

SUSTAINABILITY STARTS WITH INNOVATION

Solving for sustainability — in every direction.

“Here at Chem-Trend, sustainability has been part of our mindset from the start. It’s born from our commitment to safety for our global team and our customers, which extends to protecting the environment. We strive to foster and support innovation that moves us forward successfully and responsibly.”

DEVANIR MORAES

President & CEO of Chem-Trend





Innovating solutions that empower our customers to achieve more with less — less material, waste, energy, emissions, and water — is our passion. It's also central to how we conduct every aspect of our business.

From the start and through the past 60 years to today, Chem-Trend has been solving for sustainability. Together with our parent company [Freudenberg](#), we are on a path to reach climate neutrality by 2045. Elevating our practices to minimize resource consumption within the industries we serve as well as our own global organization is embedded in both our mission and vision.

As we develop next-generation technology to enable more efficient manufacturing processes, we strive to revolutionize how we work at every level. From reducing energy use in our facilities around the world to making our workplaces safer and healthier, a sustainable mindset is integral to our culture and engrained in our daily operations.

We welcome you to review a compilation of Chem-Trend's global sustainability action from 2022 and key accomplishments that are moving us closer to our goals.

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MORE ACCURACY, QUALITY,
AND SAFETY FOR CUSTOMERS

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Our Goals: A Continuous Commitment

In 2020 we set ambitious sustainability targets. We are acting continuously and diligently to meet these commitments and reach the Freudenberg Group aligned goal of carbon neutrality by 2045.

OUR GOALS FOR 2020 - 2025

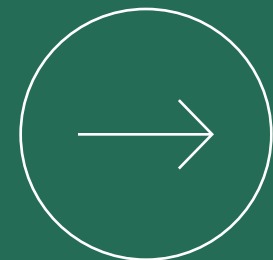
CO₂ EMISSIONS

Reduced by 25% BY 2025



WASTE GENERATION

Reduced to 4% BY 2025



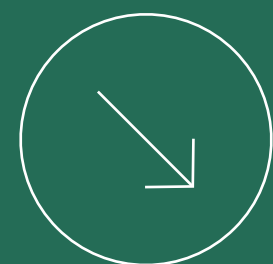
WATER CONSUMPTION

90% or less ANNUAL TARGET



RECYCLED MATERIALS

14kgs or greater ANNUAL TARGET



Our Progress: How Far We've Come

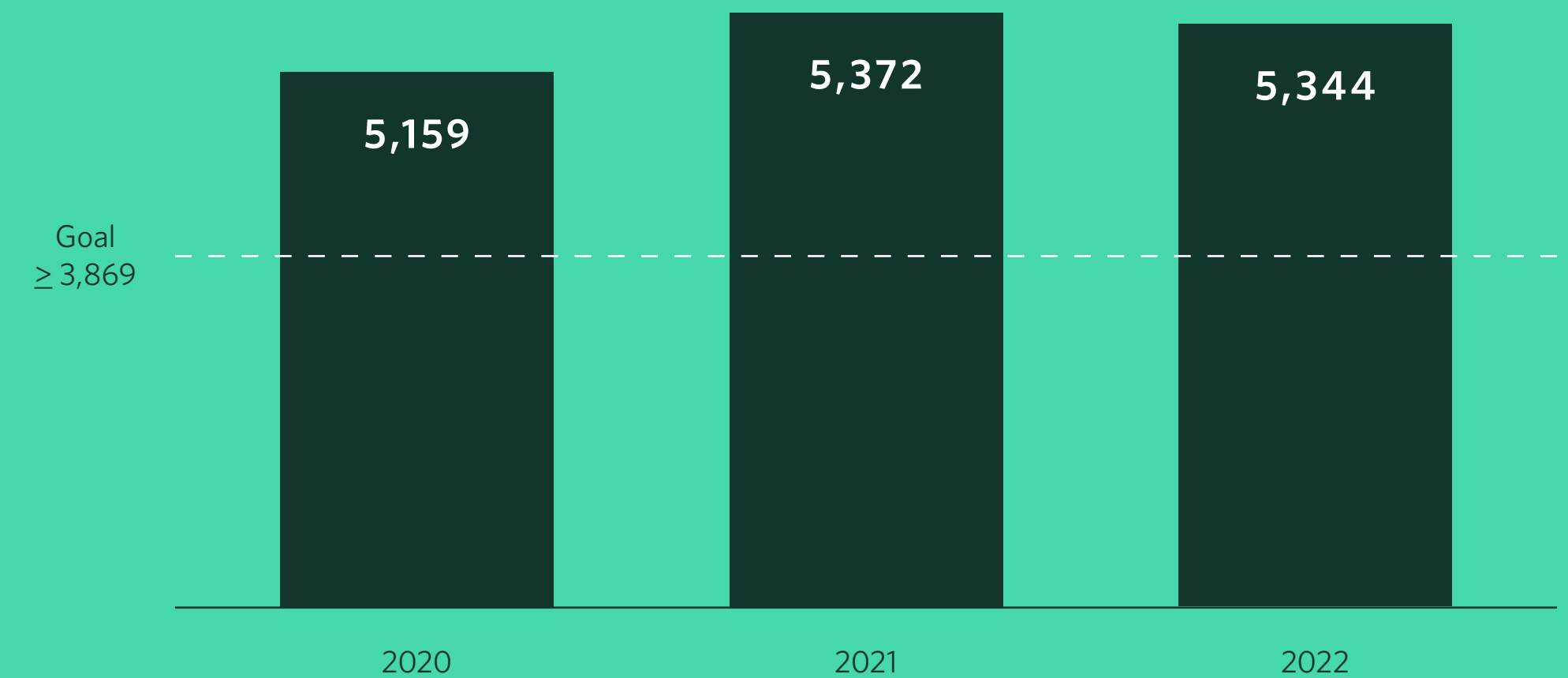
Global CO₂ emissions: 5344 Tonnes

TOTAL CO₂ EMISSIONS IN TONNES (SCOPE 1 & 2)

Real-world sustainability:

To reach our goal of 25% overall reduction in the 2020-2025 period, we've initiated many actions, including purchasing green energy and investing in onsite renewable energy, demand-based air units, energy management systems, and more.

TOTAL CO₂ EMISSIONS IN TONNES
SCOPE 1 AND 2 ACTIVITIES



See what's included in Scope 1 & 2 and our calculations on [page 30](#).
Adjustments were made to more accurately represent historic CO₂ emissions.

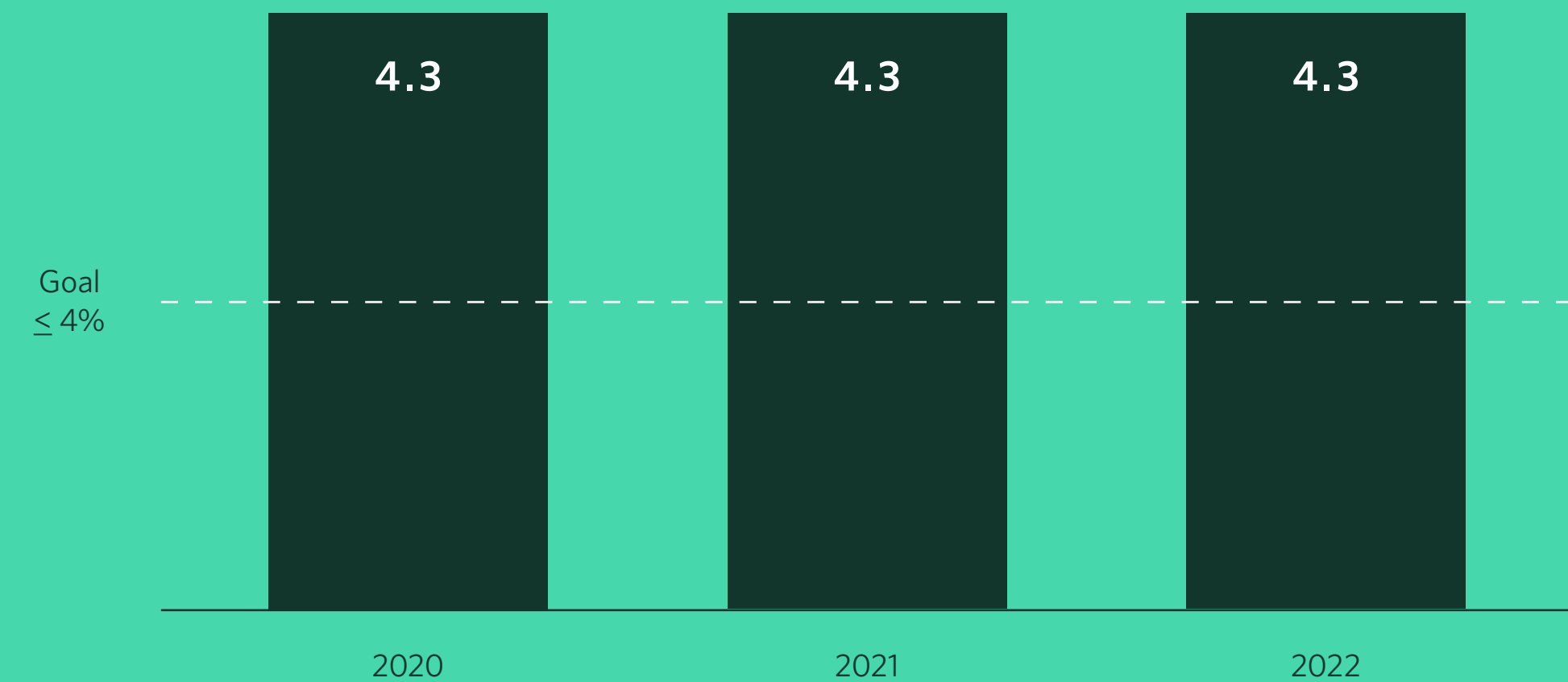
Global waste generation: 4.3%

% OF TOTAL PRODUCTION VOLUME

Real-world sustainability:

Our waste generation was virtually flat for the past three years. We continue to explore and pilot waste reduction initiatives to meet our 4% of total production target for 2025.

GLOBAL WASTE GENERATION
% OF TOTAL PRODUCTION VOLUME



See our calculations on [page 30](#).

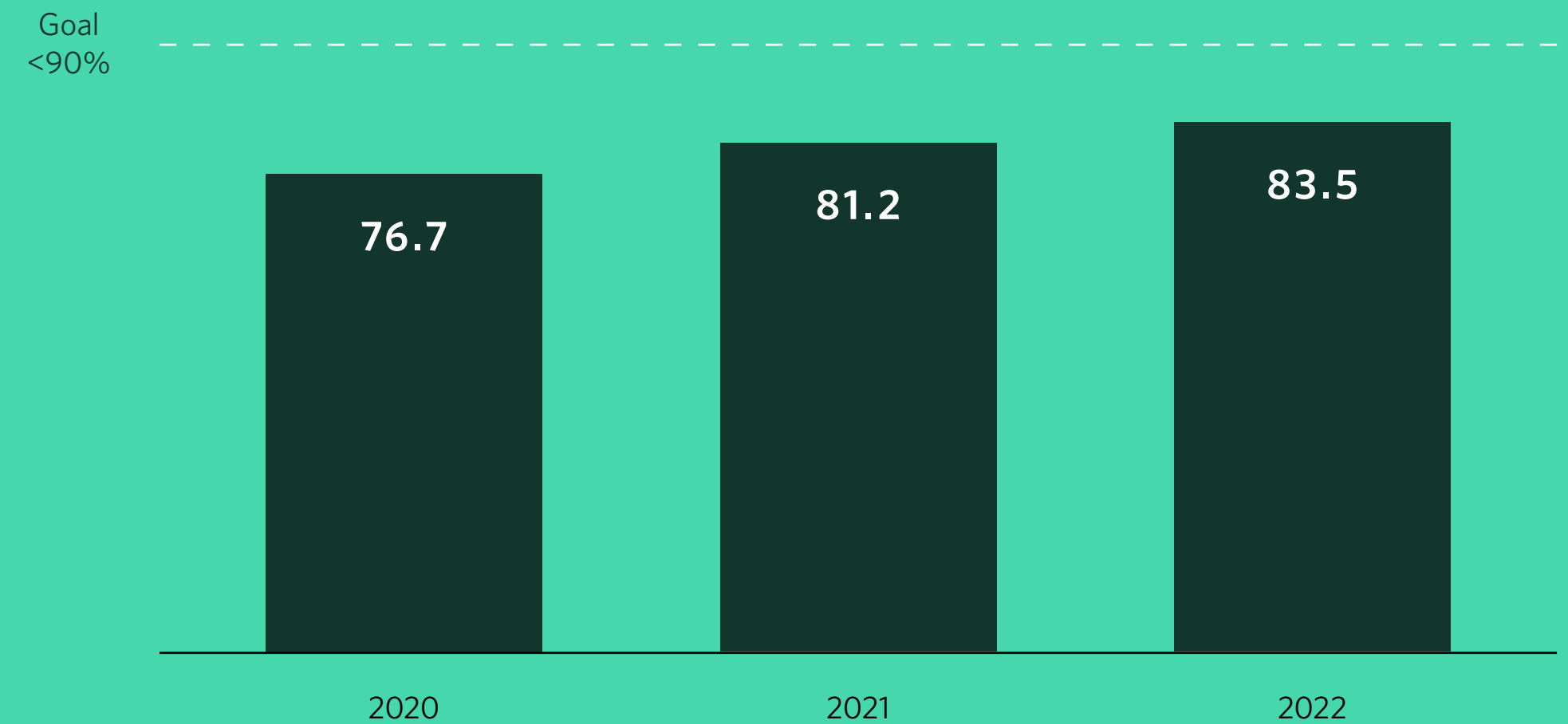
Global water consumption: 83.5% in 2022

% OF TOTAL PRODUCTION VOLUME

Real-world sustainability:

Our increase in water consumption is attributed to a decrease in batch size related to pandemic constraints, which required more equipment cleaning. We remain on track and well within our goal.

GLOBAL WATER CONSUMPTION % OF TOTAL PRODUCTION VOLUME



See our calculations on [page 30](#).

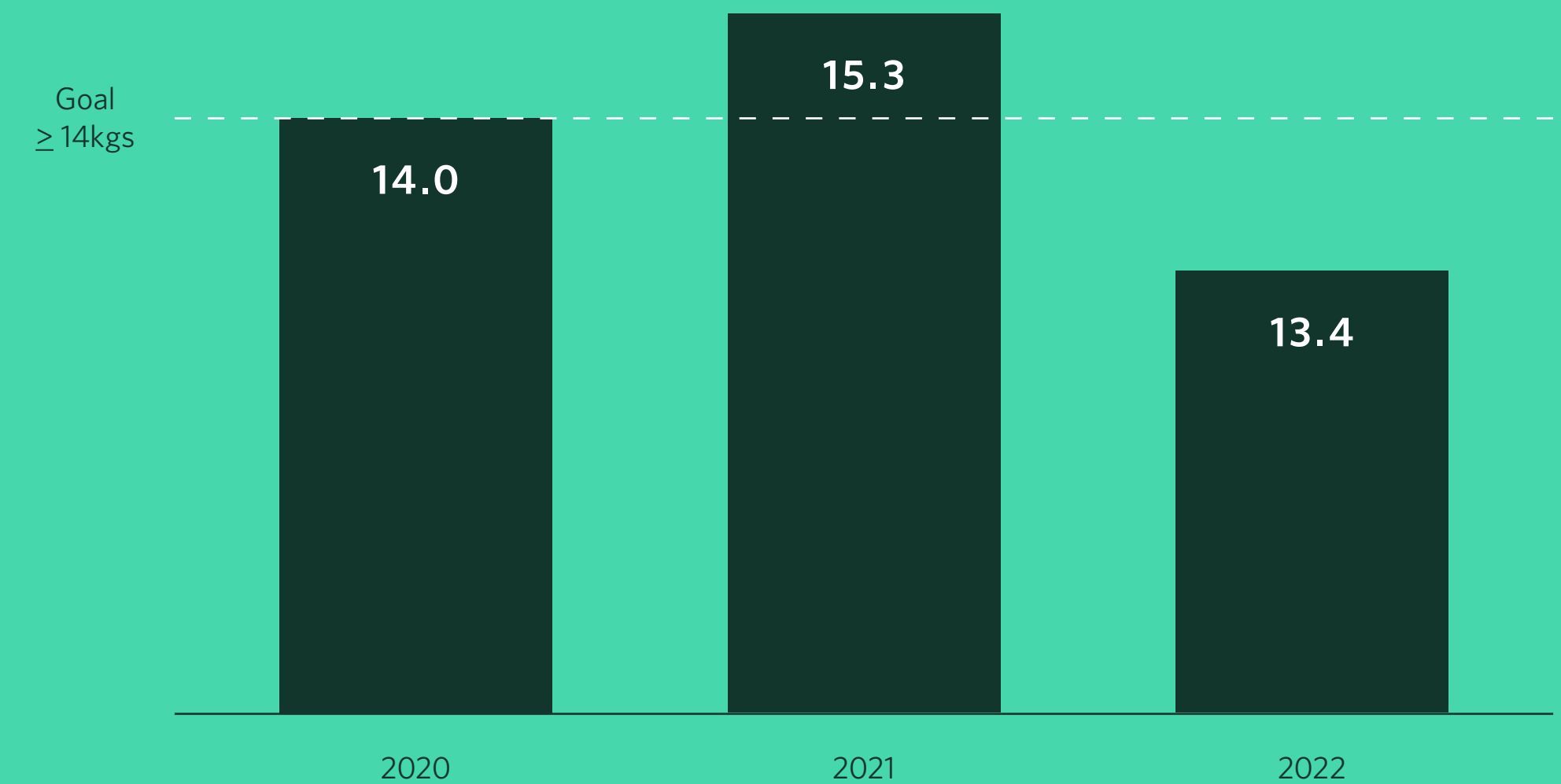
Global recycled materials: 13.4kgs

KGS PER 1000 LITERS OF TOTAL PRODUCTION VOLUME

Real-world sustainability:

Though there was a modest increase in overall amount of global recycling in 2022, it was outpaced by production.

GLOBAL RECYCLED MATERIALS
KGS PER 1000 LITERS OF TOTAL PRODUCTION VOLUME



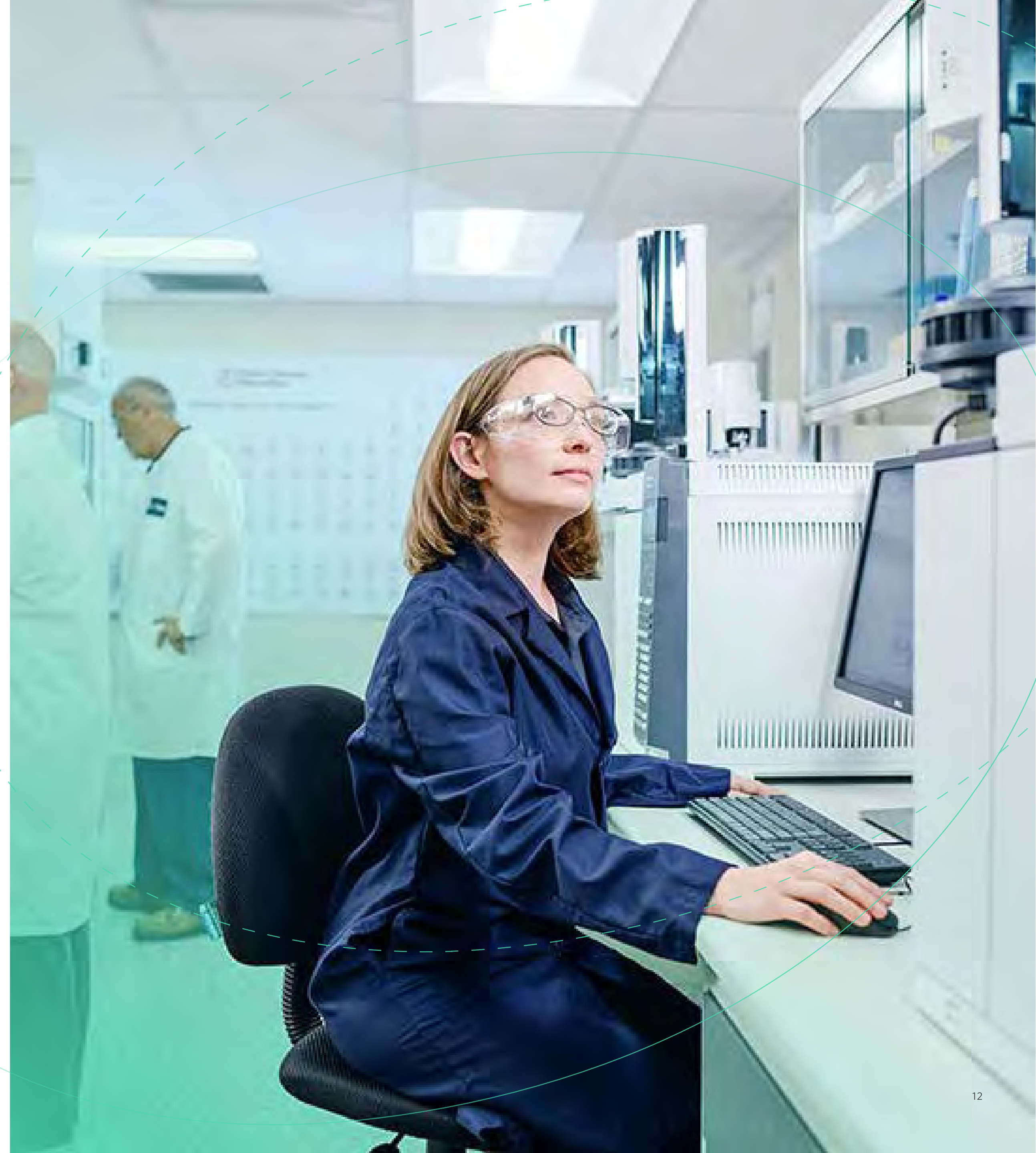
See our calculations on [page 30](#).

Initiating with Action

WHAT STEPS ARE WE TAKING
WITHIN OUR ORGANIZATION?

Initiating with Action

Efficiency and sustainability are integral to how we run our own business and how we serve our clients. From the resources we use to bring our products to market to our daily business practices, we set specific targets to reduce our carbon footprint — and then we act. We believe seemingly small, incremental actions mean a great deal to the achievement of our future goals.



HOW WE ACT:

Product Development

Ultra Purge™: A Responsible and Recyclable Solution

One of the most cost-effective and efficient solutions for color changes, Ultra Purge™ purging compounds can be recycled, sold back to scrap dealers, or mixed in with regrind and molded into parts. A 2022 study performed by Fraunhofer Institute shows that recycling Ultra Purge™ up to 5% with virgin resin does not affect the chemical and physical properties of the final product.

“This is a very big step forward in the thermoplastics industry that will have a positive impact on our environment. The fact that we were able to prove the recyclability of Ultra Purge™ by conducting a very extensive study set us apart from competition and shows once again how responsible and attentive Chem-Trend is to preserving nature and our environment. We encourage our customers to recycle Ultra Purge™ and minimize landfill waste.”

GRAZIANO PESTARINO

Business Development Director, Thermoplastics

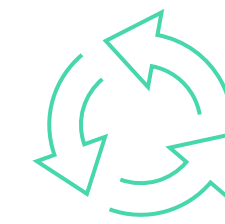
HOW WE ACT:

Product Development



Deurowood: Better HSE, Less Waste

The process chemical specialties and additives produced under the Deurowood® brand — Chem-Trend’s latest acquisition extending the company into the global paper impregnation industry — are 95% water-based with all of the oils and most of the waxes from renewable materials. The R&D team works to minimize VOC-emitting raw materials in every product.



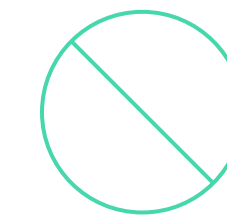
100% of oils used in Deurowood® products are renewable.

HOW WE ACT:

Product Development

Global Chem-Trend Target: PFAS Elimination

Chem-Trend will successfully eliminate all fluorochemicals from our current product portfolio by the end of 2023, and commits to not using this chemistry in new product development. We further commit to achieving the same standards in relation to future acquisitions.



Elimination of fluoro-based chemistry across the entire portfolio is on target for completion by the end of 2023.

HOW WE ACT:

Operations



Going for Gold in Sustainability

In 2022, Chem-Trend attained the silver sustainability rating from [EcoVadis](#) and was ranked in the top 15% of the companies that were assessed. Chem-Trend has worked diligently to improve our year-over-year ranking with the goal of achieving gold status. Committing Chem-Trend to the independent assessment process of EcoVadis on an annual basis, we are better able to recognize areas where we can make improvements today and outline future, big picture goals that move us to our best path forward.



HOW WE ACT:

Operations



Updating Equipment to Reduce Energy Usage

Filled paint production for our multiple industry product portfolios underwent a significant change in 2022. New powder induction systems were introduced in our US plant and have dramatically improved powder incorporation into the batch and waste reduction. Not only have we seen reduced production mix times and overall energy usage, but also improved batch consistency and dust control — a key benefit to our operators.

HOW WE ACT:

Operations



Using Tools That Curb Waste

By implementing demand-planning tools, we can more accurately forecast material usage needs to reduce scrap, energy use, extra batches, cleaning, waste generation, and more. In 2022, all regions of Chem-Trend began the journey toward better forecasting and reinvented our methods of communication with colleagues in sales to collaborate and plan based on anticipated demand. With the support of systems and tools, these new processes and strategies are driving improved efficiencies in several operational areas.

“Sales and Operations Planning (S&OP), which includes two critical components — forecasting and demand planning — has really taken off over the last 12 months here at Chem-Trend. When done correctly, this process upholds the customer experience through delivery reliability while strengthening partnerships and emphasizing our value to the customers. In turn, it carries efficiency, waste reduction, and inventory strategies that simply make us better. We will continue our strategic partnership with customers and have processes and tools ready to support them and our strategic initiatives.”

MITCH SHOLTY

Director, Global Supply Chain

A Responsible Chain of Supply

WHAT WE'VE DONE WITH SUPPLIERS

A Responsible Chain of Supply

To create the most positive impact, our sustainability efforts are a 360-degree endeavor. Not only do we set high standards for our own teams and meet or exceed them for our customers — we also place substantial focus on the selection and practice of our key suppliers.



HOW WE ACT:

Reducing Travel & Emissions

Thanks to our global reach, Chem-Trend teams around the world are able to source materials from local suppliers. This minimizes miles traveled by vehicles and other means of transportation, which helps reduce the emissions we produce and lessens our wear and tear on local roads and travelways. It also keeps wait times shorter for our customers and distributors and their end customers.

“Increasing local sourcing is one of our purchasing strategies. We also track and promote the using of renewable raw materials year-on-year to reduce our carbon footprint.”

ROCK YUAN

Director, Global Strategic Purchasing



Chem-Trend China increased the local sourcing of raw materials by more than 10% in the past three years, contributing to a reduced carbon footprint.

HOW WE ACT:

Setting High Sourcing Standards

Chem-Trend is strongly committed to supplying our customers reliably and sustainably. We regard sustainable management as a social responsibility. As a signatory of the UN Global Compact ([Freudenberg Group: Progress Report](#)), suppliers need to sign our “Ethical Supplier Self-Assessment Questionnaire” before they are introduced — this self-assessment questionnaire is derived from the principles of the UN Global Compact and covers Commitments and Compliances to Standards and Laws, Occupational Health and Safety, Environmental Protection, Labor Conventions, Antitrust Regulations, Trade Control, Intellectual Property (IP)/Confidentiality, and Treatment of Business Partners. We also have purchasing terms and conditions with social responsibility and compliance terms in place.

We invite our suppliers to join us in EcoVadis evaluation, so that we can have transparent processes and regular reporting about compliance with this standard.

HOW WE ACT:

Handling Waste Responsibly



Our teams develop solutions that help customers minimize waste, from improving production quality and creating better end products to creating more efficient products and cutting downtime for equipment cleaning. For any waste that is produced, we've become a go-to industry resource for proper handling and recycling.

Chem-Trend's European region forged relationships with [GVÖ](#) and [Schütz System](#) to manage the return and recycling of portable plastic tanks, or IBCs, and other product packaging. Our teams in Germany work with local customers to easily return the empty steel drums to see them reconditioned and put back into circulation or sold as blast scrap. Plastic product containers are returned directly to our suppliers along with tin buckets — Chem-Trend supports this process by collecting and separating the packaging for the return process.



The GVÖ is the return system for all packaging of the mineral oil industry and ensures the environmentally friendly recycling of used, empty oil containers. Oil containers made of plastic and metal are collected and recycled to give them a new use in the material cycle. By using recycled materials, considerable savings in CO₂ emissions can be achieved. When compared to newly produced goods, up to 94% fewer CO₂ emissions are released.

More Accuracy, Quality, and Safety for Customers

WHAT WE'VE DONE WITH CUSTOMERS

More Accuracy, Quality, and Safety for Customers

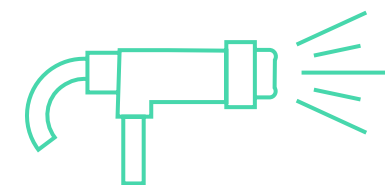
We work to continuously improve our products and practices, which empowers our customers to elevate the sustainability of their operations and the safety of their operators.



HOW WE ACT:

Delivering Data That Makes a Difference

Access to application data gives customers a new level of control on the plant floor. With sustainability game-changers like SprayIQ™ and DilutionIQ™, operators can see exactly how much product they are using in real time. 2022 allowed for the continued refinement of this technology to create our next and most advanced generation of systems available

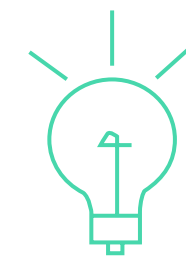


Next-gen products will help customers gain more accuracy in their dilution and spray applications to increasingly reduce waste and emissions. For more on the sustainability value of DilutionIQ™, [hear from one of our experts](#), Sara Heilig.

HOW WE ACT:

Facilitating Greater Safety for Operators

Applying less product means less residue in the air and on the floor, minimizing breathing and slip hazards. Through the implementation of bag-on-valve technology for our water-based products designed for the use in rubber manufacturing applications, we can offer better stability and accuracy with a no-block spray nozzle, wider spray rates, and an empty-spray ratio that's equal to aerosol — but with zero VOC concerns.



Historically too cost prohibitive for industrial-use products, Chem-Trend is working to make bag-on-valve technology accessible to a whole new group of customers.

HOW WE ACT:

Improving Quality and Safety of End Products



Meeting the requirements of USP Class VI* certification, a range of Chem-Trend's Mono-Coat® release agents were designed for use in the manufacture of selected pharmaceutical and [medical silicone products](#). This technology facilitates the manufacture of clean parts, with the added benefits of excellent temperature resistance and proven ability to reduce scrap in the molding process.

“Because of its high level of purity, its excellent biocompatibility, and its high resistance to mechanical stress, silicone rubber is widely used for medical applications.”

LIANG WU

Global Business Development Director, Rubber

**Biological compatibility tests were conducted by the independent medical research organization, NAMSA.*

Sustainability has been part of the Chem-Trend philosophy since our founding in 1960 — and we remain firmly committed to developing solutions that empower our customers to achieve better efficiency and more sustainable manufacturing — all while continuously focusing on the sustainability of our own operations.



[Learn more about Chem-Trend sustainability.](#)

To learn more about Freudenberg's five areas of Responsibility to Society, visit [Freudenberg.com](https://www.freudenberg.com).

OUR CALCULATIONS

CO₂ Emissions

$$\begin{array}{l} \text{Scope 1 energy - direct (e.g. oil, gas) +} \\ \text{Scope 2 energy - indirect (e.g. electricity)} \end{array} = \begin{array}{l} \text{CO}_2 \text{ emissions} \\ \text{(tonnes)} \end{array}$$

CO₂ emissions for Chem-Trend are calculated from the electricity and natural gas usage at production sites. For these sites, the electricity and gas usage is for the entire site including production, lab, warehouse, office buildings, exterior lighting, etc.

Water Consumption

$$\frac{\text{Water usage excluding water used as a raw material in products (liters) MAT}}{\text{Production volume (liters) MAT}}$$

Water for this metric includes all water (sanitary, drinking, cleaning, rinsing, cooking, cooling water, steam, water for gardens/lawns, etc.) used at the site except for water that is used as a raw material in a product.

Waste Generation

$$\frac{\text{volume (liters) of waste}}{\text{production volume (liters) for the same period}} = \begin{array}{l} \text{waste as a \%} \\ \text{of production} \\ \text{volume (liters)} \end{array}$$

Waste includes only solvent or water that comes from cleaning, rinsing, washing down of vats, etc. of equipment and containers, and is then disposed.

Recycled Materials

$$\frac{\text{Recycled material (kg) MAT}}{\text{production volume kgs (MAT) } \times 1000}$$

Material recycled = steel, plastic, or fiber containers, cardboard, paper, plastic wrap, wood pallets, glass, solvents, water, e-waste, and batteries.

Appendix



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