Product Sustainability and Circularity

2024 Highlights

- **More than 80,000,000 lbs.** of plastic waste diverted from the environment through circular investment funds
- **Secured pyoil supply agreement** for Marlex® Anew™ Circular Polyethylene
- **Zero plastic pellet loss** from manufacturing facilities
- **Reducing plastic waste** through global collaborations and commitments

Strategy & Goals

We develop products and solutions aimed at curbing our footprint while using resources more responsibly. We are active and engaged in the global movement to end plastic waste. CPChem supports initiatives and organizations working to eliminate plastic waste, and the company proudly participates in collaborative efforts seeking to address this challenge.

Product Sustainability and Circularity Priorities

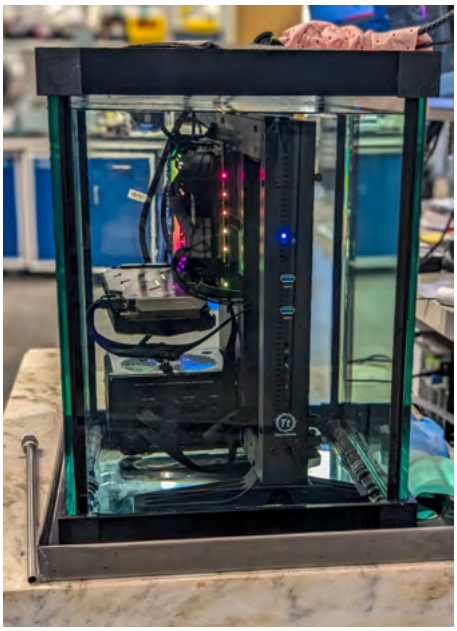
Spot on Solutions

From keeping our food and water fresh to safeguarding medical instruments and enhancing vehicle performance, plastics play an essential role in our daily lives. At CPChem, we are working to make these vital materials more sustainable through innovative design and product applications.

With a diverse range of products supporting more than 70,000 consumer and industrial uses, we strive to leverage the advantages of plastics while working to reduce our environmental footprint.

Product Spotlight

Polyalphaolefins are highly effective in electronic immersion cooling systems due to their superior insulating properties and ability to maintain low temperatures. By efficiently managing heat, our PAOs help prevent overheating and ensure that electronic components operate within optimal temperature ranges. This not only enhances the performance and longevity of electronics but can also lead to significant energy savings. The improved thermal management provided by PAOs results in more efficient energy usage, reducing overall power consumption and contributing to a more sustainable and cost-effective cooling solution.
SDG #9, Industry, Innovation and Infrastructure



Automotive

CPChem's normal alpha olefins and polyalphaolefins are key components in high-performance lubricants for vehicles, aircraft, wind turbines, and more, outperforming many alternative materials.
SDG #7, Affordable and Clean Energy

Food & Agriculture

Specialized plastic packaging offers an efficient and cost-effective way to preserve produce, extend the shelf life of dairy, meat, and poultry products, and protect food during storage and transportation. Plastics also play a vital role in food production, providing durable pipes and fittings for agricultural irrigation systems to water crops and hydrate livestock.
SDG #2, Zero Hunger

Home & Electronics

Plastics' versatility makes them highly desirable for electronic and technological applications. Their strength and flexibility enable safe use of extension cords, network cables, and device chargers through effective plastic shielding of electrical wires.

SDG #9, Industry, Innovation and Infrastructure

Medical & Pharmaceutical

The unique properties of plastics make them well-suited for medical applications, such as pharmaceutical containers and packaging that keeps medical instruments protected and sterile. CPChem's Specialty Chemicals division supports the pharmaceutical industry by providing materials used in medical devices and surgical equipment.

SDG #3 Good Health and Well-being

Personal Care

From squeezable tubes for lotions and shampoos to deodorant packaging, plastics provide an exceptional level of quality and accessibility in personal care products.

Waste Management

CPChem plastics serve as the essential material in manufacturing durable curbside waste collection bins with lids, designed to efficiently collect waste for recycling and landfilling in North America. Even after use, materials such as cardboard, metal, and plastic retain value. These bins play an important role and contribute to an effective waste management system.

SDG #12: Responsible Consumption & Production

Water & Infrastructure

High-density polyethylene pipes provide clean drinking water and significantly reduce the substantial water loss seen in steel and concrete piping systems. Additionally, polyethylene pipes safeguard sensitive electrical and telecommunication cables, helping to keep the world connected.

SDG #6, Clean Water and Sanitation

SDG #7, Affordable and Clean Energy

Under the Microscope

CPChem's Research & Technology teams innovate, test and advance a pioneering legacy that drives progress within the company and across the industry. These teams collaborate with industry partners and academic institutions to research, develop, and assess emerging technologies, such as plastics recycling.

Through the R&T Management Sponsored Research program, researchers can propose groundbreaking ideas and apply for funding to accelerate the study, development, and potential commercialization of novel approaches to sustainability. In 2024, greater than half of CPChem's MSR program funds were allocated to projects aimed at enhancing the circularity of plastics.

CPChem fosters a culture of ingenuity, celebrating and incentivizing creativity and agility. CPChem teams are tasked with transforming innovative ideas and suggestions from employees into reality, driving the company's evolution through 2024 and beyond.
SDG #9, Industry, Innovation and Infrastructure

CPChem Senior Scientist Max McDaniel Honored with Perkin Medal

Max McDaniel, senior fellow scientist at Chevron Phillips Chemical's Bartlesville, Oklahoma, Research and Technology Center and an expert in polyolefin catalysts, was awarded the Perkin Medal in 2024, the highest honor for applied chemistry in the nation. While McDaniel is well known as an industry expert in polyolefin catalysis, especially in the areas of chromium catalysts and metallocene catalyst supports, his influence has extended across CPChem proprietary technologies, including the development of the 1-hexene process, the metallocene PAO process and more recently the reactivation process for the Aromax® II Catalyst.

In 2024, McDaniel was also awarded his 500th U.S. patent.

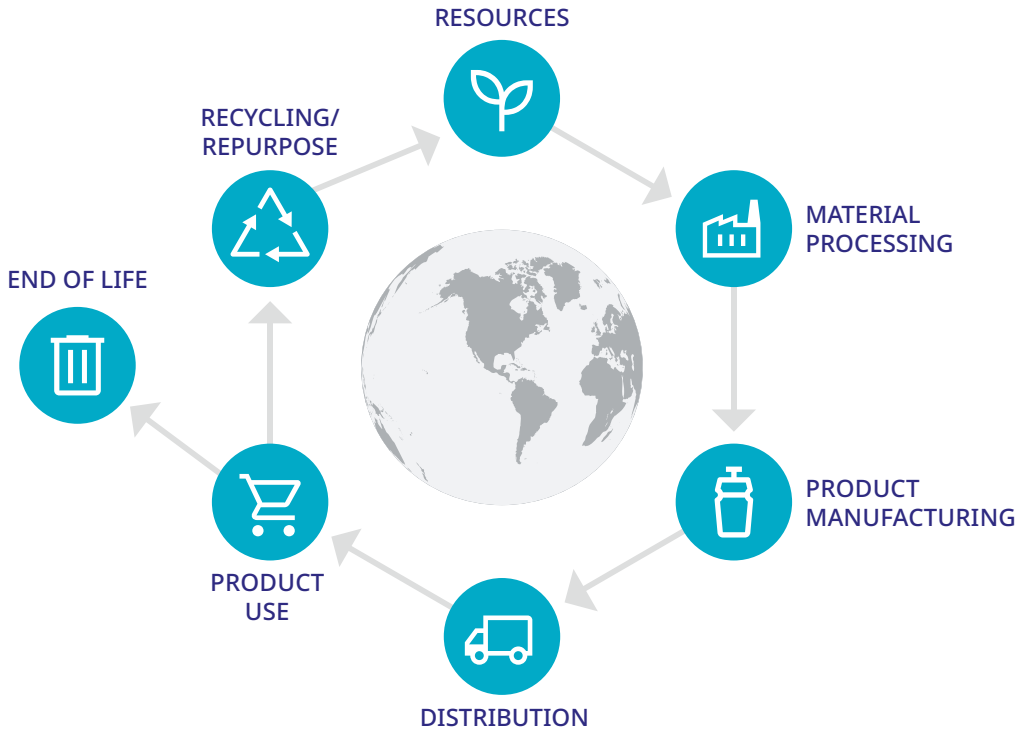
Read more about McDaniel's impressive career

Lower Carbon Products and Processes

CPChem uses Life Cycle Assessments to measure the environmental impact of its products throughout their lifecycle, from material sourcing to production, intended use, and end-of-life/recycling. These assessments are used internally to provide valuable insights and detailed data.

We are conducting LCAs across all product lines to assess carbon footprints and other environmental impacts. This data helps identify opportunities to reduce emissions, decrease water consumption, and use energy more efficiently. By leveraging this data-driven approach, we aim to enhance the sustainability of our products and strengthen CPChem's portfolio resilience throughout any economic environment.

Life Cycle Analysis



Product Stewardship

We take great interest in product stewardship and responsible business practices. We adhere to the guidelines set forth in our OE System to ensure the safe handling and use of our products. Every year, CPChem conducts thorough reviews of its products to evaluate aspects such as customer feedback, regulatory updates, hazard profile, transportation risks, and other critical areas.

Product Portfolio Review

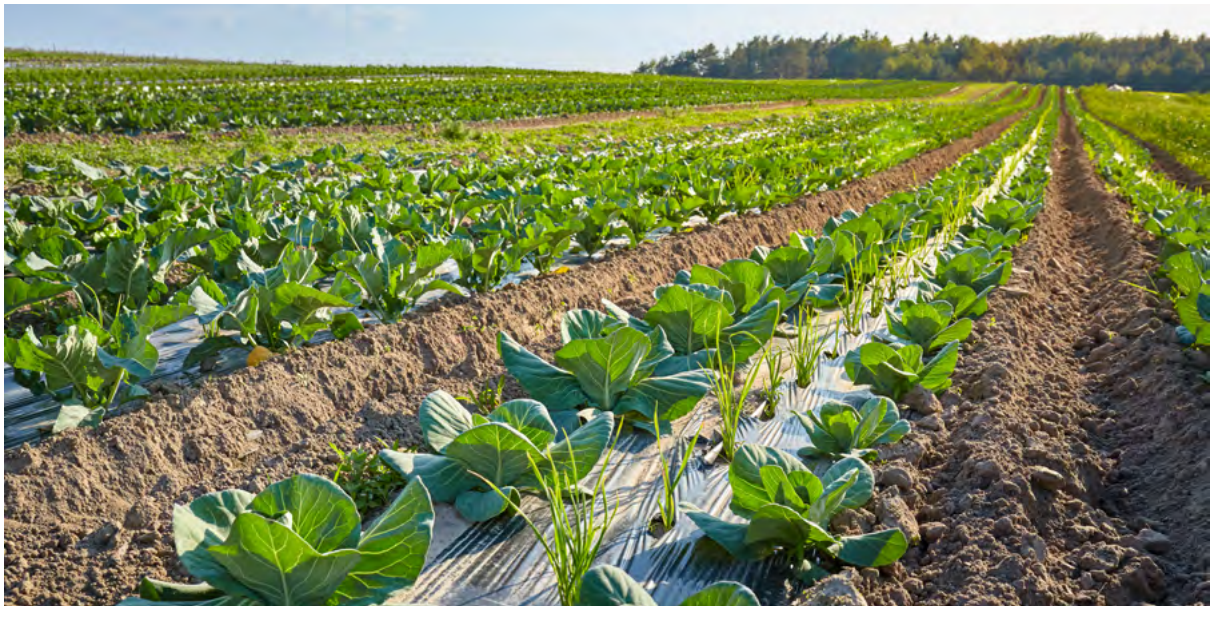
During a Product Portfolio Review, the entirety of our product line-up undergoes a thorough assessment using a weighted composite score system. This evaluation measures:

- End-use applications
- Environmental impact
- Public perception
- Marketing response
- Regulatory profile
- Potential hazards
- Production volume
- Supply chain disruptions

Safe, Responsible, Certified

90% of CPChem's eligible U.S. facilities are certified by the American Chemistry Council's Responsible Care® program. Responsible Care® drives continual improvement and supports innovative progress. This includes work that helps protect the health and safety of people and the planet, and third-party audits to confirm successful implementation.

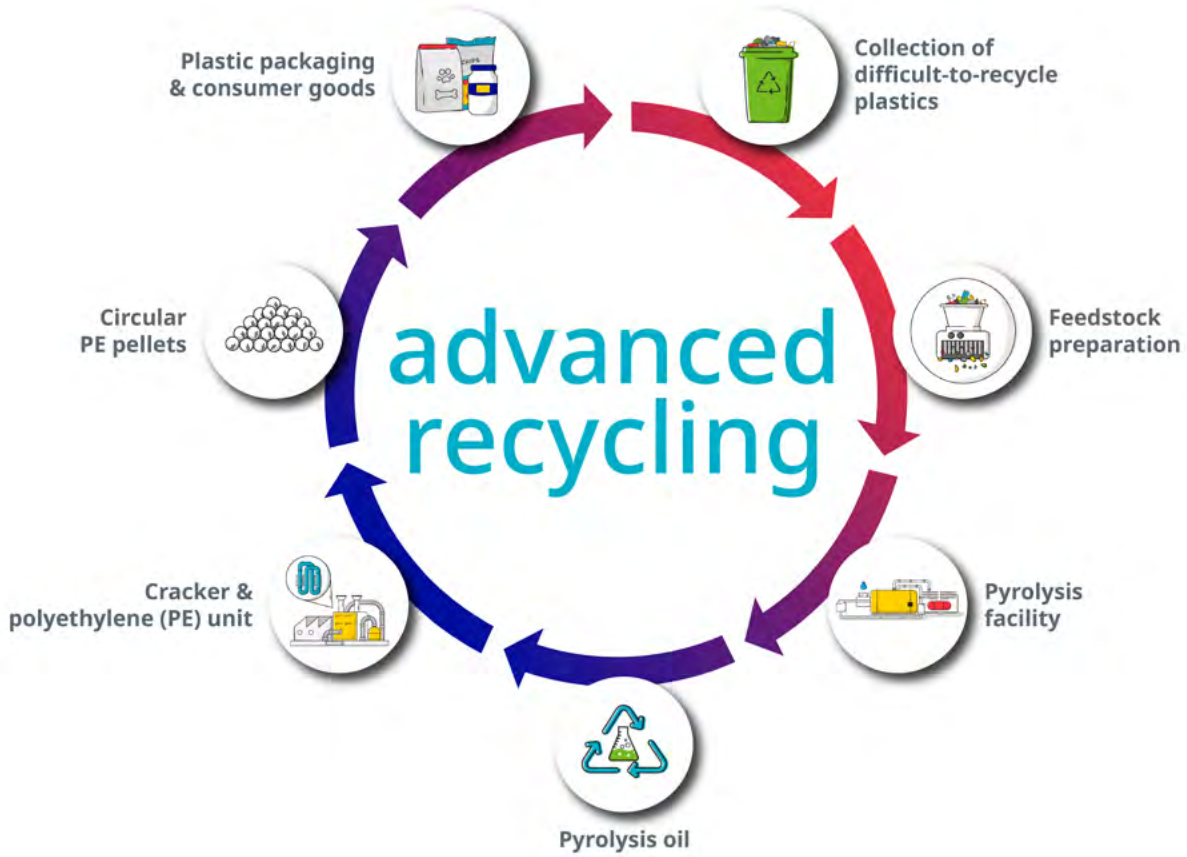
Read more about Responsible Care®



Circularity and Ending Plastic Waste

Plastics have an integral role in enabling a more sustainable future, but mismanagement of these materials and a lack of systems supporting end-of-life options has created environmental consequences for our oceans and natural habitats. We work to harness the benefits of plastics for more than eight billion people who share our planet today and we innovate to minimize our footprint for the billions we will share it with tomorrow.

CPChem is helping transform how we make, use and reuse plastics. With emerging recycling technologies and infrastructure, companies like CPChem can use feedstocks made from advanced recycling to produce new polyethylene resins and other useful products. Advanced recycling (also called chemical recycling) technologies convert hard-to-recycle plastics into new raw materials. Because advanced recycled polymers have physical properties equivalent to their fossil-based counterparts, they may be selected for use in highly regulated applications not suitable for mechanically recycled polymers.

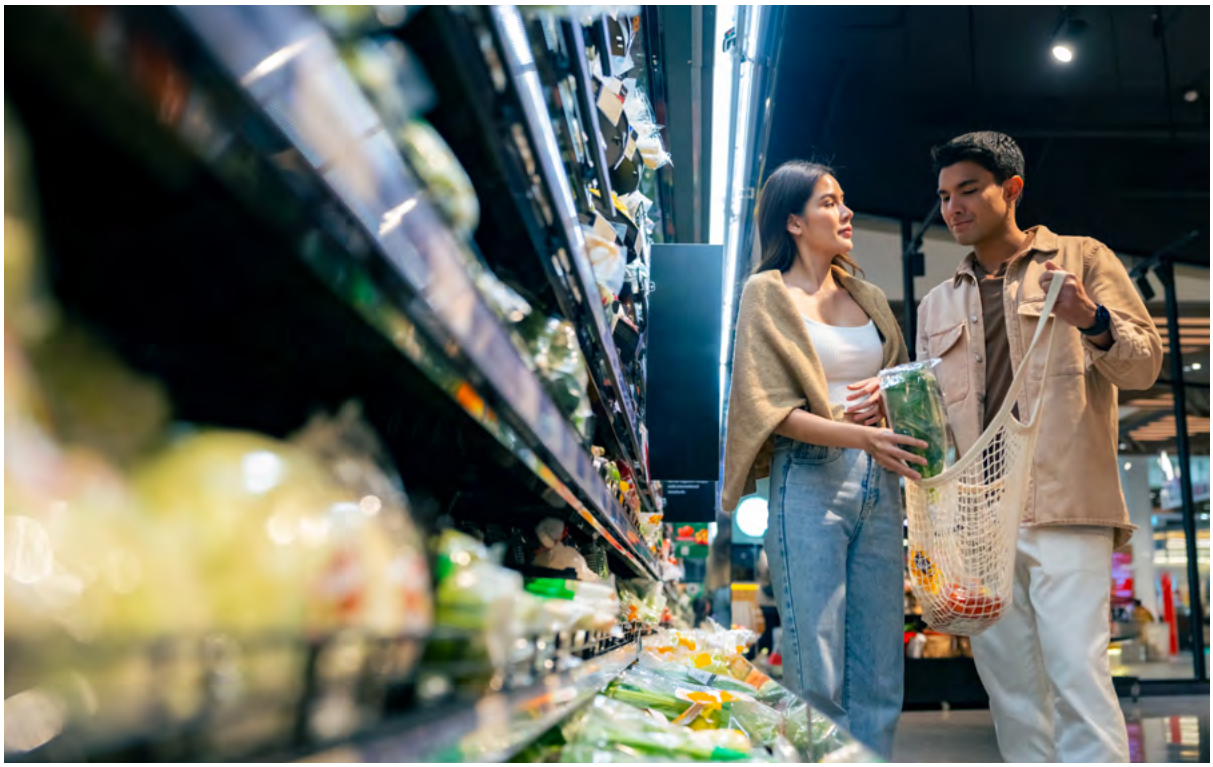


Introduced commercially in 2022, Marlex® Anew™ Circular Polyethylene is CPChem's first circular product. Marlex® Anew™ is made using advanced recycling, converting waste plastics into raw materials to make new polyethylene resins that provide the same performance and quality as conventional polymers.

ISCC
International Sustainability & Carbon Certification

100% Certified

We are proud that Marlex® Anew™ Circular Polyethylene and 100% of CPChem's North American polyethylene facilities are third-party certified by the International Sustainability and Carbon Certification PLUS system. Through rigorous annual audits, ISCC PLUS certification affirms Marlex® Anew™ Circular Polyethylene complies with globally recognized sustainability and traceability requirements.



Together for Tomorrow

CPChem is doing its part to prevent plastic loss from manufacturing operations by committing to global initiatives like Operation Clean Sweep® and internal plastic management programs.

Operation Clean Sweep®

For more than 20 years CPChem has been part of OCS®, a global initiative to prevent plastic resin loss and keep plastics out of waterways. In the U.S., CPChem follows enhanced OCS® Blue guidelines, which include sharing best practices, enhanced reporting, third-party audits, and cross-industry collaboration.

CPChem has also made significant investments aimed at eliminating plastic waste:

Alliance to End Plastic Waste

CPChem is a founding member of the Alliance to End Plastic Waste, which includes nearly 70 companies working to eliminate plastic waste. In 2024, the Alliance made a significant impact by reducing more than 120,000 metric tons of unmanaged plastic waste.

Circulate Capital

In 2024, our contribution to the Circulate Capital Ocean Fund, founded in 2019, helped circulate or reduce a total of 16,977 metric tonnes of plastic (10,362 metric tonnes of plastic excluding the baseline at the time of investment) across South and Southeast Asia.

Our investment in the Circulate Capital Ocean Fund Latin America and the Caribbean, whose investments in the region began in 2023, have circulated/reduced a total of 26,077 metric tonnes of plastic (3,024 metric tonnes of plastic excluding the baseline at the time of investment) in 2024 across Latin America and the Carribean.

Closed Loop Partners' Circular Plastics Fund

CPChem's contribution to Closed Loop Partners' Circular Plastics Fund kept greater than 14,500 metric tonnes of plastic in circulation in the U.S. and Canada.

Infinity Recycling

CPChem invests in Infinity Recycling's Circular Plastics Fund, which focuses on advanced recycling technologies for end-of-life plastics. This investment helps support the transition to a circular economy, delivering both financial and environmental benefits.

Difference Maker

Gina James, Environmental Specialist and our Orange site Operation Clean Sweep® Champion, was recognized at the OCS® Conference as one of three recipients of the 2024 OCS® Difference Maker Award for going above and beyond in her efforts to achieve zero resin loss. Gina played an integral role in the development and execution of a project that implemented a transfer system that removes residual plastic pellets from individual railcars and collects them into a single railcar. This system helps CPChem keep plastic pellets out of the environment and helps get more produced pellets to market.

Polymers Business Outlook

CPChem uses long-term commodity price forecasts, as well as supply and demand outlooks to assess risks to its investments and strategy. While conducting these assessments, consideration is given to uncertainties that may favorably or unfavorably impact projections, which is needed to pressure test investment decisions and strategy direction. For the purposes of projecting a range of outcomes, it is prudent to calibrate internal perspectives against third-party market intelligence. CPChem typically uses several third-party outlooks in these assessments.

In 2024, CPChem undertook scenario analysis which tested the resiliency of our strategy in different business environments that varied the pace/scale of adoption of a circular economy. The outcomes and implications for CPChem were not materially different than what was published in the company's 2023 sustainability report, Stepping Up. The regulatory landscape remains dynamic and CPChem will continue to monitor its evolution, ensuring that the scenarios tested remain relevant and develop new scenarios accordingly.