

Environment

Progress toward Carbon Neutrality and a Circular Economy

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The Mitsubishi Chemical Group is working toward carbon neutrality in 2050 through initiatives to apply proprietary technologies and renewable energy and step up collaborations with its partners to reduce GHG emissions and contribute to sustainable resource and energy recycling.

In-house initiatives

GHG reductions

In the Performance Polymers division, we have achieved a remarkable 44% reduction in Scope 1 and Scope 2 GHG emissions in Europe in fiscal 2022 compared to fiscal 2019. This was realized through strategic relocation initiatives and the transition to green electricity. We are planning to expand the number of sites that run on renewable electricity even further.

The Engineering Shapes and Solutions (ES&S) division has made notable strides in the use of renewable energy, electrification, and consolidation of key assets. In Europe, eight out of nine sites have successfully transitioned to renewable energy as well as all sites in the Americas. The renewable energy transition contributed to a 50% CO₂e reduction compared to fiscal 2019. Electrification of key processes in the Scranton facility reduced the site carbon footprint by using MCG Group internally developed technology.

For our ALPOLIC brand, we have achieved an impressive 20% reduction in GHG emissions per m² of ALPOLIC composite panels at our Wiesbaden site since 2017. We achieved this through a combination of measures such as increasing the insulation of heating ovens and optimizing temperature control in production stages.

Circular economy

In our Performance Polymers division, we launched recycled and bio-based product grades for slush, PVC and TPE compounds (mass-balance approach) and have obtained ISCC+ certification for our French production sites. Our 3D printing solutions now encompass recycled and bio-based options for FGF and filaments. We are the supplier of bio-based PVC compounds for a soccer ball made only from renewable materials which is available in all French Ligue 1 soccer club shops.

Our SoarnoL EVOH resins (with an ethylene content ≥ 29mol%) can be considered as recycling compatible for PE film recycling. In combination with Soaresin RG500, it can be considered as valuable material for PE film recycling, as confirmed by independent European test laboratory Institute cyclos-HTP GmbH. ES&S launched Statera in fiscal 2022 in the EMEA and Americas Region: a sustainable brand program that drives CE with target markets in Europe, the United States, and Canada. Statera encompasses a sustainable product portfolio, quantified LCA data, regulatory compliance documentation, extensive waste take back programs, and the CORACAL Carbon Footprint calculator tool for customers in Europe and the United States.

ALPOLIC has introduced a special grade (R75) that contains 75% recycled aluminum content, contributing to the circular economy.

MCG Americas has collaborated with Arizona State University and The Global KAITEKI Center in a circular economy project in the mobility market.

Awards and recognitions

We are also delighted to announce the recognition we have received for our sustainability achievements. Our achievements show our commitment to reduce GHG emissions and advance solutions within our industry.

Additional awards and recognitions

Awards and achievements	Business or product recognized
Prestigious Italian Oscar dell'Imballaggio award for Best Packaging	Taghleef Industries, to which we supply packaging solutions
NRG Energy's Excellence in Energy award in the Sustainability category	ES&S business (United States)
Selected as a finalist in the Plastics Recycling Awards Europe 2023	ES&S business (Europe)
Texas Chemistry Council's Sustained Excellence in Caring award	SoarnoL
Third-party certifications for Responsible Care® Management Systems and RC 14001:2015.	ES&S, PC/MMA, SoarnoL, Gelest, and Polyester Film (MFA) divisions in the United States
One of three finalists in the Crystal Cabin Awards in the Sustainable Cabin category	Carbon Fiber "Biopreg" material

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Collaboration with external partners

World Economic Forum's R&D Hub for Plastic Waste Processing

In April 2023, the MCG Group signed an R&D collaboration agreement with TNO, an independent Dutch research organization, as the only Japanese founding member of the R&D Hub for Plastic Waste Processing (R&D Hub).

The R&D Hub is a joint R&D project to investigate plastic recycling that was launched by the Low-Carbon Emitting Technologies (LCET) initiative of the World Economic Forum (WEF). The members of the LCET initiative are TNO and seven global chemical companies: the MCG Group, BASF, Covestro, Dow, SABIC, Solvay, and LyondellBasell.

The LCET initiative and the R&D Hub represent the first attempts worldwide for the chemicals industry to achieve carbon neutrality and realize a circular future through global collaboration and joint development across companies. Our participation in this groundbreaking initiative may allow the MCG Group to acquire technologies to support future circular and low-carbon business. It also demonstrates our commitment to domestic and overseas programs to realize KAITEKI.



After the signing of the agreement with the seven founding members and TNO (April 2023, Antwerp, Belgium)

Joint research to safeguard the global commons

Since April 2021, MCC and the Center for Global Commons (CGC), established by the University of Tokyo, have been engaged in joint research with the aim of formulating sustainable business models for the chemical industry from the perspective of effective use and recycling of resources.

In September 2022, the CGC published a new report, "Planet Positive Chemicals," outlining the results from this joint research project on the role of the chemical industry in safeguarding the global commons (i.e., the global environmental system upon which the sustainable development of humankind is founded). The report explores how the chemical industry can operate within planetary boundaries and aim to achieve sustainable societies and economies by playing an important role in supporting other sectors and consumers, on top of reducing its own environmental impacts.

The report provides a detailed view of the future pathways toward carbon neutrality, taking a system-wide view of the likely demand for chemicals and exploring the industry's GHG emissions along its entire value chain. The MCG Group will share the report's conclusions right across society and work to build wide-ranging partnerships and collaborative relationships to develop a sustainable chemical industry.

[Planet Positive Chemicals Report Released from Joint Research for the Conservation of the Global Commons with the University of Tokyo](#)

Participation in the Decarbonization × Reconstruction Town Development Platform

The MCG Group is participating in the Decarbonization × Reconstruction Town Development Platform established in March 2023, with the Ministry of the Environment as its secretariat. The goal is to both decarbonize and

reconstruct/revitalize communities in 12 municipalities in Fukushima Prefecture that were affected by the Great East Japan Earthquake and the nuclear accident at the Fukushima Daiichi nuclear power plant, and to form a distinctive regional circular and ecological sphere in which the environment, economy, and society thrive while making the most of local resources. The initiative aims to cooperate with private companies inside and outside the region over a long period of time with common goals and shared recognition.

Collaboration with local governments is essential to achieve carbon neutrality. Through its participation in the platform, the MCG Group aims to reduce GHG emissions from plants, branches, and research laboratories and establish resource recycling models for industries such as agriculture, forestry, and livestock, while developing models for collaboration with local governments at the prefectural and city level.