with applicable laws. We also expect their employees, subcontractors and the suppliers they work with to follow our Supplier Code of Conduct in providing goods and services to Tronox.

**DOWNLOAD**  
Supplier Code  
of Conduct »»

We will continue to review and employ practices that enhance social responsibility and compliance, enhancing our sustainable procurement and supply chain practices as we set the sustainability strategy, goals and targets for Tronox in 2020.



# Governance

Strong leadership and governance are crucial to our ability to deliver on our strategy of becoming the world's leading vertically integrated manufacturer of TiO<sub>2</sub> and live the Tronox Values. Having a strong governance structure starts with our Board of Directors and its committees, which provide oversight and strategic guidance to our senior leadership team. The aim of governance and oversight is to ensure that we conduct our business in a manner aligned with our values, and that extends throughout the organization via the executive leadership team, senior leaders, and each operating unit to all employees.

## Our Board

The Board provides oversight for the conduct of Tronox's business, including its strategy and managing of key risks, including risks commonly associated with environment, sustainability and governance. The Board regularly reviews and monitors performance against our strategy and the risks inherent in our business and confirms that the processes for identifying and managing those risks, both financial and non-financial, are in place.

In 2019, the Board was comprised of 11 members, which in 2020 was reduced to nine members, of which eight and six members, respectively, are deemed independent by the rules of the New York Stock Exchange. Reflecting the importance of diversity, two of our independent Board members are women, or 18 percent and 22 percent of the Board, respectively. Our Board members also represent the diversity of our global operations, with members from South Africa, Saudi Arabia, Australia and the United States.

### Board Oversight of Safety, Health and Environmental Matters

The Board provides oversight of safety, health and environmental (SHE) matters in several ways.

- SHE matters are included in the annual enterprise risk management (ERM) process, which is conducted by Tronox's Vice President of Internal Audit. Each year, both our Audit Committee and the full Board review how SHE is evaluated as part of the ERM process, and the results of that process.
- Both our Executive Vice President and Chief Operating Officer, and our Senior Vice President, External Affairs and Chief Sustainability Officer, update the full Board of Directors at each meeting on our SHE performance, both on an absolute basis and a relative basis against our peers and target performance levels.
- Twenty percent of the payout under our annual incentive plan (AIP) is tied to satisfaction of certain SHE criteria. The Human Resources and Compensation Committee establishes the annual SHE metrics and assesses whether Tronox's safety performance warrants payout for this component of AIP.
- As often as possible, our Board members visit our mines and pigment facilities to see firsthand how we are managing SHE-related risks.

## Board Oversight of Business Ethics and Compliance

Our Board, executives and employees are committed to doing business in a manner consistent with the Tronox Values and our Code of Ethics and Business Conduct. The Board's oversight includes ensuring that the "tone at the top" is set appropriately and that management has the right policies and procedures in place to communicate with employees about the need to adhere to our values, and appropriately manage any deviations from the Code of Conduct. We frequently train our employees about how to apply the Code in their daily work through a variety of methods, including in-person and online training.

Responsibility for oversight of our business ethics and compliance policies, processes and procedures is primarily vested in our Audit Committee. Quarterly, the Audit Committee receives a report from the Senior Vice President, General Counsel and Corporate Secretary on compliance-related activities that occurred in the prior quarter, as well as a detailed report on any allegations that our Code of Conduct was violated by any employee, customer, vendor or other relevant stakeholder. Tronox encourages its employees and other stakeholders to voice any concerns related to violations of its Code of Conduct. In 2019, 34 claims were logged in our "Speak Up!" system, which tracks all allegations. All of these allegations were thoroughly investigated and discussed with the Audit Committee.

In addition, the full Board and the Audit Committee ensure that a range of business ethics and Code of Conduct matters including anti-corruption, conflicts of interest and antitrust are covered by our annual ERM process.

## Board Oversight of Other Ethics and Compliance Risks

As part of the ERM process, a number of other key risks are carefully monitored by our Board or the appropriate committee, including:

**IT cybersecurity including unauthorized access, use or destruction of Tronox information systems and associated data.** Management and the Board have identified cybersecurity as a critical risk and have asked for regular reports on cybersecurity preparedness. Our Vice President of Information Technology and Director of Cybersecurity report at least annually to the Board on Tronox's efforts and initiatives to monitor and prevent cyber incursions. Our significant investment in a comprehensive end-to-end IT system is driven by a recognition that Tronox needs to continually invest in cybersecurity.

**Process safety.** We are very cognizant of the risks related to plant explosions, structural failures, slimes dam failures, fire, water, intrusion and control system failures. Management controls these risks with oversight from the Board in a variety of ways, including process safety management programs and training, fixed fire suppression systems, planned maintenance programs, and spare parts inventory management.



## Stakeholder Engagement

Stakeholder engagement is an integral component of the Tronox business strategy. We engage a number of external and internal stakeholder groups, including the communities in which we live and work, business partners, community and traditional leaders, and employees. We also engage with a number of regional and international not-for-profit and advocacy organizations. Stakeholders are identified based on active community outreach and engagement activities at our business operations worldwide.

We are a diverse global company, and our approach to stakeholder engagement is determined at the local, regional, and corporate levels, as appropriate. Operating under our Code of Ethics and Business Conduct and adhering to our corporate citizenship principles and guidelines, each operating site determines the frequency and level of interaction with local stakeholders. Our corporate affairs and investor relations teams conduct routine communications with key external stakeholders and shareholders.

External Stakeholder	Tronox Representatives Engaging with Stakeholder
Investors	CEO; CFO; VP Investor Relations; EVP and Chief Operating Officer; EVP and Chief Commercial Officer; SVP External Affairs and Chief Sustainability Officer; SVP and Chief Human Resources Officer; SVP and General Counsel
Lenders	CEO; CFO; VP Treasury
Customers	EVP and Chief Operating Officer; EVP and Chief Commercial Officer; Sales Teams
Suppliers	Chief Procurement Officer; Supply Chain Team
Government and Regulators	SVP and General Counsel; Chief Compliance Officer and Deputy General Counsel, Assistant General Counsels; SVP External Affairs and Chief Sustainability Officer; Managing Directors, General Managers and Site Directors; VPs of Safety, Health and Environment (SHE); Site SHE Managers
Communities	EVP and Chief Operating Officer; Managing Directors, General Managers and Site Directors; SVP External Affairs and Chief Sustainability Officer; Chief Commercial Officer; VPs of SHE; Site SHE Managers
Non-Government Bodies	SVP External Affairs and Chief Sustainability Officer; EVP and Chief Commercial Officer; Managing Directors, General Managers and Site Directors of Operating Sites; VPs of SHE; Site SHE Managers

Based on feedback from relevant constituents, the company has developed and implemented comprehensive programs in the areas of:

- Investing in skills training and development curricula for our workforce
- Health and safety
- Reducing waste and lowering our carbon footprint
- Suppliers and business partner standards
- Community-based initiatives to support:
  - STEM (science, technology, engineering and mathematics) education
  - Environmental awareness
  - Health and sanitary concerns
  - Equal rights and empowerment

*"Maintaining an active relationship with all our stakeholders is very important for conducting business. We are in frequent contact with the community, the production chain and even with entrepreneurs from other economic sectors to help us to have a broader view of the external environment, which allows us to conduct business more efficiently."*

**Rodrigo Assunção,**  
Brazil HR Manager

## Policies

Tronox's sustainability framework is underpinned by a series of policies that guides our behavior and business practices:

- [Code of Ethics and Business Conduct](#)
- [Modern Slavery Statement](#)
- [Supplier Code of Conduct](#)
- Global Procurement and Governance Policy
- [Global Tax Strategy](#)
- Diversity and Inclusion Policy
- Anti-Harassment/Workplace Violence Policy
- Global Health and Safety Policy
- Global Environmental Policy
- Global Crisis Emergency and Business Continuity Management System and Crisis Management Plan
- Global Product Safety Policy
- Ethics, Compliance and Whistleblower Hotline Policy
- Compliance with Anti-Bribery Laws Policy
- Anti-Money Laundering Policy

## Memberships

### Australia

- Chamber of Commerce and Industry WA (CCIWA)
- Kwinana Industries Council (KIC)
- Chamber of Minerals and Energy WA (CMEWA)
- WA Mining Club
- Bunbury Geopraphe Economic Alliance
- Environmental Essentials
- Industrial Foundation for Accident Prevention (IFAP)
- Standards Australia
- Australian Institute of Management (AIM)
- Surface Coatings Association Australia (SCAA)
- Surface Coatings Association New Zealand (SCANZ)
- Society of Plastics Engineers (SPE)

### Brazil

- Responsible Care Program, Brazil Chapter
- Brazilian Chemical Industry Association (ABIQUIM)
- Chemical Industry Related Congressional Committee
- Compliance Women Committee
- Comissão de Compliance Nacional
- Camaçari Industrial Committee (COFIC)
- Industrial Federation of the State of Bahia (FIEB)
- Industrial Federation of the State of Paraíba (FIEP)
- Association of American Chambers in Latin America and the Caribbean (AmCham)
- Bahia Ports Users Association (USUPPORT)
- Brazilian Human Resources Association (ABRH)
- Brazilian Paint Manufacturers Association (ABRAFATI)



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## Europe

- European Chemical Industry Council (CEFIC)
- Titanium Dioxide Manufacturers Association (TDMA) and TiCl<sub>4</sub> group
- European Sulphuric Acid Association (ESA)
- European Inorganic Coagulants Producers Association (INCOPA)
- Titanium Dioxide Industry Consortium (TDIC)
- Iron and Aluminum Salts Consortium (AlFe)
- Consortium for Calcium Sulphate (Gypsum)
- Deltalinqs (Rotterdam Industries)
- UK Chemicals Industries Association (CIA)
- British Coatings Federation (BCF)
- Humber Chemical Focus (HCF)
- Paper Industry Technical Association (PITA)
- Royal Microscopical Society
- Oil & Colour Chemists' Association (OCCA)
- RSC (Royal Society of Chemistry)
- Institution of Chemicals Engineers
- Association des Entreprises de la Chimie Minérale (ADECHIM)
- France Chimie

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## United States

- American Coatings Association
- Oklahoma Paints and Coatings Association
- Society of Plastic Engineers
- ASTM International
- US-Saudi Business Council
- Monroe County Chamber of Commerce
- Mississippi Manufacturer's Association
- Tenn-Tom Waterway Association
- Family Organizations Recruiting Great Employees (FORGE)
- Society for Human Resources Management (SHRM)

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## Saudi Arabia

- Royal Commission for Jubail and Yanbu (RCJY) Entities
- Yanbu Area Mutual Aid Committee (YAMA)
- Facilities Security Forces Facilities
- Yanbu Civil Defense
- High Commission for Industrial Security (HCIS)
- YRC Environmental Department
- Ministries
  - Chamber of Commerce
  - Investment ministry
  - Power ministry
  - Industry ministry
  - Commerce ministry
  - Interior ministry
  - Human Resources ministry
  - Monetary ministry

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## South Africa

- Minerals Council South Africa
- Zululand Chamber of Commerce and Industry

# GRI Index

The report was prepared in accordance with the core option of the GRI Standards and its Mining and Metals Sector Disclosure Supplement.

Organizational Profile		
Disclosure 102-1	Name of the organization	Tronox Holdings plc (Tronox, the company, or we).
Disclosure 102-2	Primary brands, products, and/or services	<p>As a vertically integrated producer of titanium dioxide and inorganic chemicals, Tronox mines and processes titanium ore, zircon and other materials and manufactures TiONA® and TiKON® titanium dioxide pigment, specialty-grade CristalACTiV™ titanium dioxide products and high-purity titanium chemicals. Our products add brightness and durability to paints, plastics, paper and other everyday products. Our process also creates meaningful quantities of zircon that we supply to customers around the world.</p> <p>Pages 10 and 56  <a href="https://www.tronox.com/products/">https://www.tronox.com/products/</a></p>
Disclosure 102-3	Location of organization's headquarters	<p>Headquartered in Stamford, Connecticut, USA            Page 9  <a href="https://www.tronox.com/about-us/global-locations/">https://www.tronox.com/about-us/global-locations/</a></p>
Disclosure 102-4	Countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report	<p>Page 9  <a href="https://www.tronox.com/about-us/global-locations/">https://www.tronox.com/about-us/global-locations/</a></p>
Disclosure 102-5	Nature of ownership and legal form	Tronox Holdings plc is a public limited company listed on the New York Stock Exchange (NYSE:TROX) and is incorporated under the laws of England and Wales.
Disclosure 102-6	Markets served	<p>Pages 10 and 56  <a href="https://www.tronox.com/products/">https://www.tronox.com/products/</a></p>
Disclosure 102-7	Scale of the reporting organization	<p>Page 9  <a href="#">Annual Report</a></p>
Disclosure 102-8	Information on employees and other workers	Pages 9 and 42
Disclosure 102-9	Supply chain	Tronox mined and manufactured inorganic chemical compounds in Australia, South Africa, USA and the Netherlands. With the acquisition of Cristal, which closed on April 10, 2019, we expanded our mining operations in Australia and added mining operations in Brazil, as well as expanded our pigment operations in Australia, and added pigment operations in Brazil, the United Kingdom, France, China and Saudi Arabia. The company operates an integrated supply chain to support its TiO <sub>2</sub> business. Pages 59-60
Disclosure 102-10	Significant changes during the reporting period	Pages 3, 9 and 52
Disclosure 102-11	Precautionary principle	Page 18
Disclosure 102-12	External initiatives	Pages 28-29, 45-49
Disclosure 102-13	Memberships of associations or organizations	Pages 64-65



Strategy		
Disclosure 102-14	Statement from senior decision maker	Page 3
Ethics and Integrity		
Disclosure 102-16	Values, principles, standards, and norms of behavior	Page 38
Governance		
Disclosure 102-18	Governance structure	Pages 61-62
Disclosure 102-19	Process for delegating authority to address economic, environmental and social topics	Page 61
Disclosure 102-20	Whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics, and whether post holders report directly to the highest governance body	Pages 61-62
Disclosure 102-22	Composition of the highest governance body and its committees	Pages 61-62
Disclosure 102-23	Whether the chair of the highest governance body is also an executive officer (and, if so, his or her function within the organization's management and reasons for this arrangement)	Pages 61-62
Disclosure 102-26	Report the highest governance body's and executives' roles in developing, approving and updating the organization's purpose, mission, strategies, policies and goals related to sustainability	Pages 61-62
Disclosure 102-32	Highest position that formally reviews and approves the sustainability report	Chairman and CEO
Stakeholder Engagement		
Disclosure 102-40	List of stakeholder groups engaged by the organization	Page 63
Disclosure 102-41	Collective bargaining agreements	Page 40
Disclosure 102-42	Basis for identification and selection of stakeholders with whom to engage	Page 63
Disclosure 102-43	Approach to stakeholder engagement	Page 63
Disclosure 102-44	Key topics and concerns raised	Page 63
Reporting Practice		
Disclosure 102-45	Entities included in consolidated financial statements	Economic reporting includes only 2017-18 legacy Tronox information, and the 2019 new Tronox combined global company as reported.
Disclosure 102-46	Defining report content and topic boundaries	Page 11
Disclosure 102-47	Material aspects identified for defining report content	Page 11
Disclosure 102-48	Restatements of information provided in previous reports and the reasons for such	All significant restatements of data and information provided in earlier reports are noted in the particular report section in footnotes.

Disclosure 102-49	Report significant changes from previous reporting periods in the scope and aspect boundaries	Tronox completed the acquisition of Cristal on April 10, 2019. The 2019 Tronox Sustainability Report represents legacy Tronox for 2017-2019, legacy Cristal for 2019, and the new Tronox combined global company for 2019 for safety, employee and environmental data. Economic reporting includes only 2017-18 legacy Tronox information, and the 2019 new Tronox combined global company. Legacy Tronox data excludes Tronox Alkali from 2017 and excludes Tronox Electrolytic from 2017 to 2018.
Disclosure 102-50	Reporting period	2019 We report on our fiscal year, which is the same as the annual calendar year.
Disclosure 102-51	Date of most recent previous report	The Tronox 2018 Global Reporting Initiative Report was published September 20, 2019.
Disclosure 102-52	Reporting cycle	Annual
Disclosure 102-53	Contact point for questions regarding the report	Melissa Zona, SVP External Affairs and Chief Sustainability Officer sustainability@tronox.com
Disclosure 102-54	Reporting in accordance with gri standards	This report has been prepared in accordance with the core option of the GRI Standards and its Mining and Metals Sector Disclosure Supplement.
Disclosure 102-55	GRI context index	Pages 66-69
Disclosure 102-56	External assurance	Although no external assurance was obtained for the development of this report, Tronox has followed the GRI Standards "Reporting Principles" regarding (i) defining report content, and (ii) ensuring the quality of reported information. The environmental data in this report is subject to internal audits in line with our Environmental Management Systems and external audits in connection with ISO 14001 certification requirements. In this report, a total of 16 indicators are reported, including three from the Mining and Metals Sector Supplement.
<b>Management approach</b>		
Disclosure 103-3	Aspect boundaries inside the organization and aspect boundaries outside the organization	This report covers Tronox's global operations in mining, processing and manufacturing, and land rehabilitation.
<b>Economic Topics</b>		
Disclosure 103-2 and 103-3	Economic management approach	Page 51, 59 and 60
Disclosure 201-1	Direct economic value generated and distributed	Page 53-54
Disclosure 204-1	Procurement practices	Page 59-60
<b>Environmental Topics</b>		
<b>Energy</b>		
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Disclosure 302-1	Energy consumption within the organization	Page 20
Disclosure 302-3	Energy intensity	Page 21
<b>Water</b>		
Disclosure 103-2 and 103-3	Water management approach	Page 22
Disclosure 303-1	Total water withdrawal by source	Page 23



<b>Biodiversity</b>		
Disclosure 103-2 and 103-3	Biodiversity management approach	Page 24-25
G4-MM1	Amount of land disturbed or rehabilitated	Page 27
Disclosure 304-3	Habitats protected or restored	Page 27
<b>Emissions</b>		
Disclosure 103-2 and 103-3	Emissions management approach	Page 29
Disclosure 305-1	Direct GHG emissions (scope 1)	Page 31
Disclosure 305-2	Energy indirect GHG emissions (scope 2)	Page 31
Disclosure 305-4	GHG emissions intensity	Page 32
<b>Effluents and Waste</b>		
Disclosure 103-2 and 103-3	Effluents and waste management approach	Page 33
Disclosure 306-2	Total weight of waste by type and disposal method	Page 34
<b>Social Topics</b>		
<b>Labor Practices and Decent Work</b>		
Disclosure 103-2 and 103-3	Labor/management relations management approach (collective bargaining)	Page 40
G4-MM4	Number of strikes and lock-outs exceeding one week's duration	Page 40
<b>Occupational Health and Safety Management</b>		
Disclosure 103-2 and 103-3	Health and safety management approach	Page 13
Disclosure 403-9	Work-related injuries	Page 15-16
<b>Diversity and Equal Opportunity</b>		
Disclosure 103-2 and 103-3	Diversity and equal opportunity management approach	Page 40-41
Disclosure 405-1	Diversity of governance bodies and employees according to gender, age, minority group membership, and other indicators of diversity	Page 42
<b>Human Rights</b>		
Disclosure 103-2 and 103-3	Indigenous rights management approach	Page 48-49
G4-MM5	Total number of operations taking place in or adjacent to indigenous peoples' territories, and number and percentage of operations or sites where there are formal agreements with indigenous peoples' communities	Page 48-49
<b>Local Communities</b>		
Disclosure 103-2 and 103-3	Local community engagement management approach	Page 45
Disclosure 413-1	Operations with local community engagement, impact assessments, and development programs	Page 45

# South African Mining Charter Scorecard

DESCRIPTION	MEASURE	Weighting	Compliance Target	Actual Compliance 2019
<b>1.Reporting</b>				
Has the company reported level of compliance with the Charter for the calendar year	Documentary proof of receipt from the department	Y/N	100%	100.0%
<b>2.Ownership</b>				
Minimum target for effective HDSA ownership	Meaningful economic participation	Y/N	26%	13.1%
	Full shareholder rights	Y/N	26%	13.1%
<b>3.Procurement</b>				
Procurement Spent on BEE entity	Mining Goods	15	70%	56.7%
	Services	20	80%	41.7%
Research and Development	70% of total research and development budget to be on SA based R&D entities	2.5	70%	70.0%
Sample Analysis	SA based facilities for 100% of mineral samples across mining value chain	2.5	100%	100.0%
<b>4.Employment Equity (Excl White Females)</b>				
Diversification of the workplace to reflect the country's demographics to attain competitiveness	Top Management (Board)	3	40%	50.0%
	Senior Management (Exco)	4	40%	69.2%
	Middle Management	3	40%	43.4%
	Junior Management	1	40%	76.2%
	Core Skills	5	40%	94.6%
<b>5.Human Resources Development (Excl White Females)</b>				
Development of requisite skills, incl. support for South African based research and development initiatives intended to develop solutions in exploration, mining, processing, technology efficiency (energy and water use in mining), beneficiation as well as environmental conservation.	HRD expenditure as percentage of total annual payroll (excl. mandatory skills development levy)	25	5%	1.6%
<b>6.Housing and Living Conditions</b>				
Conversion and upgrading of hostels to attain the occupancy rate of one person per room	Percentage reduction of occupancy rate towards 2014 target (1 person per room)	Y/N	100%	NA
Conversion and upgrading of hostels into family units	Percentage conversion of hostels into family units	Y/N	100%	NA



## 7.Mine Community Development

Conduct ethnographic community consultative and collaborative processes to delineate community needs analysis	Implement approved community projects	5	Up-to-date project implementation	100.0%
Project implementation	Percentage of Net Profit After Tax (NPAT) spent on community development	10	1%	0.46%

## 8.Sustainable Development and Growth

Improvement of the industry's environmental management	Implement approved environmental management programmes (EMPs)	12	100%	100.0%
Improvement of the industry's mine health and safety	Implementation of tripartite action plan on health and safety	12	100%	64.2%
Utilisation of South African based research facilities for analysis of samples across mining value	Percentage of samples in South African facilities	5	100%	100.0%

## Performance Data Standards, Methodologies and Assumptions

The 2019 Tronox Sustainability Report represents the Tronox TiO<sub>2</sub> business, including legacy Tronox for 2017 to 2019, legacy Cristal business for 2019, and the new Tronox combined global company for 2019 for safety, employee and environmental data. Economic reporting includes only 2017 to 2018 legacy Tronox information and the 2019 new Tronox combined global company. Legacy Tronox data excludes Tronox Alkali from 2017 and excludes Tronox Electrolytic from 2017 to 2018.

### Work-Related Injuries (403-9)

Disabling injuries are defined as fatalities, lost-time injuries and restricted work cases. Disabling Injury Frequency Rate is the number of disabling injuries per 200,000 hours worked.

Recordable injuries are defined as disabling injuries and medical treatment cases. Recordable Injury Frequency Rate is the number of recordable injuries per 200,000 hours worked.

### Energy Consumption within the Organization (302-1)

Energy consumption within the organization includes the components stated below. All components are converted into primary energy, in order to arrive at total direct and indirect primary energy consumption.

#### Non-renewable fuel consumed

These sources are assumed to be primary energy sources, even though some sources have been through a transformation process.

#### Electricity and steam sold

Efficiencies of the equipment, which generates electricity and steam, are taken into account to arrive at primary energy.

#### Electricity and steam purchased for consumption

Intermediate energy purchased for consumption is converted to primary energy by taking into account the energy input of the production process where possible, or by using efficiency assumptions. No primary energy conversion is applied for electricity and steam from renewable sources.

In case non-renewable fuel sources were consumed to produce electricity or steam used on-site, only the non-renewable fuel sources were counted, in order to prevent double counting of energy consumption.

#### Source of the conversion factors used

Calorific values that were used to convert volumes of non-renewable fuel sources into primary energy were taken from the energy suppliers where possible, or from the Guidelines for National Greenhouse Gas Inventories<sup>1</sup>.

Efficiencies used for electricity and steam sold were based on local metered input and output values and annual efficiency samples, respectively.

<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC) (2006). *Guidelines for National Greenhouse Gas Inventories*. Hayama, Japan.



### Energy Intensity (302-3)

The total primary energy intensity is calculated by dividing the sum of direct and indirect primary energy consumption by the total weight of products produced.

All energy sources included in 302-1 (non-renewable fuel, electricity and steam, minus electricity and steam sold) are included in the energy intensity calculations.

Regarding electricity and steam purchased for consumption, conversion efficiencies are provided by energy suppliers where possible, or assumptions of country-average efficiencies were taken from the Trends in Global Energy Efficiency Report<sup>2</sup>.

### Direct (Scope 1) GHG Emissions (305-1)<sup>3</sup> and Energy Indirect (Scope 2) GHG Emissions (305-2)<sup>4</sup>

Greenhouse gases included in this indicator are in line with the GHGs covered by the United Nations Kyoto Protocol, the World Resources Institute, and the World Business Council for Sustainable Development (WBCSD) GHG Protocol Corporate Accounting and Reporting Standard:

- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous oxide (N<sub>2</sub>O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur Hexafluoride (SF<sub>6</sub>)

Furthermore, the reporting of Scope 1 and Scope 2 GHG emissions is in line with the WBCSD Standard's Operational Control Approach<sup>5</sup>.

#### Source of the conversion factors used

GHG emission factors for CO<sub>2</sub> are based on data provided by local energy suppliers. In case this data is not readily available, the emission factors used are in line with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (default emission factors on a net calorific basis). For GHGs other than CO<sub>2</sub>, Global Warming Potentials (GWPs) are used to convert GHG emissions into CO<sub>2</sub> equivalents. These GWPs are in line with the IPCC Fifth Assessment Report<sup>6</sup>.

### Water Withdrawal by Source (303-1)

Total water withdrawal only takes into account water that is used for the first time. Water that is reused or recycled to be consumed twice or more times, either in the same process or in a different process, is not included in this indicator.

<sup>2</sup> Asea Brown Boveri (ABB) (2011). *Trends in Global Energy Efficiency 2011*. Zurich, Switzerland.

<sup>3</sup> Direct GHG emissions, or Scope 1 emissions, refer to GHG emissions from operations that are owned or controlled by Tronox.

<sup>4</sup> Indirect GHG emissions, or Scope 2 emissions, refer to emissions that result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by Tronox.

<sup>5</sup> World Business Council for Sustainable Development (WBCSD) (2004). *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)*. Washington, DC, USA.

<sup>6</sup> Intergovernmental Panel on Climate Change (IPCC) (2007). *Fifth Assessment Report, Climate Change 2007: The Physical Science Basis*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

## Habitats Protected or Restored (304-3) / Amount of Land Disturbed or Rehabilitated (G4-MM1)

All data refers to a snapshot at year end (December 31 of the relevant year). We apply the following definitions to the different land use categories:

### Area Protected

This category includes undisturbed land (land not affected by any operations) that remains in its original state and land that is actively protected from operations to maintain a healthy, functioning ecosystem.

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### Area Disturbed

Reflects areas that are used during or affected by operational activities, including:

- Operational plants and units (including tank and silo storage)
  - Office buildings (including maintenance shops, storage locations, and contractor areas)
  - Other areas (occasionally used, including roads and parking lots)
  - Waste treatment/storage (including ponds and storage of fine and coarse material fractions)
  - Areas prepared for surface mining (i.e., areas where the top soil has been removed)
  - Areas actively mined
  - Former mining or operational areas where backfilling operations are in progress but where the top soil has not yet been replaced
- 

### Area in Rehabilitation

Reflects former mining or operational areas where the top soil has been placed back, but where rehabilitation measures have not yet been completed. Offsetting areas where rehabilitation measures have commenced are also included in this category. This is a temporary phase between area protected/disturbed and area restored.

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### Area Restored

Former mining or operational areas where rehabilitation measures have been completed and a specified quality level has been achieved according to pre-determined agreements with authorities, or, in case of absence of agreements with authorities, according to internal standards. These agreements can include restoration to farm land, native land, land with a high biodiversity value, etc. Once the agreed quality level has been achieved, the area is considered to be restored, even if Tronox is still putting in effort (through third parties or otherwise) to maintain the area at that quality level.



### **GHG Emissions Intensity (305-4)**

The GHG emissions intensity is calculated by dividing the sum of direct and indirect GHG emissions by the total weight of products produced.

All GHG emissions included in 305-1 and 305-2 (Scope 1 and Scope 2) are included in the GHG emissions intensity calculations. This automatically includes all GHGs stated under 305-1.

### **Waste by Type and Disposal Method (306-2)**

This indicator reflects the total weight of waste produced during the fiscal year 2019.

### **Direct Economic Value Generated and Distributed (201-1)**

This indicator reflects the economic value generated (including community investment), distributed, and retained during the fiscal year 2019. All presented data relates to the Legacy Tronox TiO<sub>2</sub> segment. We apply the following definitions:

- Direct economic value generated refers to total revenue on an accruals basis
- Economic value distributed refers to operating costs, employee wages and benefits, payments to providers of capital, payments to government, and community investments on an accruals basis
- Economic value retained is calculated as direct economic value generated less economic value distributed







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