# DELIVERING ON OUR COMMITMENTS

## 2020 | RESPONSIBLE CARE® REPORT

Responsible Care®
Our commitment to sustainability.

# CONTENTS



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# INTRODUCTION

## Message from the Vice President, Sustainability

There is no doubt that in 2020, all our lives were dominated by the effects of the COVID-19 global pandemic. Canadians and indeed citizens all over the world had to come together to try to keep each other safe. In a year of trying to manage the health of our employees and communities, the Responsible Care® ethic of ***"doing the right thing and being seen to do the right thing"*** has never been more pertinent. Although keeping each other safe has always been a full-time job for our Responsible Care members, that took on a whole new meaning in 2020.

Through numerous lockdowns and changing health directions, many of our members were able to step up to ensure the safety of their employees while retooling or increasing the output of the products needed to fight the pandemic. You will find numerous examples of their incredible work in this report.

But now, as we make our way into our post-pandemic lives, we as an industry must position ourselves to take on the next major issue confronting our planet: climate change. We will be challenged to uphold our Responsible Care principles that compel us to ***"take preventative action to protect health and the environment"*** and ***"innovate for safer products and processes that conserve resources, minimize waste and provide enhanced value."***

As a world leader in low carbon chemical production, the Canadian chemistry industry will play a significant role in helping achieve Canada's greenhouse gas reduction commitments. Advances in key sectors such as green buildings, sustainable transportation, clean energy and sustainable agriculture would be impossible without chemistry and plastics. However, to remain a world leader, we as a sector must also continue to reduce our own environmental impacts and look at ways to achieve net zero carbon emissions over the longer term.

It is a daunting challenge, but if 2020 has taught us anything, we know our sector is a solution provider for society's most pressing issues. The Canadian chemistry sector is uniquely positioned to help solve our climate change challenges through leading research and innovation that is guided by our Responsible Care ethic and principles.

I hope you enjoy this year's report which provides the data to track our members' Responsible Care journey and our commitment to transparency, continuous improvement and most of all, keeping each other safe.

**Shannon Watt**
*Vice President, Sustainability*

# About Responsible Care®

**For more than 35 years, Canada's chemistry sector has led the journey towards safe, responsible, and sustainable chemical manufacturing through its United Nations (UN)-recognized environmental, societal and governance (ESG) initiative, Responsible Care. Founded in Canada in 1985, Responsible Care is now practiced in 73 countries and by 96 of the 100 largest chemical producers in the world.**

Through Responsible Care, CIAC members strive to the ethic to ***"do the right thing and be seen to do the right thing."*** They innovate for safer and greener products and processes, and work to continuously improve their environmental, health, and safety performance.

Responsible Care covers all aspects of a company's business, their employees, the communities, and the environment, over the entire life cycle of its products. Through TRANSCAER®, our members engage with communities near facilities and along transportation corridors, emergency responders, governments, and other stakeholders to advance laws and regulations supporting safe transportation and emergency response.

All CIAC member companies commit to the Responsible Care Ethic and Principles for Sustainability and the Responsible Care Codes, covering all aspects of the company's business and product lifecycle. This leads to safer and more sustainable products and processes — improving the environmental and safety performance of our members.

### Responsible Care Verification

Companies must be transparent about their activities and allow independent experts and members of the public to verify that they are living up to the standards set by Responsible Care. Read more about Responsible Care verification and see past reports here.

SUSTAINABLE DEVELOPMENT GOALS

## United Nations Sustainable Development Goals

Through our membership on the International Council of Chemical Associations (ICCA), CIAC is committed to accelerating progress towards the 17 UN Sustainable Development Goals (SDGs) and is working towards identifying association-specific targets. The UN SDGs that are most material to the chemistry sector are identified throughout the report.


LEARN MORE

# OUTCOMES FOR 2019* AT A GLANCE

The federal government has set ambitious targets to reduce greenhouse gas emissions from 2005 levels, driven by the Paris Agreement. CIAC members are making progress towards these goals while also increasing the safety of their operations.

***Since 2005, CIAC members have…***

- Reduced greenhouse gas emissions by **13%****
- Reduced sulphur dioxide emissions by **71%**
- Reduced emissions of substances requiring risk management by **13%** as part of commitments under the Canadian Environmental Protection Act, 1999 (CEPA)
- Virtually eliminated **large-scale** incidents
- Reduced their total recordable incident rate by **55%**
- Worked with supply chains, from supplier to consumer, to minimize risks through the entire lifecycle of their products, including during product transportation **(100% third-party verified)**
- Worked with communities living close to our members' facilities to ensure the public understands the risks and benefits of operations and products **(100% third-party verified)**
- Prepared emergency plans, ensuring communities are ready to respond to chemical-related incidents **(100% third-party verified)**

In 2012, CIAC launched the National Emissions Reduction Masterplan (NERM) supplemental survey of waste and water metrics.

***Since 2012, CIAC members have…***

- Reduced routine hazardous waste for disposal by **66%**
- Reduced routine non-hazardous waste for disposal by **46%**
- Reduced ground water consumption by **92%**

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** Increased production by CIAC members and new/improved quantification methodologies are important contributing factors to consider in these outcomes.

# Recognizing our members' commitment to Responsible Care®

## Verifications completed in 2020

ARLANXEO Performance Elastomers
SOLVAY
EVONIK INDUSTRIES
Olin
BASF The Chemical Company
DOW
NorFalco A GLENCORE Company

## 2019* TRANSCAER® Awards

***Distinguished Service Award***

**Carrie Maxim**
Site Logistics Team Leader – *NOVA Chemicals*

***National Service Awards***

**Jeff Stevens**
Director Information and Technology – *Chemistry Industry Association of Canada*

***Regional Service Awards***

**Amber Rushton**
Community Emergency Management Coordinator – *Burlington Fire Department*

**Chris Nicholson**
Senior Dangerous Goods Officer – *CN*

**Cris Mitchell**
Regional Quality Specialist – *GATX Corporation*

**Dave Clarke**
Instructor/Captain – *Greater Toronto Airports Authority, Fire and Emergency Services Training Institute (FESTI)*

**George Biggs**
Senior Railcar Design Engineer – *GATX Corporation*

**Jeff Nee**
Vice President, EHS – *GATX Corporation*

**Jennifer Radbourne**
Corporate account manager – *GATX Corporation*

**Jim Torres**
Railcar Design Engineer – *GATX Corporation*

**Ken Johnson**
President – *Ken Johnson Trucking*

**Michael Heeringa**
Dangerous Goods Officer – *CN*

**Trina Kautzmann**
Tank Trainer coordinator – *GATX Corporation*

**Tyler Yates**
Environmental health and safety Manager – *GATX Corporation*

*2020 TRANSCAER awards have been deferred and will be combined with the 2021 awards.

# SUPPORTING THE FIGHT AGAINST COVID-19

Operating during a pandemic presented unique challenges and unknown territory for the chemistry industry. CIAC members produce products that Canadians count on every day, from chemicals to treat drinking water to the products needed to produce hand sanitizer and the plastics needed to protect food, medical staff, and frontline workers.


One of the first challenges for CIAC during the COVID-19 pandemic was ensuring that our members were recognized as essential businesses in provinces across the country. That quickly shifted to working with governments to identify key inputs to produce and distribute hand-sanitizers and disinfectants.

The Responsible Care Operation Codes outline expectations regarding companies' response in the event of a global crisis in which the government sequesters members to begin producing products and providing necessary services to safeguard Canadians. In such a scenario, members are expected to discontinue their customer orders in favour of supporting the government. The following extract from our Responsible Care commitments encapsulates this and sets the stage for Responsible Care preparedness:

> **Critical Infrastructure/Business Continuity** Each company shall have a process to identify the goods and services it depends on others to provide and those which it may be called upon to provide to others in the event of a larger-scale emergency.

This Code was put into action during the early stages of the COVID-19 crisis, when CIAC's hydrogen peroxide and chloralkali producers were in communication with federal and provincial governments and stood ready to reallocate production from industrial customers to health-related products such as bleach and disinfectants.

Collaborative efforts of this sort quickly led to the development of a virtual Rapid Response Platform (RRP), an instant visibility matching platform that connected supply and demand of COVID-19 related supplies, initiated by BASF Canada. Sourcing these supplies often proved challenging in the early stages of the crisis, given strong global demand and disrupted supply networks, and the RRP offered a ready solution.

## The Rapid Response Platform

RRP Canada was created through contributions from Canadian industry, including CIAC members, to create a marketplace for businesses in need of products to protect employees and customers against COVID-19 to connect with manufacturers of PPE including hand sanitizer, surgical masks, N95s, surface sanitizer, face shields, gloves, gowns, and much more.

RRP Canada enabled users to purchase PPE directly from suppliers through automated matchmaking or by browsing a complete list of products. The platform also enabled suppliers to manage their own catalogue of final products and input materials.

*"Since the beginning of this pandemic, Canadian businesses of all sizes have helped us in the fight against COVID-19 by creating leading-edge innovations and initiatives to keep Canadians safe. I am particularly proud of how Canada's Supercluster model has been able to pivot and deliver in this time of crisis. With the relaunch of the Rapid Response Platform, Canadian businesses will have access to the high-quality PPE they need from trusted manufacturers."*

*— the Honourable Navdeep Bains, Minister of Innovation, Science, and Industry*

## Responding to the pandemic

### Imperial

To support the Government of Canada's critical emergency response efforts, Imperial donated 60 tonnes of isopropyl alcohol (IPA) to be used in disinfectant products. IPA is an ingredient used in medical, health and pharmaceutical applications like hand sanitizer, medical wipes and rubbing alcohol, and Imperial's donation was able to help manufacture more than 600,000, 350 ml bottles of hand sanitizer.

In addition to helping to meet the Canadian demand for IPA, other efforts by Imperial to support the country's pandemic response include:

- donating 500 laptops to the Electronic Recycling Association's Lending Laptops Program in support of the Calgary Board of Education's EducationMatters campaign to support online learning and to help meet high demand for technology devices while classrooms remain closed; and
- raising its match dollars 2:1 for donations by employees to community charities and not-for-profit organizations through its employee giving and volunteer program, ImpACT.

### BASF

BASF Canada's Windsor, Ontario plant is known for producing coatings for the automotive industry and refinishing market, but it pivoted in only a matter of weeks to begin producing hand sanitizer. Combined with the hand sanitizer being imported from BASF's Wyandotte, Michigan plant, the company donated 10,000 litres in one week to Canadian healthcare organizations.

Additionally, in May 2020, CIAC collaborated with BASF Canada to deliver the webinar: "BASF: Responding to a Pandemic." Amy Sandhu, Manager for Sustainability and Government Relations, Erika Harris, Responsible Care Coordinator and Occupational Health and Safety Specialist, and Sean Cammaert, Head of Global Business Services Safety Cluster, outlined how BASF Canada continued to operate critical infrastructure imperative to both public health and safety as well as community well-being. They also shared their insights on how post-COVID economy recovery planning poses a significant opportunity for Canadian businesses to deeply integrate sustainability into their business strategy — thereby mitigating the impact of future economic, climate or pandemic related shocks.

### Shell

Shell donated 125,000 litres of isopropyl alcohol (IPA) to the Government of Canada over three months to help the Canadian healthcare sector respond to COVID-19. Shell's donation was approximately enough to create nearly one million 12-oz bottles of hand sanitizer for use in hospitals and medical facilities.

Shell also contributed $250,000 to the COVID-19 Community Response Fund, a collaboration with The City of Calgary, including the Calgary Emergency Management Agency, and United Way of Calgary and Area. The resources raised through this fund will ensure agencies on the ground can continue their critical work in this time of need. This includes vulnerable populations at greatest risk, including the elderly, those experiencing mental health and addiction issues, persons with disabilities, Indigenous communities, and others who may be impacted by this public health crisis.

### Methanex

Due to the devastating impacts of the COVID-19 pandemic on communities around the world, in 2020 Methanex contributed to emergency relief efforts such as providing medical and food supplies to essential front-line workers and to the most vulnerable in their communities who were suffering the most. For example, in Vancouver, donations were made to the local food bank and to KidSafe to ensure that children in poverty received food and assistance.

Globally, Methanex invested approximately US $1.7 million and over 7,400 volunteer hours in communities in 2020, focusing on COVID-19 emergency relief support, an investment valued at over one per cent of the company's average adjusted net income over the past five years.


# SOCIAL RESPONSIBILITY

**In 2020, CIAC and its Board of Directors made the commitment to update Responsible Care to include commitments to addressing diversity and inclusion within CIAC members' Canadian operations.**

It is increasingly a societal expectation that companies in Canada be seen to be responsive to concerns relative to equity, diversity, and inclusion, ensuring greater access to opportunities for individuals regardless of their background and orientation. Government policy continues to place expectations on CIAC members to meet and address these societal expectations. Many CIAC member companies are already committed to diversity and inclusion and are recognized as leaders in this area. Best practices and lessons-learned through our membership will be instrumental to addressing diversity and inclusion through Responsible Care.

These new commitments will be additional to the Indigenous Code elements that were approved by CIAC's Board of Directors in 2019. CIAC has also developed an internal equity, diversity, and inclusion policy for CIAC staff to follow, developed in collaboration with our members and covering all aspects of equity, diversity, and inclusion, with room for improvement as new learnings come to light.

## John Vincett Award

CIAC, in collaboration with Women Building Futures (WBF), was proud to announce the John Vincett Responsible Care Award in 2020. WBF is a non-profit organization based in Edmonton, Alberta. Their mission is to empower women's economic prosperity by removing barriers and providing industry recognized training in the construction trades, maintenance, transportation industries and more. Their team works closely with Indigenous communities to raise awareness of the growing employment and training opportunities for women in the skilled trades, driving, operating industries and more.

This award was inspired by the legacy of John Philip Vincett, a prominent champion of Responsible Care in Canada's chemistry sector. This award will provide financial relief to Indigenous women who attend WBF programs.

*"On behalf of John, we are deeply honoured to acknowledge the CIAC contribution in his name to WBF. John brought integrity, thoughtfulness, and commitment to all his endeavours, including his early career working with remote First Nations in Northern Ontario, and his many years working to support and expand Responsible Care. WBF is an organization that embodies John's values and principles in its goal to empower women, and Indigenous communities through support of training and apprenticeships in the skilled trades."*

*— Women Building Futures*

## How our members are fostering a diverse and inclusive culture

### Proctor & Gamble

The people who use our products every day are as diverse as our world. The more we reflect them, the better we can understand their needs. That's simply meeting expectations.

Inclusivity is where we go beyond them. Our employees are encouraged to bring their unique selves to work every day and bring out the best in each other. Because when every skill is used and every voice heard, positive change can happen.

### Dow

*"Inclusion and Diversity is a business imperative for Dow and is not only the right thing to do, but it's the smart thing to do. We are striving to create an environment where every employee is respected and valued and has an equal opportunity to develop, advance and be heard."*

*— Karen S. Carter, Chief Human Resources Officer and Chief Inclusion Officer*

### Glencore/NorFalco

We seek to reflect the diversity of the communities in which we operate within our workforce. Our people are fundamental to our success. We believe that a diverse workforce is essential for a successful business. We treat our people fairly and with respect, and ensure they have the opportunity to develop their careers to match their potential. We are committed to upholding the International Labour Organisation Declaration on Fundamental Principles and Rights at Work.

### Lanxess

At LANXESS, diversity stands for an enriching mix of different nationalities, cultures, and life experiences. This diversity allows LANXESS topics to be viewed from varying viewpoints, while continuously developing our employees professionally and personally. Diversity makes LANXESS more open, innovative, and competitive — both as a company and as an employer.

### Imperial

We need many perspectives to succeed. We encourage diversity of thought so people aren't afraid to take risks, make mistakes and look at things differently.

That's what progress looks like. We honour diverse backgrounds so we can be a place where people can bring their full selves, no matter their identity, race, gender, sexual orientation, age, and ability. But diversity isn't the default. We must be intentional and work hard to get there. It's a mindset that begins at the leadership table and continues through every office and worksite across Canada.

### Methanex

At Methanex, we strive to provide an inclusive work environment where diversity is valued and sought after and all global team members are encouraged and supported to reach their full potential. In 2020, Methanex established a taskforce to advance diversity and inclusion (D&I) efforts in the organization and lay the foundation for the development of an integrated D&I strategy through a new Global D&I Council.

Methanex also formally embedded a target into its Board Diversity Policy that each gender comprises at least 30 per cent of the Board's directors, which the company has already been exceeding.

# REDUCING EMISSIONS

**Canadians have a right to a safe and healthy environment, including strict air and water quality standards. CIAC and its members advocate for transparency and a risk-based approach to chemicals management using the ethic and principles of Responsible Care.**


The safe manufacturing of chemistry is at the centre of all the items that ensure our modern way of life. Canadians need to be confident that their health, safety, and environment are protected at all times. CIAC and our members are proud to support Canada as a global leader in the risk-based approach to chemicals management.

## Helping all Canadians reduce emissions

More than 95 per cent of all manufactured products rely on chemistry. Advances in key sectors such as green buildings, sustainable transportation, clean energy and sustainable agriculture would be impossible without chemistry and plastics.

In Canada, the building sector alone is responsible for 40 per cent of greenhouse gas emissions (GHGs). Insulation, window coatings, reflective roofing and other innovative chemistry-based materials dramatically lower emissions from the building sector by reducing heat loss and the demand for cooling. In transportation, lighter vehicles, alternative fuels and electric vehicles will depend on advances in materials (including plastics), fuel and batteries developed through chemistry.

Chemistry is also a critical part of nearly every renewable power generation source. From the composite materials in wind turbine blades, to solar panels, and even nuclear and hydropower, chemistry is essential. And with fully 10 per cent of Canada's GHGs from crop and livestock production, chemical fertilizers and crop protection in farming increases agricultural yields while advanced, lightweight packaging, made possible by chemistry and plastics, reduces food waste and transportation-related emissions.

## Tracking our reductions

Through Responsible Care and a commitment to sustainability and continuous improvement, our members continue to invest in pollution prevention, energy efficiency, and resource conservation. CIAC is able to track our members' reductions of greenhouse gas and criteria air contaminant emissions through the National Emissions Reduction Masterplan (NERM).

Each year since 1992, CIAC has collected data through its NERM survey on chemical emissions by members including air, water, land, underground injection, and the offsite transfers of those substances in waste or recoverable materials. As can be seen in Figure 1, in 2019, 278 substances were reported out of more than 900 substances on the NERM substance list, and only 31 substances had emissions over 100 tonnes.

The top ten chemicals emitted by CIAC member companies in 2019 were: carbon dioxide ($CO_2$), hydrogen, oxides of nitrogen, carbon monoxide, volatile organic compounds, sulphur dioxide, methane, ethylene, total particulate matter, and other VOCs (i.e., all volatile organic compounds not listed on NPRI Part One). Since NERM's inception, $CO_2$ has been consistently ranked the highest emitted substance. It is important to note that despite the abundance of greenhouse gases and criteria air contaminants on this list, there are also less concerning chemicals, such as hydrogen. To see how CIAC members are making use of these hydrogen emissions, please see the following section, "Addressing Climate Change."

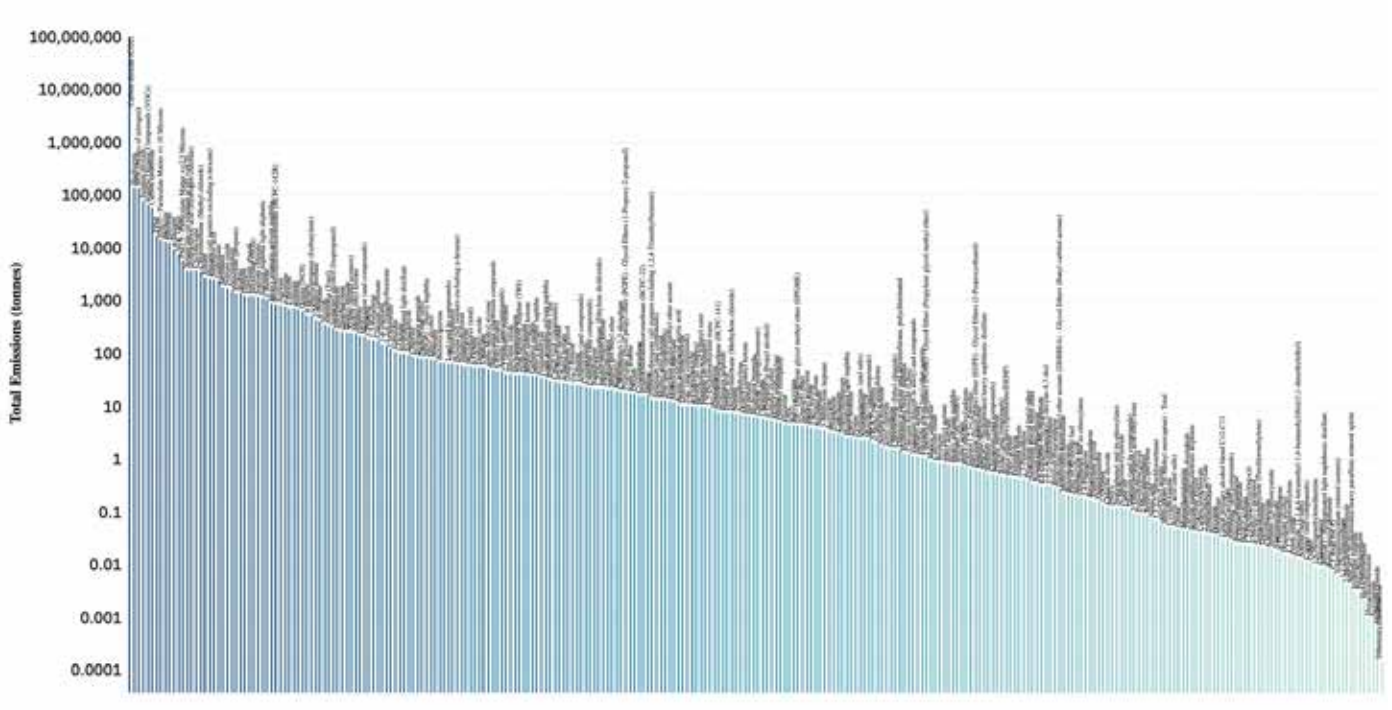



**Figure 1.**
Total emissions of NERM substances by CIAC members in 2019, on a logarithmic scale from highest emissions to lowest emissions.

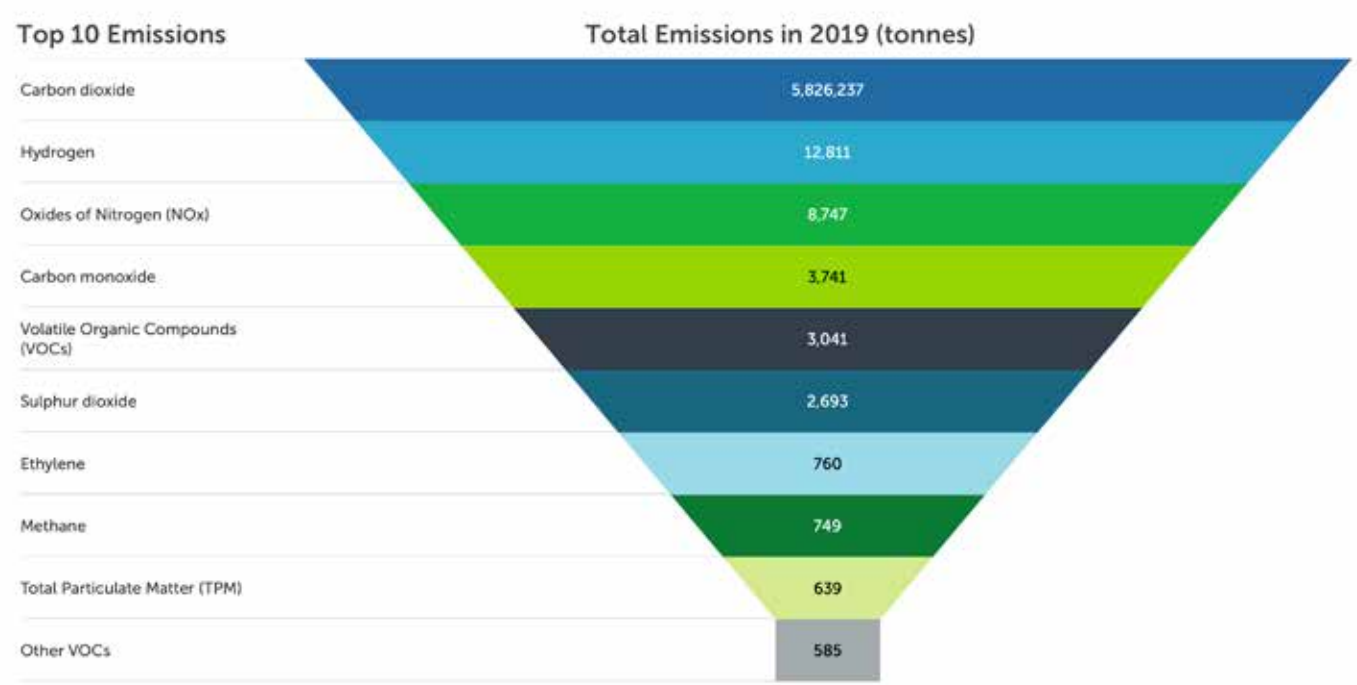



**Figure 2.**
Total emissions of the top 10 NERM substances by CIAC members in 2019, on a logarithmic scale from highest emissions to lowest emissions.

The graphs below show trends in direct emissions and emission intensity for some of the top emissions in 2019, by substance. While there has been an increase in $CO_2$ emission intensity comparing 2005 to 2019, the direct emissions of $CO_2$ have decreased since 2005 due to the new GHG quantification methodologies in 2010, new technologies and upgrades, and minor changes to reporting requirements. CIAC members have been able to achieve significant reductions in sulphur dioxide and total particulate matter, which can be attributed to fuel switching/fuel composition and improved measurement methodologies, respectively.

While emissions have increased for some substances, it is important to note that 2005 was a relatively successful year in achieving reduced emissions and serves as an ambitious baseline year.

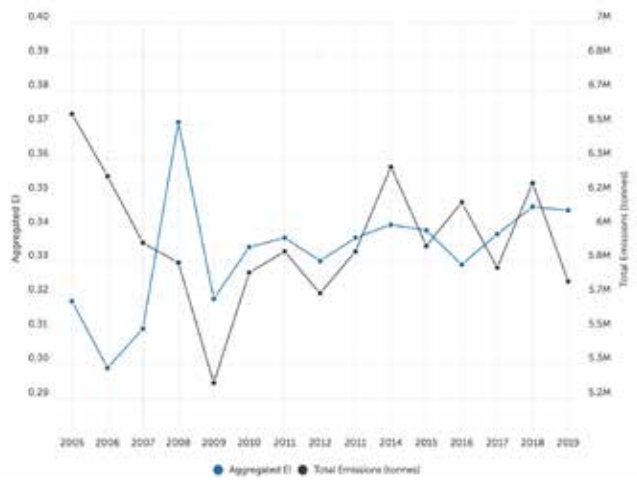


**Figure 3.**
Total direct emissions (black) and aggregated emission intensity (blue) of **carbon dioxide** by CIAC members between 2005 and 2019.

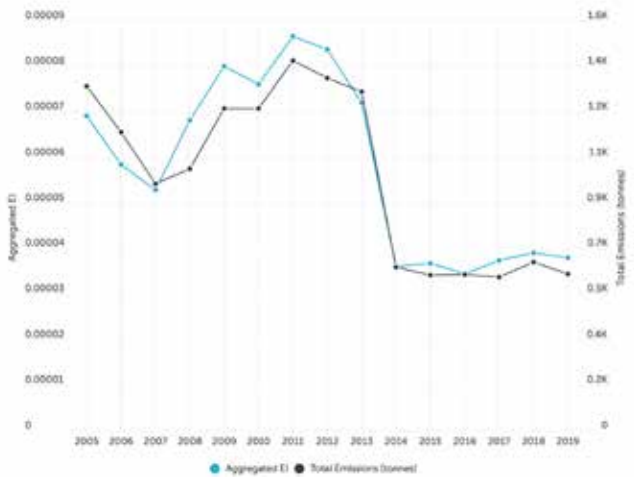


**Figure 4.**
Total direct emissions (black) and aggregated emission intensity (purple) of **total particulate matter** by CIAC members between 2005 and 2019.

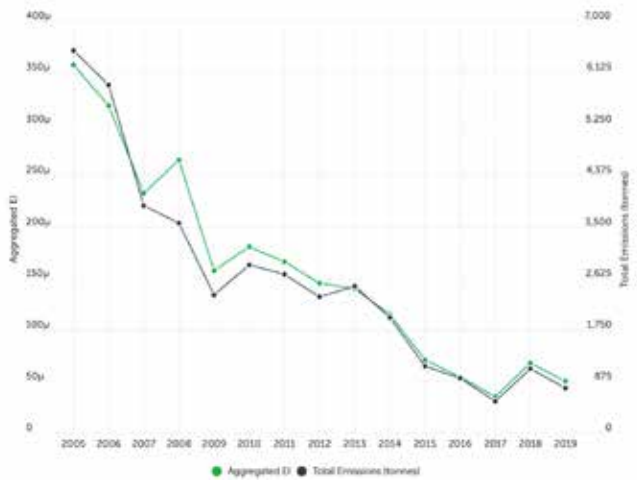


**Figure 5.**
Total direct emissions (black) and aggregated emission intensity (red) of **sulphur dioxide** by CIAC members between 2005 and 2019.

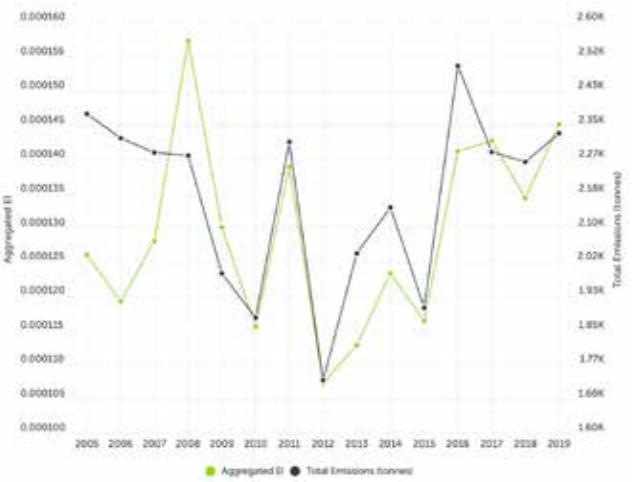


**Figure 6.**
Total direct emissions (black) and aggregated emission intensity (orange) of **volatile organic compounds** by CIAC members between 2005 and 2019.

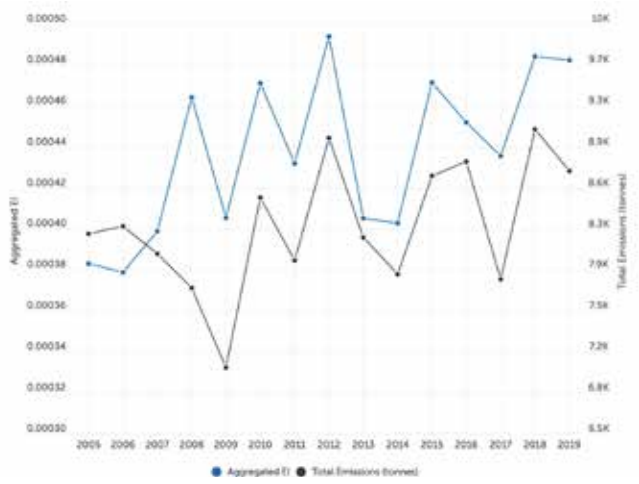


**Figure 7.**
Total direct emissions (black) and aggregated emission intensity (green) of **oxides of nitrogen** by CIAC members between 2005 and 2019.

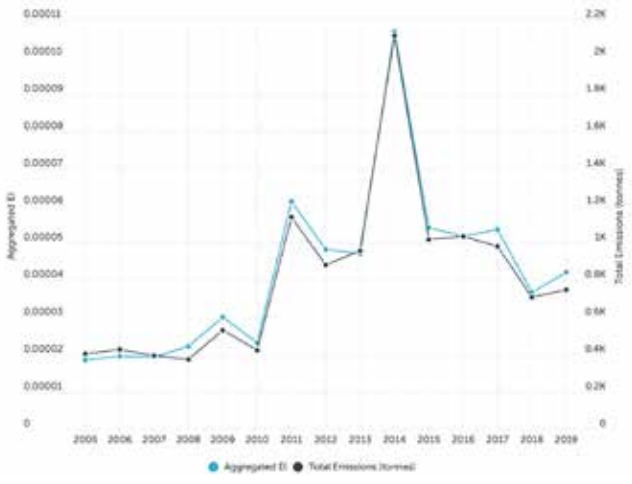


**Figure 8.**
Total direct emissions (black) and aggregated emission intensity (pink) of **methane** by CIAC members between 2005 and 2019.

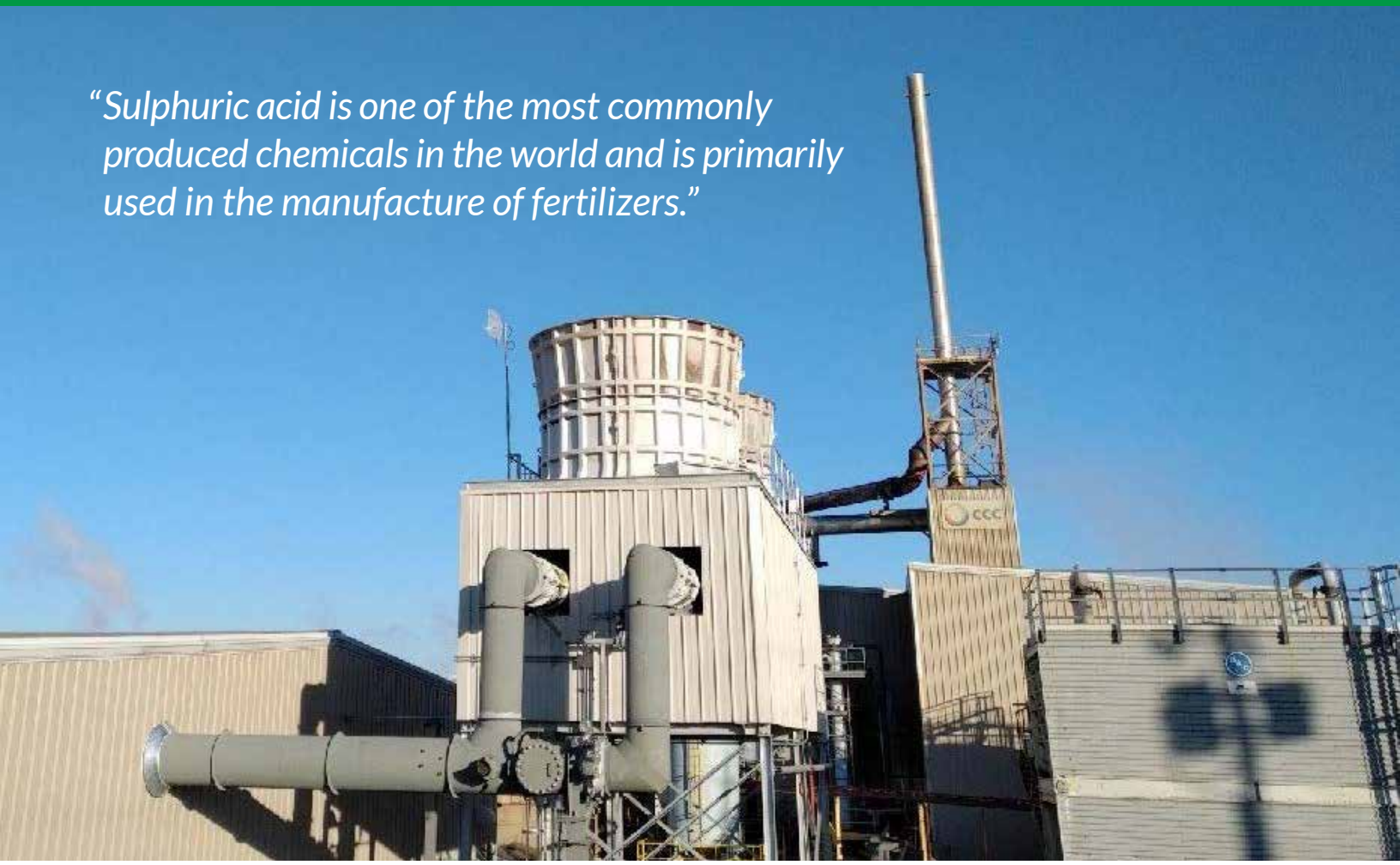
The Canadian chemistry industry has made it a priority to reduce emissions of air pollutants such as nitrogen oxides, sulphur dioxide, and volatile organic compounds, helping to ensure cleaner air for all Canadians.

## CCC Sulphur Products aims to reduce environmental footprint

CCC Sulphur Products manufactures sulphuric acid, oleum and sodium bisulphite from molten sulphur. The sulphur that they consume is a by-product of oil refining and gas processing from refineries in Ontario. Sulphuric acid is one of the most commonly produced chemicals in the world and is primarily used in the manufacture of fertilizers. Other uses include car batteries, steel production and water treatment. Oleum is mainly used in the production of aluminum and refrigerants. Sodium bisulphite is used in the pulp and paper industry for bleaching in paper production and for the dechlorination of municipal drinking water and wastewater systems.

At the end of 2020, CCC Sulphur Products installed a steam turbine and an air-cooled condenser to make use of surplus heat. This facility upgrade takes steam from production and converts it into electricity.

Excess steam is run through a turbine that rotates an electrical generator to produce enough electricity to allow the facility to be self-sufficient. The exhaust low-pressure steam from the turbine is cooled with an air-cooled condenser to recycle the water back into the steam production process.



*"Sulphuric acid is one of the most commonly produced chemicals in the world and is primarily used in the manufacture of fertilizers."*

With the facility consuming less water as well as being self-sufficient on its electrical needs, they are a business with the potential to operate completely "off-grid." This upgrade also allows the facility to remove all natural-gas-burning equipment used in day-to-day operations. An impressive accomplishment for any business and a testament in reducing their environmental footprint.

## Waterfront shipping commissions new ships built with dual-fuel engines

Waterfront Shipping (Waterfront) is a wholly-owned subsidiary of Methanex Corporation. As a global marine transportation company, Waterfront specializes in the safe, reliable transport of bulk chemicals and clean petroleum products such as gasoline and ultra-low sulphur diesel oil. Waterfront is also a key innovator in marine fuel technology, developing and globally promoting methanol as a marine fuel. With a fleet of 29 deep-sea tankers, Waterfront services major international markets in North America, Asia, Europe and Latin America.

As part of Waterfront's ongoing vessel replacement program, the company regularly replaces older vessels with newer, more fuel-efficient methanol-operated vessels. Today, Waterfront's fleet includes 11 dual-fuel vessels that can run on either diesel or methanol. In 2020, the company ordered an additional eight dual-fuel vessels to be delivered between 2021 and 2023. With this latest order, approximately 60 per cent of Waterfront's fleet will be powered by methanol. As a marine fuel, methanol reduces carbon dioxide emissions by up to 15 per cent during combustion when compared to conventional marine fuels. and can also result in an 80 per cent reduction in nitrogen oxides ($NO_x$), 85 per cent reduction in particulate matter (PM), and 99 per cent reduction in sulphur oxides ($SO_x$). Methanol can also be made from renewable sources which can reduce carbon dioxide emissions by up to 95 percent compared to conventional fuels and complies with future 2050 International Maritime Organization (IMO) standards for the carbon dioxide intensity of ships.

LEARN MORE

# ADDRESSING CLIMATE CHANGE

In 2019, the federal government committed to the goal of net-zero carbon emissions for Canada by 2050. Achieving this will require chemistry-based solutions. Our industry has historically been a solutions-provider to the world's most challenging problems.


## Our members are working together to achieve Canada's net-zero goals

The Canadian chemistry sector has reduced its overall GHG emissions by 67 per cent since 1992 as a result of significant investment. **There is opportunity to do even more while providing Canadian-made products to help other sectors achieve further reductions.** Our sector will be focused on working with federal and provincial governments in critical areas including: carbon capture and storage; hydrogen production and utilization; energy efficiency; bio-based chemistries, and; creating a circular economy for plastics, which will allow carbon already in the economy (in the form of post-consumer use plastics) to be continuously recycled and avoid emissions from the production of new plastic resin.


## Key to Canada's economic recovery

Despite the COVID-19 pandemic, demand for chemistry products has not slowed down — in fact, the need for our sector's products have never been greater. By 2050, chemical production will need to triple in volume to address future economic challenges, while also addressing emission reduction targets. Carefully designed, in collaboration with industry, Canada's net zero emissions plan has the potential to strengthen Canada's chemistry sector further and contribute to making Canada's economy more resilient and competitive.

Historically, the chemistry sector's $CO_2$ and other greenhouse gas emissions have followed the same trend as economic sales data (see Figure 9). As we work towards net-zero emissions, we have the opportunity to reverse this trend — driving down greenhouse gas emissions while maintaining the competitiveness of our industry and continuing to address the high demand for chemistry products in Canada.

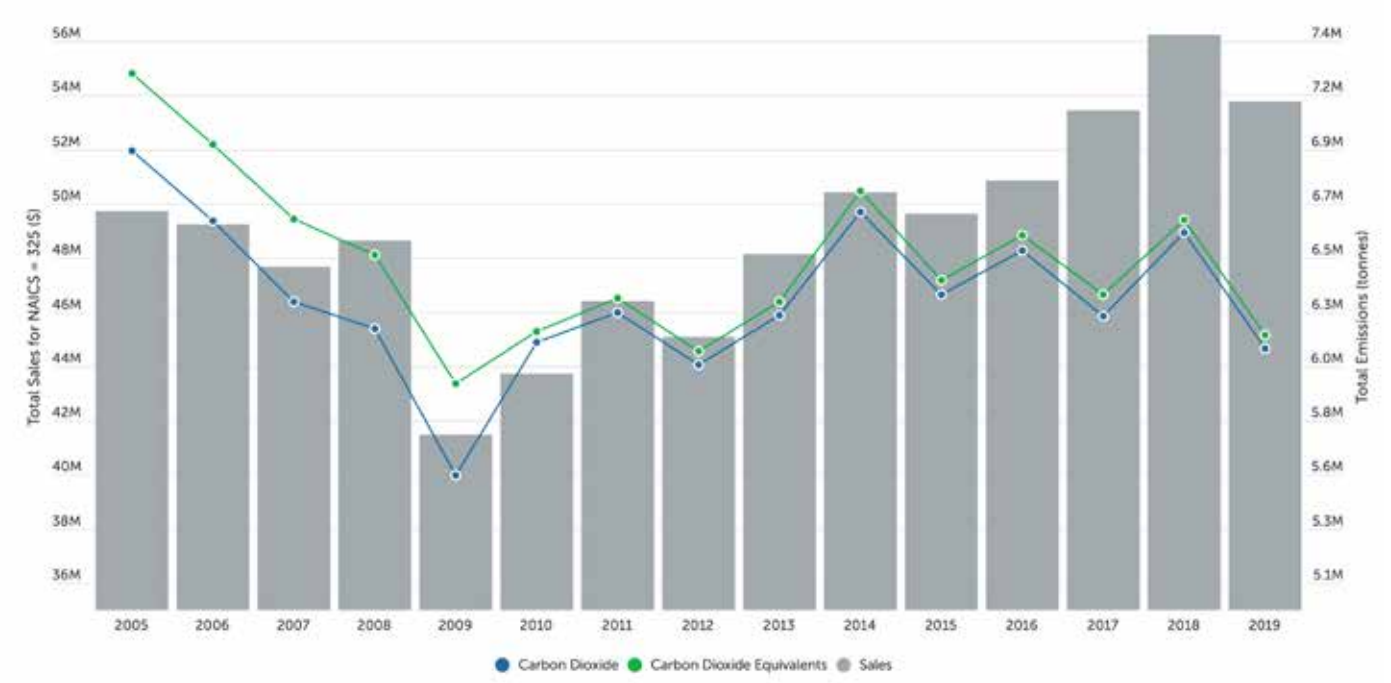



**Figure 9.**
Total direct emissions of carbon dioxide (black) and total carbon dioxide equivalent emissions of greenhouse (grey) by CIAC members compared with total sales from the NAICS code 325 (blue) between 2005 and 2019. Source of sales data: Statistics Canada. Table 16-10-0047-01 Manufacturers' sales, inventories, orders and inventory to sales ratios, by industry (dollars unless otherwise noted) (x 1,000)

## What CIAC members are doing to address climate change

### Creating new markets for hydrogen

Some CIAC members produce hydrogen as a by-product — in fact, it is the second highest emission by our industry, behind $CO_2$. CIAC's hydrogen emissions come from various manufacturing processes, including as a by-product of the sodium chlorate manufacturing process and other processes, such as the manufacturing of ethylene from ethane feedstock, which creates what is known as "grey" hydrogen. Although this hydrogen originates from a fossil fuel (i.e., ethane feedstock from natural gas), the emissions intensity is lower than other grey hydrogen sources, including a steam methane reformer.

Hydrogen by-product from these processes is typically captured and used as a feedstock in chemical production or released to the atmosphere, representing an opportunity to create a new market for CIAC members to sell by-product hydrogen. Supply of by-product hydrogen in the near-term is low-cost relative to dedicated new production, and members that currently emit hydrogen into the atmosphere could become focal points around which near-term deployment hubs are based.

Moving forward, our industry will play a key role in determining which hydrogen production pathways are most economical and should come to fruition in Canada. As preferred forms of hydrogen (green) are not yet cost competitive, it is important that federal and provincial governments work with industry to find ways existing (grey) hydrogen production can become cleaner using available technologies such as Carbon Capture and Storage.

### BASF's journey to climate neutrality

BASF is setting ambitious goals on its journey to climate neutrality and wants to achieve net zero emissions by 2050. Based on the most recent progress in developing low-emission and $CO_2$-free technologies, the company is also significantly raising its medium-term 2030 target for reductions in greenhouse gas emissions. BASF now wants to reduce its greenhouse gas emissions worldwide by 25 per cent compared with 2018 — and to achieve this despite targeted growth and the construction of a large Verbund site in South China. Excluding the effects of the planned growth, this means cutting $CO_2$ emissions in half in the current business by the end of this decade.

At the heart of the long-term transition toward net zero $CO_2$ emissions by 2050 is the use of new technologies, which will replace fossil fuels such as natural gas with electricity from renewable sources. Most of these technologies are being pioneered by BASF in collaboration with partners and are currently in a pilot stage. Broad scaleup of these technologies will only be fully realizable after 2030. In order to accelerate the avoidance of $CO_2$ emissions prior to that date, BASF also continues to systematically implement continuous improvement processes for existing production plants. In addition, BASF will progressively switch to renewable sources to meet its electricity needs and intends to invest in wind parks to facilitate this.

### Methanex's actions to reduce greenhouse gas emissions from operations

Methanex is constantly seeking ways to use carbon fuels more efficiently and to reduce carbon dioxide emissions across their operations when they produce and distribute methanol. As early investors in renewable methanol technology, Methanex is continuing to evaluate renewable methanol technologies and produce low-carbon methanol. They are also supporting the growing market for methanol as a low-emissions fuel for the shipping industry, as well as other markets such as industrial boilers and automobiles.

Some of the actions Methanex took in 2020 include:

- producing more than 59,000 tonnes of low-carbon methanol at the Medicine Hat, Alberta, plant (approximately 12 per cent of the plant's production in 2020) by using carbon dioxide captured from a neighbouring industrial facility that would otherwise be released to the atmosphere; and
- obtaining International Sustainability & Carbon Certification for the biomethanol produced at two of the Geismar, Louisiana, plants using biomethane (renewable natural gas) from municipal solid waste and other sources. This certification will enable Methanex to sell biomethanol to European customers under the Renewable Energy Directive, which sets targets for energy from renewable sources for fuel suppliers.

Recognizing society's decarbonization goals to achieve net-zero emissions by 2050, Methanex is currently developing a comprehensive long-term carbon dioxide emissions reduction and climate strategy. Senior leadership teams have recently been established to drive further emissions reductions from our existing facilities and support the transition to a low carbon economy.

# RESOURCE CONSERVATION

Responsible Care drives companies to find innovative ways to eliminate waste, improve their energy efficiency, conserve resources, and reduce their emissions throughout the entire lifecycle of their products — from their design, production, and distribution to their use by customers and beyond.


As part of Responsible Care, members are committed to being responsible stewards of water resources by managing their business to conserve and minimize water use, preventing incidents that would be detrimental to water quality or quantity, and controlling effluent streams to protect water bodies, groundwater, and habitat.

The Responsible Care Codes also govern members actions in relation to the generation, handling, and disposal of hazardous wastes, through all the life cycle stages of research and development, manufacture, transportation, distribution, and the end use and disposal of chemicals and chemical products.

## Water usage

Through the NERM supplemental survey of waste and water metrics, CIAC is able to track members' water intake from ground, municipal, and surface water sources. The map below shows where water is being used by our members in 2019, and from what source it is being taken. It is quite evident that the majority of water intake is from surface water sources in the Great Lakes region, St. Lawrence River, and in Alberta.

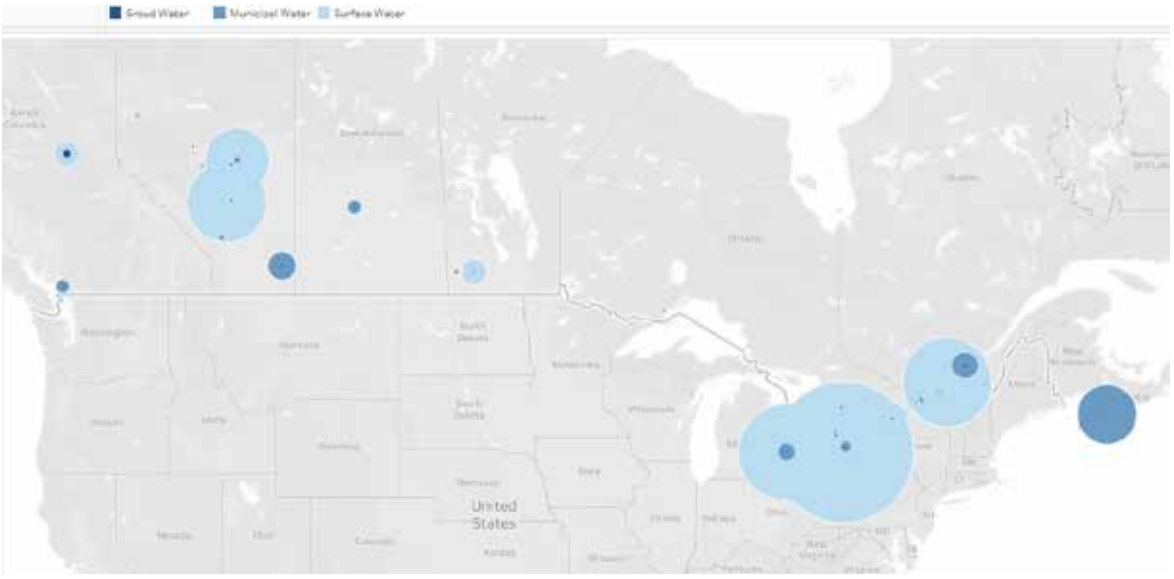



**Figure 10.**
Geographical representation of CIAC member water intake by source in 2019.

Through various methods of wastewater treatment, many CIAC members are actually returning water cleaner than when they found it. The chart below shows the different water treatment methods used by our members.

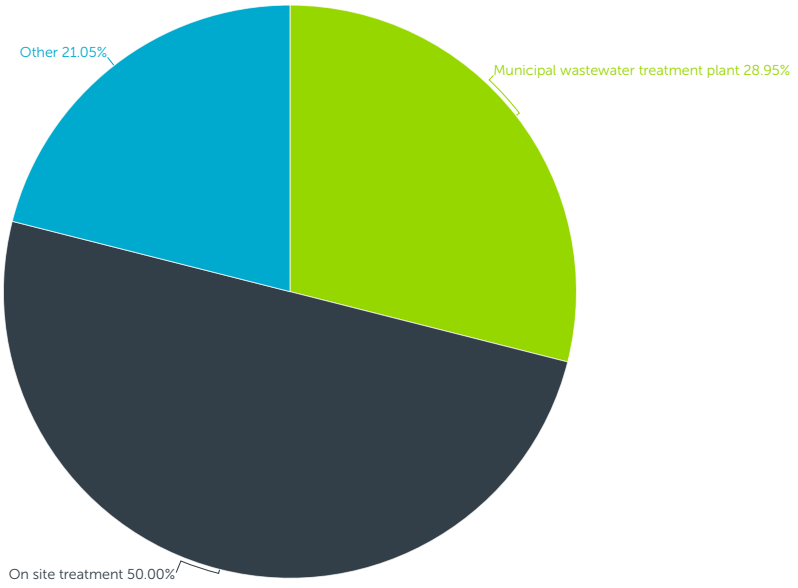



**Figure 11.**
Wastewater treatment methods used by CIAC members in 2019.

## Hazardous waste management

When CIAC began reporting waste metrics through the NERM supplemental survey in 2012, members produced more than 68,400 tonnes of hazardous waste for disposal. In only seven years, CIAC members have reduced the hazardous waste for disposal to 23,200 tonnes — a reduction of 66 per cent. Our members have also established ambitious programs to limit waste disposal to landfills

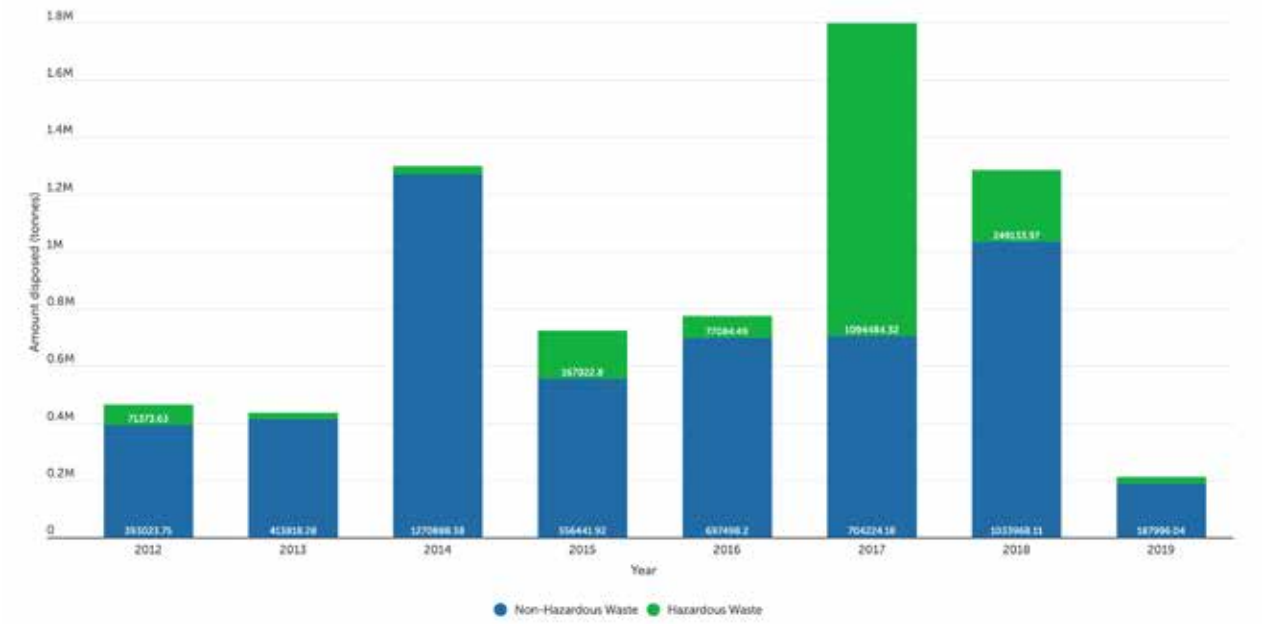



**Figure 12.**
Wastewater treatment methods used by CIAC members in 2019.

## Reducing hazardous waste at Imperial

In 2020, a group from the Imperial Sarnia site won a prestigious ExxonMobil Chemicals Responsible Care award. The team delivered a solution that reduced chemicals' total hazardous waste by 50 per cent. With spent caustic previously going offsite for incineration, the team sourced new beneficial reuse options.

Team lead, Mike Santos, says prior to 2017, Sarnia had been selling the product directly to the pulp and paper industry, but the arrangement was terminated, as the paper mills could no longer use the spent caustic reliably in their process. After a couple of years of sending it to a hazardous waste facility, Imperial connected with brokers who had specialized expertise and relationships with pulp and paper mills, and they found end users. The paper mills need the caustic for their pulping process, which converts wood chips into fibres that ultimately become paper.

There were a number of steps to take before the product could be sent to the end user. Imperial needed to take samples, conduct analytics, and work directly with the customer to build a disposition plan. A big hurdle was fulfilling a customer requirement of a Certificate of Approval. Team members worked collaboratively with operations, environmental experts, the quality assurance lab, and their Calgary head office to develop a quality plan.

Sarnia was also able to share information with the Imperial refinery located in Nanticoke, which enabled that site to carry out a similar project.

# PRODUCT STEWARDSHIP THROUGH OPERATION CLEAN SWEEP™

Product stewardship is a pillar of Responsible Care. All CIAC member companies must take responsibility for a product throughout its entire lifecycle by reducing any environmental, health, or safety risks associated with it.


## Our commitment

In July 2020, the CIAC Plastics Division led the adoption of Operation Clean Sweep (OCS) with members in Canada. OCS is an international environmental stewardship program led by the U.S. Plastics Industry Association (PLASTICS) and the American Chemistry Council (ACC) Plastics Division that has been adopted by 29 international trade associations as the gold standard in business practices for the plastics sector.

The goal of OCS is to help each segment of the plastics industry implement the steps necessary to prevent, contain, and clean up plastic resin spills and strive towards achieving zero plastic resin loss. This is a commitment to product stewardship and reducing plastic resin loss that can negatively impact wildlife and marine environments. Members of the CIAC Plastics Division have committed to implementing OCS by the end of 2022.

*"CIAC is pleased to join Operation Clean Sweep. Working to unify North America's plastic industry on the importance of product stewardship and responsible operational practices while focusing our efforts to effectively and efficiently address the issue of plastic pollution is a priority for the industry, and we look forward to working together and reducing plastic pellet loss."*

*— Elena Mantagaris, Vice President, CIAC Plastics Division*

## About Operation Clean Sweep

Responsible management of plastic resin is necessary to ensure that plastics continue to play a role in our modern, sustainable way of life. OCS is guided by three principles: prevention, accountability, and continuous improvement.

Operation Clean Sweep®

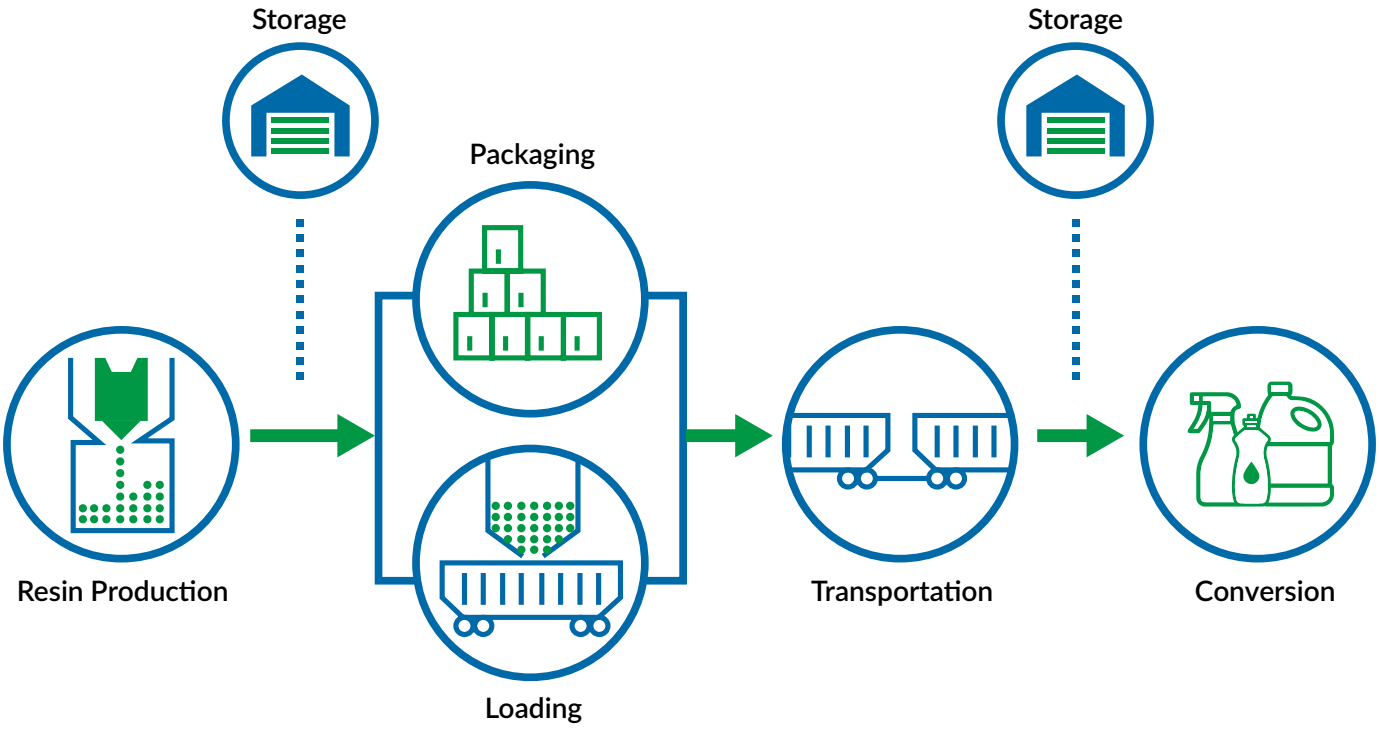
The program focuses on prevention by identifying common high-risk areas and providing best practices used to minimize risk. Companies must demonstrate accountability and leadership by not only prioritizing the environmental benefit of a finished plastic product, but by protecting the environment they operate within. OCS is an ongoing, daily commitment to work towards zero plastic resin loss. The program relies on companies to share issues and solutions with the CIAC Plastics Division and members for the benefit of the entire industry.

## Implementation

Spills can occur at different stages along the plastics value chain, during the production, storage, packaging, warehousing, transportation, and/or conversion of plastics. The industry has direct control over the management and containment of pellets within its facilities. It is crucial to foster a culture in which zero plastic resin loss is every employee's responsibility.

The CIAC Plastics Division has developed a toolkit of materials and best practices to help members implement spill prevention and containment measures for every possible source of resin loss across the value chain. Members are currently undertaking their first steps to implement the program at all of their facilities and sites that handle plastic pellets.

### Sources of Plastic Resin Loss



# WORKPLACE SAFETY

Since the early 1990s, CIAC members have reduced the number of injuries and illnesses at their facilities by about 80 per cent. And they are not stopping there. Member companies are expanding their efforts and extending their safety programs to contractors and other service-providers to ensure the safety of everyone involved in the business of chemistry.


## Safety and Health Analysis, Recognition, and Exchange

Safety is first and foremost at every Responsible Care company. For more than 34 years, CIAC members have been creating workplaces which are as healthy and safe as possible through initiatives such as the Safety, Health, Analysis, Recognition and Exchange (SHARE) Network. The SHARE Network brings together CIAC member company health and safety professionals who are committed to measuring, tracking, and continuously improving performance, with the goal of achieving zero workplace injuries and illnesses.

Consistent with CIAC members' roles as leaders in safety and occupational health, CIAC collects the annual SHARE survey. This data measures, tracks, and communicates health and safety trends, and is used by the SHARE committee to drive continuous improvement and provide a forum for members to share information and experience related to occupational health and safety. Trends in the total recordable incident rate and day away from work incident rate for CIAC member employees and contractors between 2015-2019 are shown below.

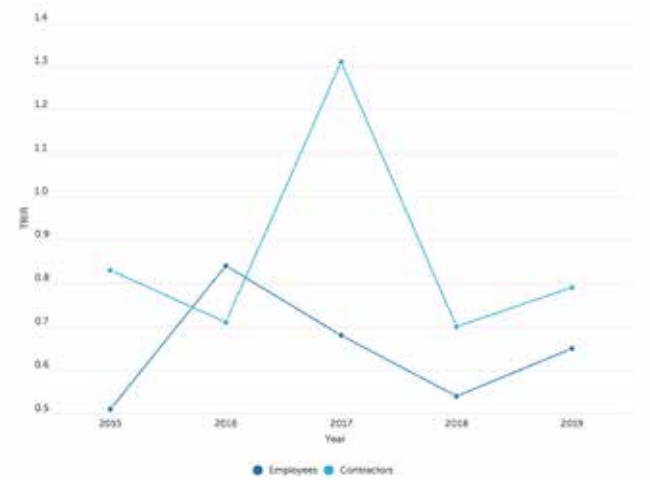



**Figure 13.**
Total Recordable Incident Rate (TRIR) for employees and contractors between 2015-2019

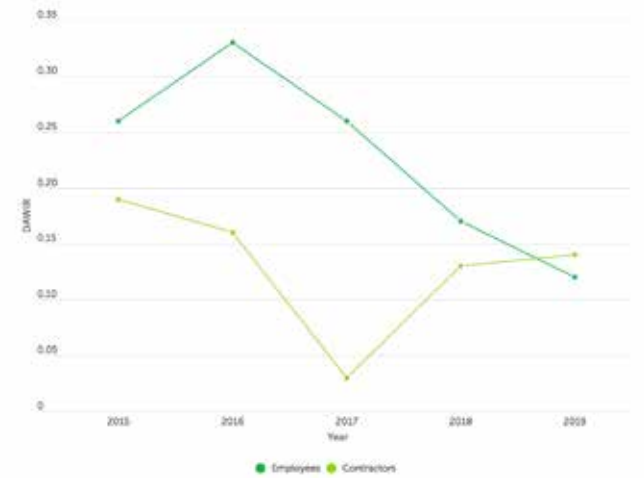



**Figure 14.**
Day Away from Work Incident Rate (DAWIR) for employees and contractors between 2015-2019

## Process safety

To protect their workers, the public, and the environment, all CIAC member companies must have comprehensive process-safety management systems in place and adhere to standards established by the Canadian Society for Chemical Engineering. Any gaps between a company's management system and the standards must be assessed, and action plans developed and implemented to raise the company's process safety to the acceptable level. A comprehensive examination of a company's process-safety management system is a fundamental component of the Responsible Care triennial verification process.

In 2005, the Center for Chemical Process Safety (CCPS) developed metrics to track process safety incident trends by the industry, allow companies to track their own performance against these trends and identify opportunities for improvement. CIAC's Process-Related Incident Measures (PRIM) survey has adopted the CCPS-PRIM metrics, which are of high benefit and importance to CIAC member companies and CIAC's Process Safety Network.

## What CIAC members are doing to promote workplace and process safety

The SHARE and Process Safety Networks continue to be a space for the sharing of best practices. For example, a common issue identified by members during the pandemic was foggy glasses. During situations such as a turnaround, workers were required to wear masks and safety glasses when in close proximity to each other, causing fogging of glasses. Through dialogue with the SHARE Network, several solutions to this problem were identified, including the use of anti-fog sprays or wipes on glasses.

Additionally, an increasingly important topic of discussion during the pandemic has centred around mental health. A safe workplace means workers are in the right mental and physical state to undertake the work. CIAC members are getting involved in various local initiatives to support mental health initiatives and to eliminate the stigma associated with mental health, thereby promoting a healthy and safe workplace.

## Imperial

Imperial partnered with hockey ambassadors Hayley Wickenheiser and Bo Horvat to encourage people to download the company's Speedpass+ app. Every time someone downloaded the Esso or Mobil gas station Speedpass+ app, Imperial pledged to donate $5 to mental health organizations across Canada to a combined maximum of $140,000.

*"Part of this campaign is also to raise awareness of mental health and create a safe place to talk about it. We really hope one of the outcomes is that people are encouraging others to feel like they can share how they're doing. We often talk about physical health, particularly with COVID and symptoms, but it's really important to be talking about mental health as well."*

*— Laura Bishop, Communications and Community Engagement Manager for Imperial*

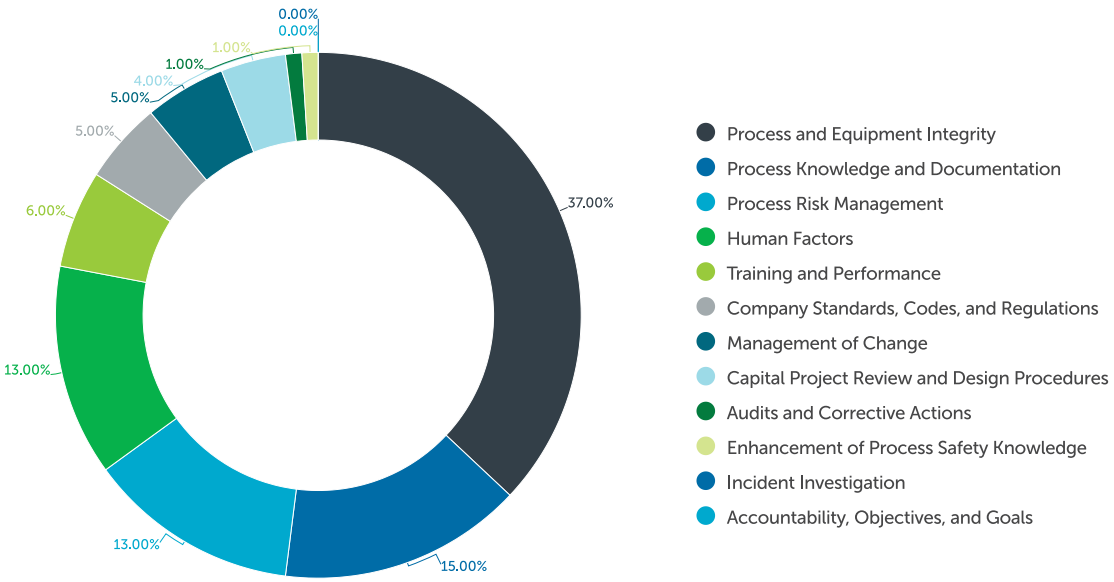



**Figure 15.**
Frequency of PSM Primary Elements for process safety incidents in 2019 (identified by PSM number and name).
Total number of Tier I/II incidents = 43, total number of Higher Learning Value events = 31, total number of PSM elements cited = 100.

# COMMUNITY AND TRANSPORTATION SAFETY

Every day, chemicals are transported through our communities — whether by rail, road, or pipeline. Ensuring their safe and secure transportation is of paramount importance to CIAC and its members. Being accountable and responsive to the public — especially to the communities in which they do business — is also a fundamental part of being a Responsible Care company.


Many CIAC members go above and beyond what is required for transporting chemicals. This is seen in their commitment and leadership of the Transportation Community Awareness and Emergency Response (TRANSCAER®) initiative and the Transportation Emergency Assistance Program, (TEAP III program).

## Transportation Community Awareness and Emergency Response (TRANSCAER)

Through TRANSCAER, a voluntary initiative led by CIAC and the Railway Association of Canada, CIAC members work closely with communities along transportation routes to ensure residents, municipal officials, and first responders are aware of hazards associated with their products. They also help ensure communities are aware and prepared for a potential transportation incident involving dangerous goods.

Being a good neighbour is key to being a Responsible Care company, which is why CIAC members must develop an open dialogue with local citizens to ensure they are aware of:

- any hazards associated with member's operations;
- what members are doing to reduce the risks associated with their operations and the transportation of their products; and
- the specifics of their local emergency warning system and what they need to do to protect themselves and their families in the event of a chemical incident in their community.

### What CIAC members are doing to make our communities safer

CIAC members must have an emergency response plan in place demonstrating their capacity to respond to, contain, and mitigate a chemical transportation incident safely and efficiently. They must also develop transportation safety plans which favour:

- the safest **mode** possible;
- the safest **route** possible; and
- the safest transportation **carrier**.

CIAC members must also have site-specific emergency management plans in place demonstrating:

- they have the capacity to safely and efficiently respond to, contain, and mitigate the effects of an incident involving their operations; and
- they have tested their plan, with the active participation of other industries, officials, first responders, and members of the media in their communities.

## Transportation Emergency Assistance Program (TEAP III)

TEAP III is another CIAC-led program that aims to maintain a national emergency response network capable of safely and efficiently mitigating the impacts of a chemical transportation incident anywhere in the country. TEAP III provides a forum for CIAC members, transportation companies, and emergency response service providers to share information and successful practices, and to encourage continuous improvement around chemical transportation emergency preparedness

and response. Through TEAP III, CIAC and its partner organizations have established two standards:

- CIAC's Transportation Emergency Response Standard sets the minimum criteria that CIAC member companies must meet for road and rail emergency preparedness and response, including requirements for planning, administration, training, resource utilization, and assessment.
- The TEAP III Transportation Emergency Response Service Provider (TERSP) Standard outlines the criteria used by TEAP's assessment teams to evaluate a service provider's ability to safely mitigate the impacts of a chemical transportation incident.

### Investing for the future

The TRANSCAER Safety Train, the CCPX911, was a railway tank car that was converted into a classroom on wheels in 1990. For nearly 30 years, it travelled across Canada, making stops in communities where dangerous goods travel, providing a unique backdrop for municipalities, emergency responders and residents to learn about the transportation of dangerous goods from TRANSCAER members. TRANSCAER's safety train was officially retired in 2018.

In 2020, in partnership with Transport Canada's Rail Safety Improvement Program, CIAC was granted funding to support the development of enhanced training tools and to expand outreach events under the TRANSCAER program. The plan includes developing a virtual reality program and tools, building a new safety training tank car, and hosting a series of outreach events across the country. The enhanced educational tools and outreach efforts will focus on delivering information relating to rail safety and the transportation of dangerous goods to a variety of audiences in communities across the country, including first responders, community leaders, the general public, and Indigenous communities.

### Virtual training tools

Development is well underway on a new virtual reality experience of the CCPX 911 safety training tank car. This tool is designed to provide first responders familiarization and awareness with railway equipment, emergency response, safety procedures, and the transportation of dangerous goods. Developed in partnership with CIAC members and partners, the Railway Association of Canada, and Transport Canada under the Rail Safety Improvement Program (RSIP), the virtual reality experience will deliver interactive training at conferences and outreach events where the presence of an actual tank car would be difficult or impractical. A self-led version of the tour will also be made available online for all users to access on demand and will launch in 2021.

### Webinar: Safety Train

While TRANSCAER® members and partners are disappointed the CCPX 911 could not be featured in the rest of 2020's scheduled outreach events due to COVID-19, they have been actively working on ways to evolve the safety train program.

In November 2020, CIAC hosted a webinar that allowed members to take a virtual tour of CIAC's CCPX 911 Tank Car and to learn about the new virtual reality training program and tools that will be used to promote railway safety and ensure the safe transportation of dangerous goods. Andy Ash and Jean-Pierre Couture of the Railway Association of Canada, two individuals who played a key role in the development of this virtual reality training program, led the tour.


### Development of the new TRANSCAER Safety Training Tank Car

In 2020, GATX donated a railway tank car that will be converted into TRANSCAER's new safety training tank car. This was a crucial step in enabling TRANSCAER to restore its capacity to deliver hands-on training. Following the securement of the tank car, a project committee was assembled, consisting of CIAC and TRANSCAER members and partners with expertise in areas relating to tank car design, engineering, and equipment procurement to support this exciting project. The committee has made progress on the design of the tank car including identifying the valve arrangements that will be used, producing preliminary drawings of the tank car, and working to procure parts and material. It is anticipated that the team will begin construction on the tank car in the summer of 2021. Upon completion, the new training tank car will embark on a cross-country tour, raising awareness about rail safety and emergency response for transportation incidents involving dangerous goods.

### Rail disruptions and blockades

In February 2020, the chemistry sector and all of Canada faced significant challenges as rail blockades and a Ministerial Order significantly limiting speeds of railcars carrying hazardous goods caused delays and for much of the CN Rail network to be shut down. The blockades and delays were a major blow to CIAC members and the Canadian economy.

CIAC staff worked diligently to advocate on behalf of our members, encouraging federal and provincial governments to follow the rule of law and remove rail blockades throughout the country in a safe manner. The combined efforts of CIAC and other industry associations helped ensure the curtailing of Transport Minister Marc Garneau's Ministerial Order and an eventual return to service. This ensured that critical public safety commodities including chlorine, water treatment chemicals, airport chemicals, and propane reached end points.

CIAC engaged national media to draw attention to the important public safety role played by the industry's products, and focused attention on how best to bring the disruptions to a close. CIAC's president and CEO, Bob Masterson, was featured prominently in media, advocating for the industry in outlets such as CBC's Power and Politics, The National Post, The Globe and Mail, and The New York Times.

# COMMUNITY ENGAGEMENT

Responsible Care companies believe Canadians — particularly those living in communities where these companies do business — have the right to understand the risks and benefits of being their neighbours. Responsible Care companies also believe the opinions and concerns of community members matter.

To help CIAC member companies better understand the community's concerns, needs and aspirations, as well as their expectations for corporate social responsibility, members foster ongoing community awareness and dialogue by:

- providing proactive information about their operations, products, services, waste, social impacts, benefits, hazards and associated risks, up to and including worst-case scenarios;
- including a formal mechanism for receiving and responding to questions, complaints, concerns or suggestions from the public; and
- providing the community with information about plans to modify operations and allowing for meaningful opportunities to influence those plans before they are implemented.

## Emergency preparedness

In 2019, the Canadian federal government updated the Canadian Environmental Protection Act Environmental Emergencies Regulation, more commonly referred to as CEPA E2R. The Responsible Care Codes specifically address emergency management and operating site communities — two fundamental components of the E2R.

As part of these updated regulations, and starting August 24, 2020, industrial facilities using or storing regulated substances are required to communicate with members of the public who may be affected in the unlikely event of an environmental emergency. The intent of the public notification is to create awareness of prevention and safety measures in place before, during and after an emergency.

Click one of the links below to learn more about CIAC members' and partners' emergency preparedness plans:

## Virtual verification

In March 2020, in response to the COVID-19 pandemic, CIAC followed the recommendations of health authorities to stop non-essential work in order to prevent the spread of the virus. As a result, CIAC ended all Responsible Care verification processes. Because members are expected to maintain their three-year cycle of verifications, CIAC and the Responsible Care verifiers developed a Virtual Verification Guide. This led to significant updates to the normal verification process (e.g., a reduction if not elimination of onsite visits or a complete or partial virtual approach).

The decision to hold a partial or complete virtual verification was left as a joint decision by the company and verification team members. Where partial or complete virtual verifications were selected, the process followed the verification protocol as much as possible.

Two members held complete virtual verifications successfully, while other members opted for partial verification where the planning and orientation meeting, as well as a few interviews were conducted virtually, and the on-site visit(s) were planned take place once restrictions are lifted.

Several advantages (e.g., cost savings from reduced travel, engaging more individuals, etc.) and disadvantages (e.g., cybersecurity, camera resolution and visibility, etc.) of virtual verification came to light. Wherever possible, steps were encouraged to be taken to mitigate any of foreseen disadvantages. Recognizing the regional and facility differences, CIAC remained flexible with all member and partner companies during the pandemic.

## Sarnia health study

Launched in 2020, the Sarnia Area Environmental Health Project (SAEHP) aims to help address concerns of Sarnia area communities about air pollution and other environmental stressors from local industries in the area. The project will help enhance understanding of the links between the environment and health in the community, with a focus on assessing exposures to chemicals in air.

Since 2017, the Ontario Ministry of the Environment, Conservations and Parks (MECP) has been working closely with provincial and federal government departments, health agencies and First Nations to develop the SAEHP, and has also been guided by previous foundational work of the Lambton Community Health Study Board as well as input from local stakeholders, such as municipalities and industrial associations.

The ministry has formed a multi-stakeholder Advisory Committee, of which CIAC is a member, to share information and informed perspectives and advice during the project. The Advisory Committee includes representatives from provincial, municipal, and federal governments, First Nations, health agencies, community groups, industry, and environmental groups.

**The project is comprised of three components:** the Air Exposure Review, the Plants Study, and the Environmental Stressors Review.

LEARN MORE

**The Air Exposure Review** (AER) is a scientific assessment of community exposures and associated risks from chemicals in outdoor air. This component is being conducted by a team of consultants (Intrinsik, CanNorth, Cambium Indigenous Professional Services), and will involve reviewing monitored and modelled data for relevant chemicals in the area.

**The Plants Study** aims to assess chemicals in air that may be deposited or taken up by locally grown medicinal plants. This study is being conducted in collaboration with Aamjiwnaang First Nation, and an academic team from Ryerson University.

**The Environmental Stressors Review** aims to characterize how quality of life is impacted by disturbances from industrial operations, such as noise/vibration, odour and light, and to identify opportunities to enhance communication related to incidents and emergencies. This review is being led by the ministry in collaboration with a multi-stakeholder Advisory Committee.

# CLOSING

## Final remarks

**While 2020 presented many challenges to the chemistry industry and to the world, it also offered an opportunity to re-assess our current practices; striving for innovative solutions and continuous improvement to our environmental, social, and governance practices.**

The chemistry industry was seen as a collaborative, resilient, solutions-provider in its response to the COVID-19 pandemic. Our members continue to stand ready to deliver essential goods to all Canadians in a responsible and transparent manner.

As we reflect on the past year, we look forward to using its many learning experiences and opportunities to inform Responsible Care's strategic direction in 2021 and beyond.

## 2020 Members

Arkema Canada Inc.
ARLANXEO Canada Inc.
BASF Canada Inc.
Cabot Canada Ltd.
Canada Kuwait Petrochemical Corporation (CKPC)
CCC Sulphur Products
Chemtrade
Dow Chemical Canada ULC
DuPont Canada
ERCO Worldwide
Evonik Canada Inc.
Evonik Oil Additives Canada Inc.
H.L. Blachford Ltd.
Imperial
INEOS Canada Partnership
INEOS Styrolution Canada Ltd.
Inter Pipeline Ltd.
Jungbunzlauer Canada Inc.
KRONOS Canada, Inc.
LANXESS Canada Co./Cie
MEGlobal Canada ULC
Methanex Corporation
National Silicates Limited
Nauticol Energy Ltd.
NorFalco Sales, GLENCORE Canada Corporation
Nouryon
NOVA Chemicals Corporation
Olin Canada ULC
Praxair Canada Inc.
Procter & Gamble Inc.
Pyrowave
PCAS Canada
Shell Chemicals Canada
Solvay Canada Inc.
Stepan Canada Inc.
The Chemours Canada Company
United Initiators Canada Ltd.
Wanhua Chemical (America) Co., Ltd.
WR Grace Canada Corp.

### Responsible Care® Partners

Canadian National
Canadian Pacific Railway
GATX Rail Canada
Harmac Transportation Inc.
Northwest Tank Lines Inc.
PROCOR Limited
Source Energy Services
Trimac Transportation Ltd.

### Associate Members

Bagwell Supply Ltd.
Canadian Chlorine Chemistry Council
ERM Consultants Canada Ltd. (ERM)
Golder Associates Ltd.
Lakeside Process Controls
Lexon Projects
Melloy Industrial Services Inc.
Northern Alberta Institute of Technology (NAIT)
Wood Group

## Plastics Division Members

Absolute Haitian Corp.
Americas Styrenics  Ampacet Canada
Andicor Specialty Chemicals
Applied Plastics Technology Inc.
Axipolymer Inc.
Balcan Plastics
Bamberger Polymers (Canada) Corp.
BASF Canada
BBL Energy Inc.
Bekum America Corp
Berg Chilling Systems Inc.
Bi-Ax International Inc.
BMP Recycling
Brampton Engineering
Canadian Feed Screws Mfg. Ltd.
Canadian Plastics
Canuck Compounders
Cascades
CCC Plastics
Chantler Packages
CKF Inc.
Clariant Plastics & Coatings Canada Inc.
CleanFarms
Colortech Inc.
Corma Inc.
Cosella-Dorken Products Inc.
Dart Canada Inc.
DeShen Plastic Trading Company
Direct Plastics Ltd. (a Novolex Company)
Dominion Colour Corporation
Douse Consulting
Dow Chemical Canada Ltd.
Drader Manufacturing
Duchesne et Fils ltée
Dyne-A-Pak
Eco II Manufacturing Inc.
EFS-plastics Inc.
Eligant Poly Product
Emballage St. Jean Ltée
Entreprises Hamelin
Enviropod Canada Limited
Erema North America Inc.
Farnell Packaging Limited
Firing Industries Ltd.
Genpak LP
GN Thermoforming Equipment
GreenMantra Recycling Technologies Ltd.
Groupe Gagnon
Heritage Plastics
Hood Packaging Corporation
Hymopack Ltd.
Imperial
Industries Plastipak Inc.
INEOS Styrolution
Ingenia Polymers Corp.
IPL Inc.
Jokey Plastics North America Inc.
Kal-Trading Inc.
Keurig Dr Pepper Canada
Kongskilde Industries Inc.
Layfield Group Limited
Les Plastiques Terra Nova Inc.
Lorenz Conveying Products
Lothar's Industrial Sales Ltd.
Macro Engineering & Technology Inc.
Malpack Ltd.
Marli Plastics Inc.
Mauser Packaging Solutions
Merlin Plastics
M Holland Canada Company
Micro Interface Design
Miller Waste Systems
Milliken & Company
NAM Polymers Inc.
NeuBlue Corp.
Nissei ASB Co.
Norwich Plastics
NOVA Chemical
NOVOLEX
Oasis Alignment Services Inc.
Omniplast Inc.
OMYA
Owens-Corning Canada LP
Pack All Manufacturing Inc.
Pactiv Canada
Peel Plastics Products Ltd.
Petro Plastics
Piovan Canada Ltd.
Plasti-Fab
Plastics Touchpoint Group Inc.
Polar Pak Inc.
Poly Expert Inc.
Polyform Foam Plastics Inc.
PolyKar Industries Inc.
Polystar Packaging
Polystyvert Inc.
Polytainers Inc.
Polytarp Products
Pyrowave
Quantum Polymers Inc.
ReGen Composites
Revital Polymers
Scott Plastics Ltd.
Shell Polymers
Soucy Techno Inc.
Sturgeon Plastics Inc.
Sun Chemical Limited
Tempo Plastics Ltd.
Trademark Plastics Corp.
Transcontinental Inc.
Vi-Lux Building Products Inc.
W. Ralston (Canada) Inc.
Wells Fargo Equipment Finance Company
Wentworth Technologies
Wittmann Battenfeld Canada Inc.
Windmoeller & Hoelscher Corp.
Winpak

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