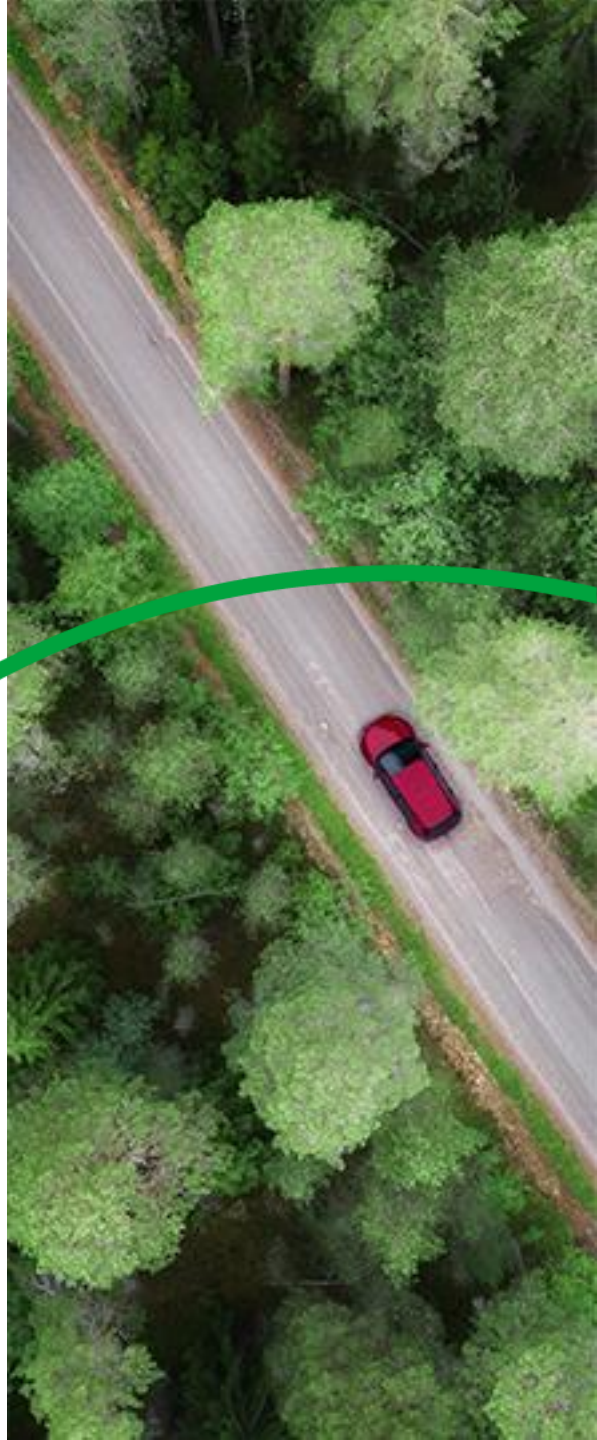
MITSUBISHI CHEMICAL GROUP

SUSTAINABILITY SOLUTIONS FOR AUTOMOTIVE

MEMA Sustainability Hour

A partnership built for today and beyond; MCG is committed to solving your challenges with sustainable solutions and advanced technologies.



Thought Starter

Choices will allow every customer to participate in a way that meets their needs.

Sustainability is ‘messy’.

Sustainability isn’t ‘free’ but it does have value.

MITSUBISHI CHEMICAL GROUP

01 • MCG Corporate Overview

02 • KAITEKI Philosophy

03 • Sustainable Technology Spotlight

MCG Corporate Overview

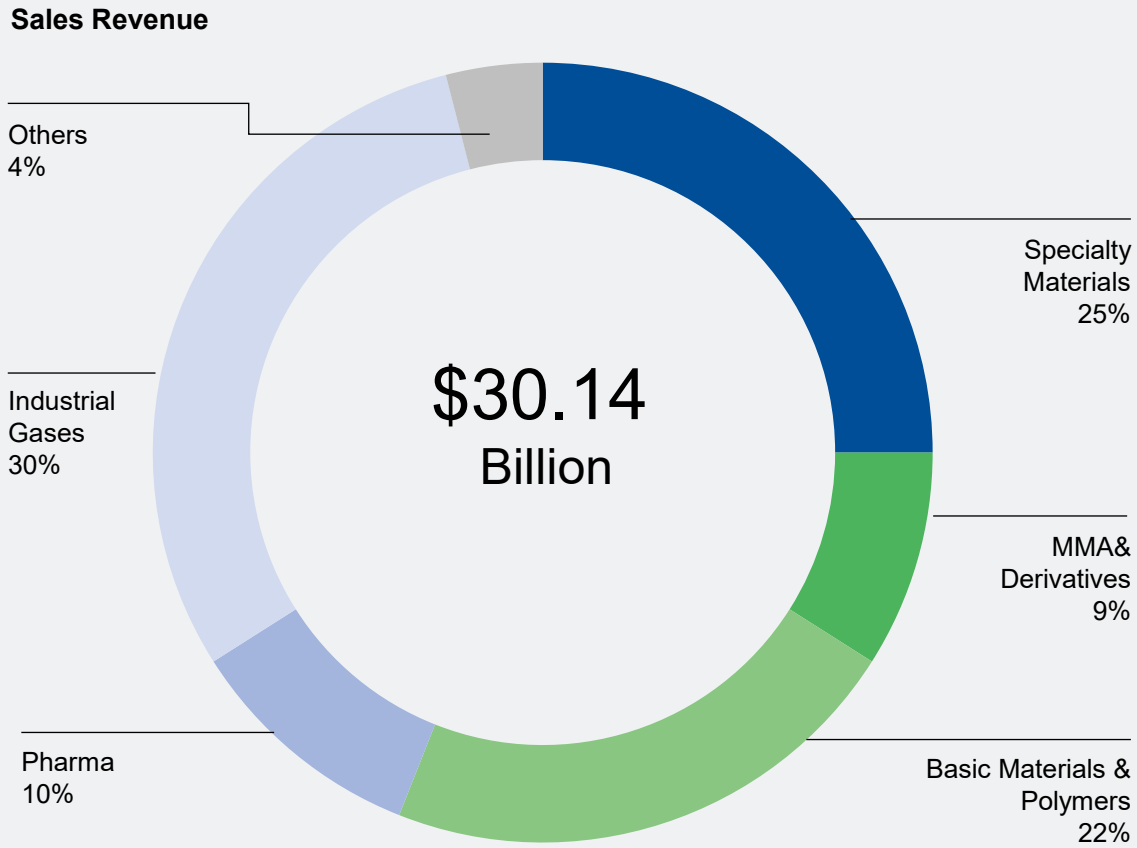
Mitsubishi Chemical Group | Corporate Overview

$30.14B

Consolidated Sales Revenue (IFRS)

63,258

Employees (consolidated)



Figures as of May 2025 | Exchange rate: 146.2 (¥/$)

Core Material Strengths

Polymers

Bioplastics	Cutting-edge bioplastics for sustainable food packaging and glass-alternatives
EVOH	Proprietary high-performance polymer for food packaging
Functional Resin	Comprehensive and environment-friendly resin offerings

Films

Optical Film	Top manufacturer of optical PET film ~20% global market share
Barrier Film	Key supplier of barrier films, primarily for food packaging and medical products
Industrial Film	Value-added offerings for a wide variety of industrial applications. Low environmental load technologies

Molding Materials

Carbon Fiber Composite Materials	World-leading integrated product chain of carbon fibers
Super Engineering Plastic Components	Chemical partner for global OEMs, industrial machinery, and aircraft manufacturers

Chemicals

MMA	#1 supplier of MMA monomer with ~40% global market share Proprietary Alpha technology, lowest product carbon footprint globally
Functional Monomer	Molecular design technology fully tailored to customer needs

Your partner on the road to carbon neutrality

The sustainable innovations that will define the future of mobility are made possible by cutting-edge material applications and recycling technologies.

Materials make the difference

Circular solutions

A shared responsibility

Our KAITEKI Philosophy

Our Purpose

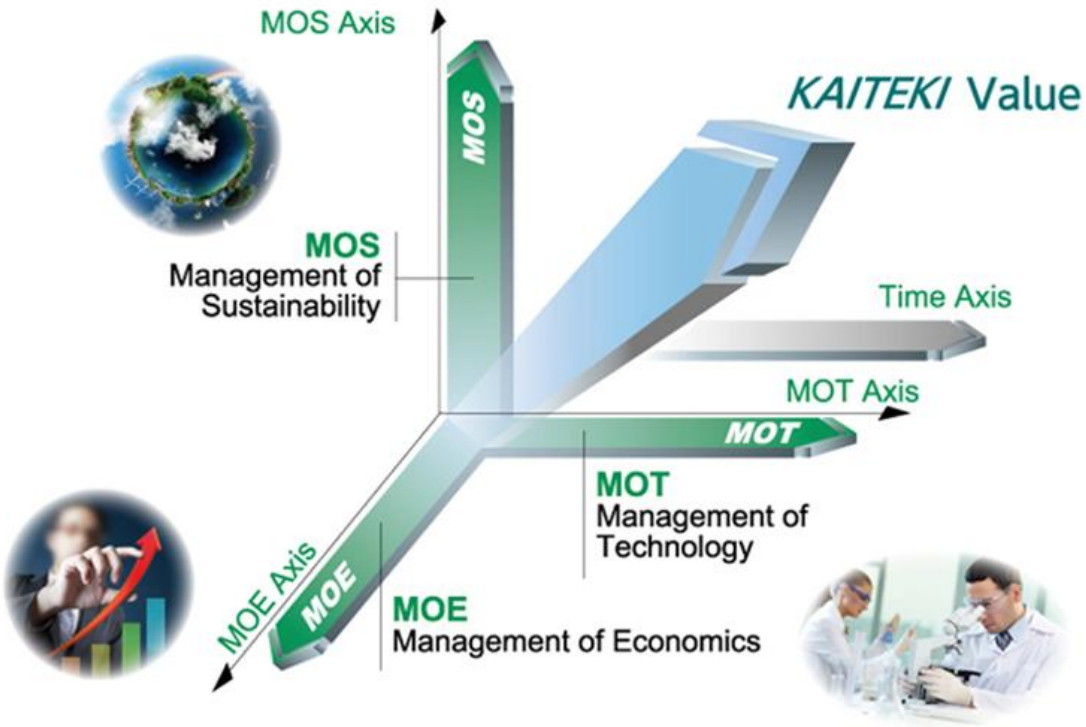
- The Purpose shows why Mitsubishi Chemical Group exists, what we aim to achieve, and how we contribute to our stakeholders.
- It expresses the Group's persistent determination to realize KAITEKI—our North Star—which has guided the organization and our commitment to our stakeholders since 2011.

We lead with innovative solutions to achieve KAITEKI, the well-being of people and the planet

Who We Are

- Our Slogan reflects the three management strategies to realize our purpose—
- Management of Technology (MOT),
- Management of Economics (MOE), and
- Management of Sustainability (MOS).

- We will lead the realization of KAITEKI through better Science by providing Value to all stakeholders and contributing to healthy living and the sustainable Life of people and the planet.



Dr. Yoshimutsu Kobayashi
Former President and CEO MCHC
2007 through 2015

Our Vision across five market focus areas

By clarifying our Vision across five business focus areas where we can make the most of our strengths, we aim to become a Green Specialty Company that continues to provide optimal solutions for society.

Market focus areas	Eco-conscious mobility	Enable advanced data processing and telecommunications	Food quality preservation	Technology and equipment for new therapeutics
Vision for each business focus area	Leveraging materials to accelerate the shift to sustainable mobility	Supporting the advancement of semiconductor ecosystem	Extending shelf-life of food products to support distributing and processing	Enabling new therapeutics through high-performance medical-grade materials

Stable supply platform for green chemicals*

Lead the green transformation of chemical industry globally

* Basic chemicals and their derivatives with reduced environmental impact

Partnering for Planet-Positive Progress

- Climate
- Waste Reduction
- Water Stewardship
- Diversity

Our goals helping you achieve yours

-29% emissions

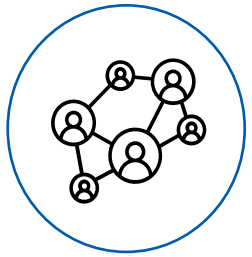
Scope 1 & 2 by 2030[1]

-10% waste to landfill

Year over year[2]

-310t water

Resource management COD by 2029[3]



40% diversity

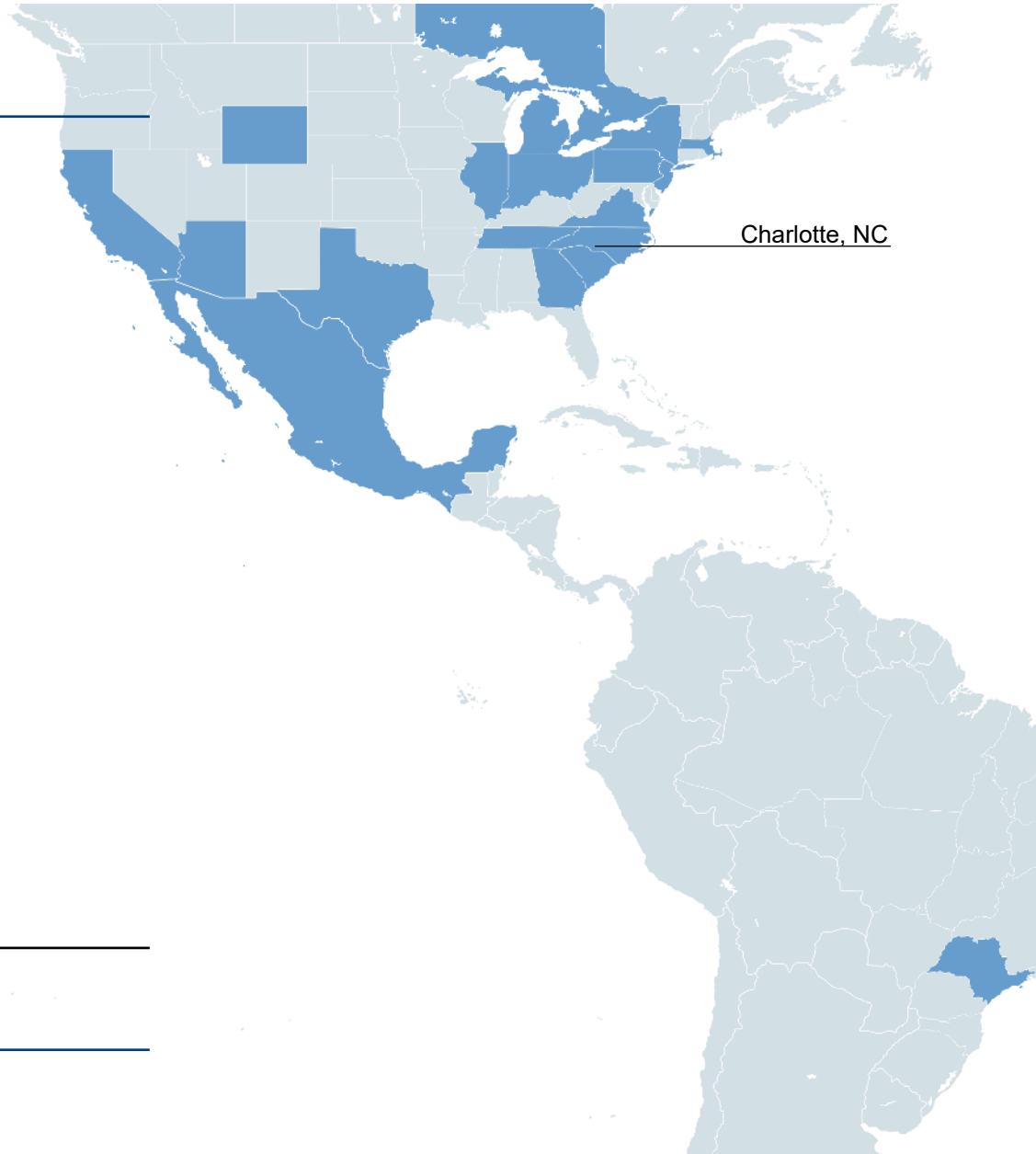
Management level by 2030[4]

[1] Global GHG vs. FY2019 [2] MCA domestic [3] MCC domestic vs. FY2023 [4] Executives plus top-tier employees who meet any of the following criteria: international, female, and multi-career.

Mitsubishi Chemical Group | America Locations

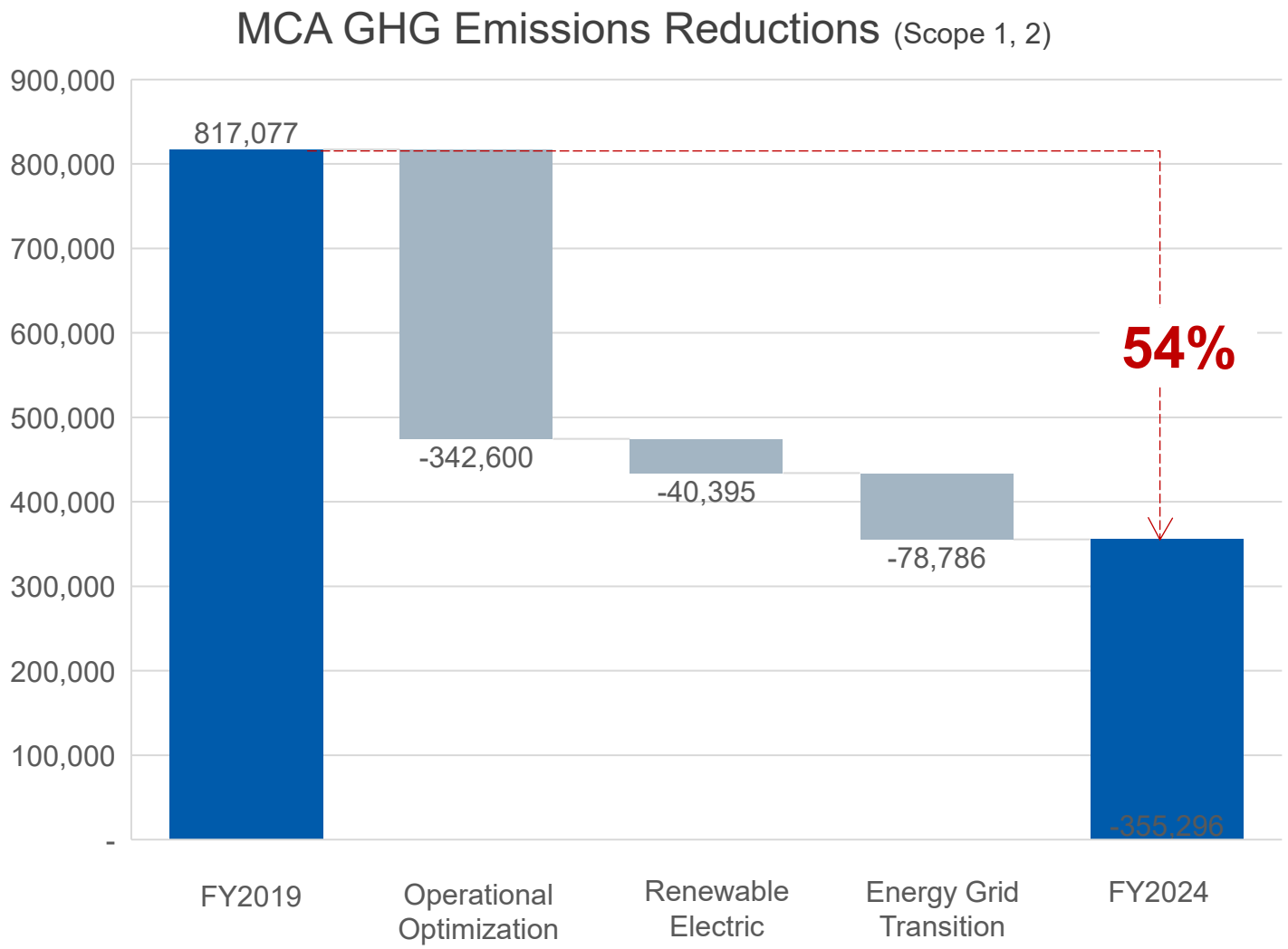
Renewable Energy | Zero Waste to Landfill (ZWTL)

Arizona	**Cleanpart** (Phoenix), **MCAM** (Mesa)
California	**DEV** (Menlo Park), **MCAM** (Stockton), **MCA** (Carlsbad, Glendale), **MCCFC** (Sacramento, Irvine, Poway)
Georgia	**Mytex Polymers** (Covington)
Illinois	**MCAM** (Libertyville), **Soarus** (Arlington Heights)
Indiana	**MCAM** (Fort Wayne), **Mytex Polymers** (Jeffersonville)
Massachusetts	**MCA** (Wilmington)
Michigan	**MCA** (Commerce Township)
New York	**MCA** (New York City)
North Carolina	**MCA** (Charlotte)
Ohio	**MCA** (Bellevue)
Pennsylvania	**Gelest** (Glen Rock, Morrisville), **MCAM** (Delmont, Reading, Scranton)
South Carolina	**MCA** (Greer)
Tennessee	**MCA** (Memphis)
Texas	**MCA** (La Porte, Pasadena)
Virginia	**MCA** (Chesapeake), **MCAM** (Wytheville)
Mexico	**Mytex Polymers** (Queretaro), **MCAM** (Toluca)
Brazil	**MCAM** (Atibaia), **MCPP** (Atibaia)



Driving reductions

Because we understand that our Scopes 1 & 2 become **your Scope 3**

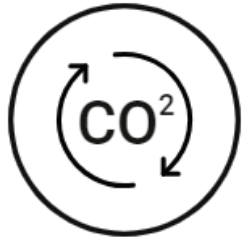


Efforts Toward a Circular Economy

Our dedicated team of researchers and material scientists is developing innovative technologies and solutions to use precious resources in a smarter way while reducing the overall environmental impact.

Material Recycling

Bio-based Raw Materials

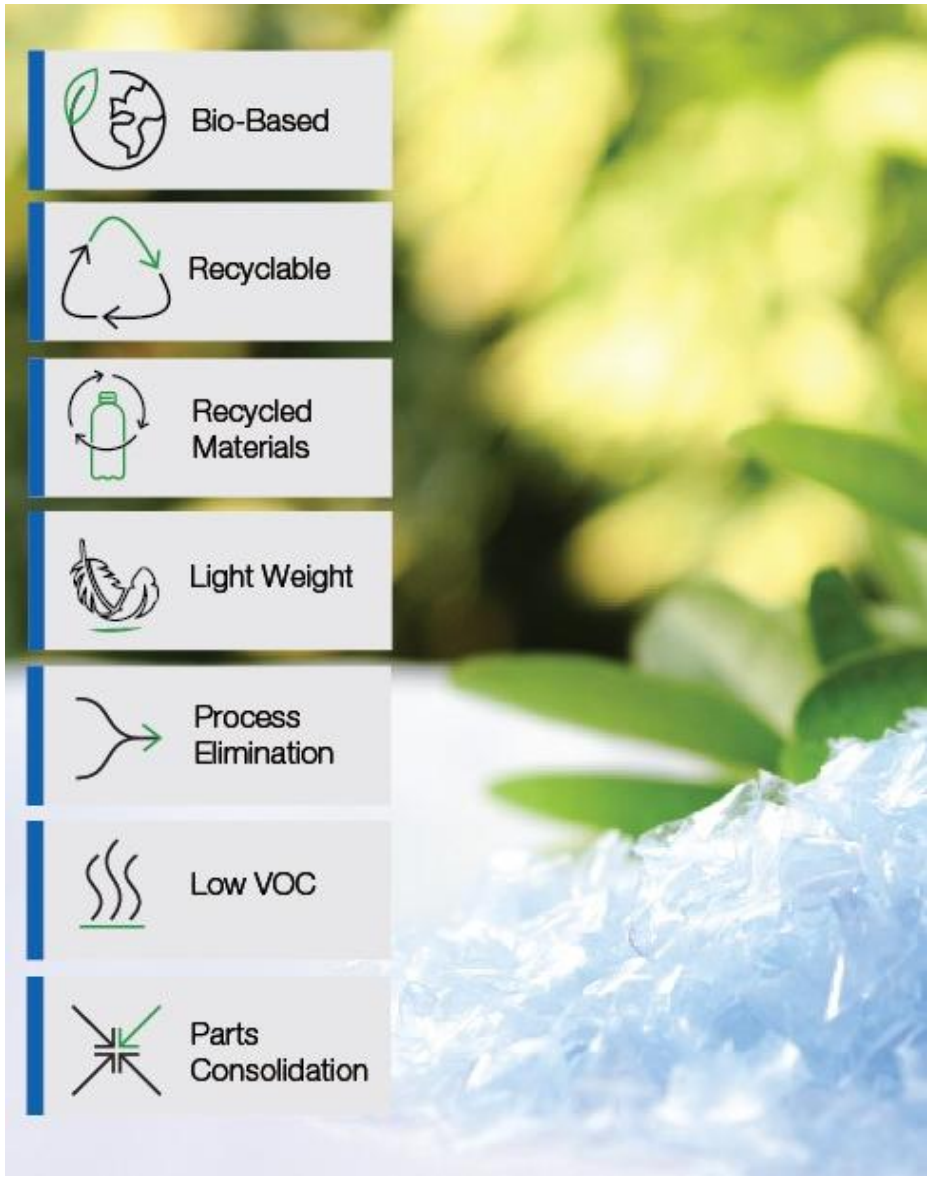


CO_2 Recycling

Future-ready solutions set to tackle your material challenges

This overarching KAITEKI Philosophy is our guiding principle as we use **LESS** to have **MORE**.

- **LESS RESOURCES** | Our technologies extend the loop, conserving resources by transitioning to bio-based and recycled raw materials.
- **LESS WASTE** | We reduce raw materials usage by recycling our own waste and partnering with customers to recycle their waste.
- **LESS IMPACT** | We decrease our impact on the environment through advanced resin innovation and developing lightweight materials.
- **MORE PRODUCT LIFE** | Extending the material properties for extends the useful life of products.



Sustainable Technologies Spotlight

Solutions for Automotive

LCA | Life Cycle Analysis

Sustainability challenges

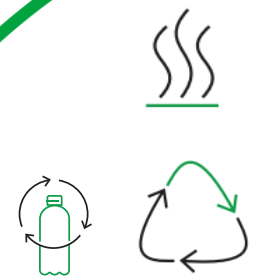
- Not knowing which of two choices might yield a better result for sustainability.
- Analyzing processes to determine where to focus sustainable efforts.

Our solution

- Utilize LCA techniques in our company as example to others.
- Offer LCA as a metric for procurement and engineers to evaluate material choices.
- Promote LCA to reduce pseudo science.

Key projects

- Full analysis of USA operations and value streams for our products.
- 100% wastewater collection for our factories. Disconnecting from municipal systems.
- Purchase or producing sustainable power where offered.



ELV Recycling | End of Life Optimization of Auto Parts

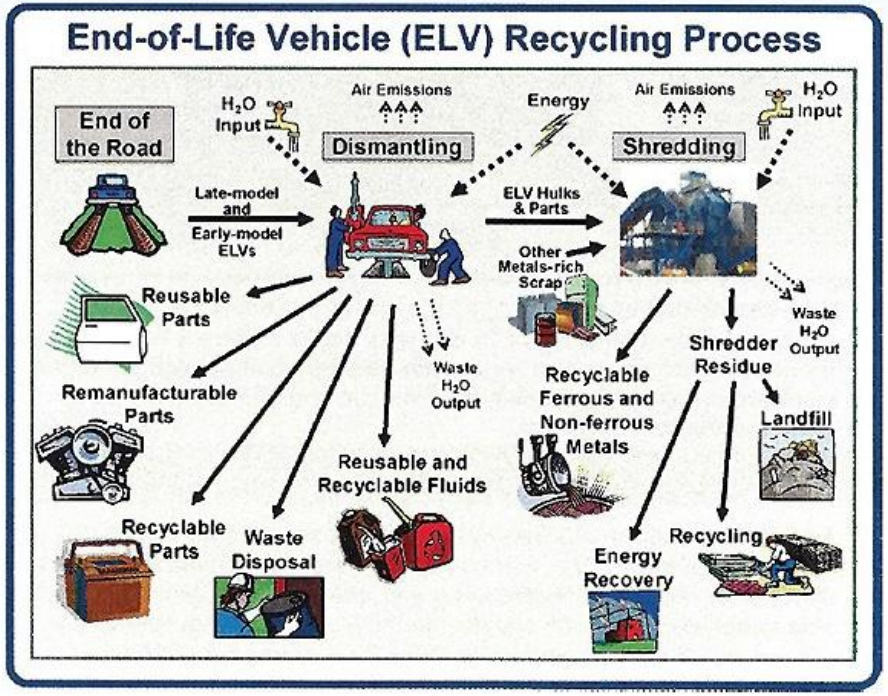
Sustainability challenges

- Recovering parts at the end of useful life.
- Identifying remaining life of parts.
- Creating an aftermarket for connecting buyers with sellers.
- Special tools required for removal or rebuilding of parts.

Our solution

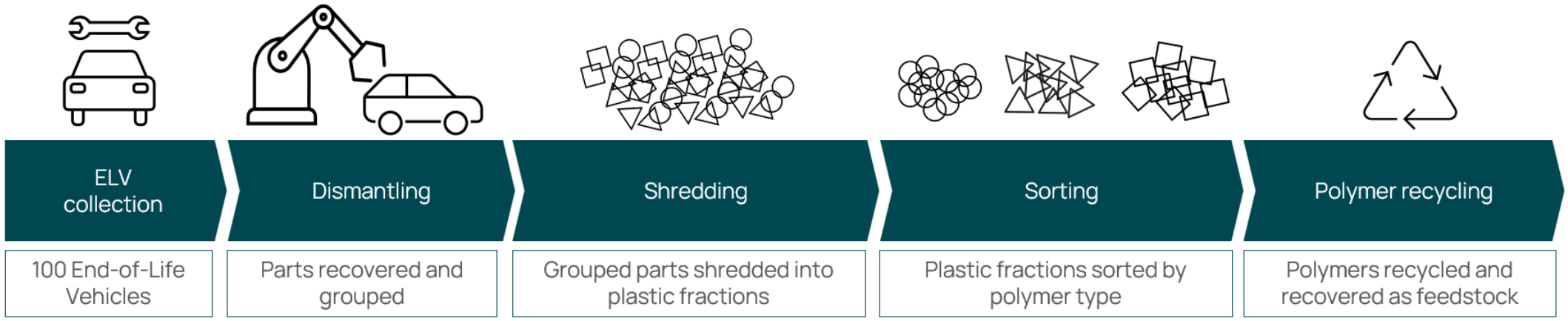
- Work with other industry leaders to find the best ideas.
- Test the best ideas on a 100-car sample to determine biggest opportunities and threats to implementation.
- Use MOT, MOS and MOE to identify the highest probability solutions with the technologies we have today.

Key projects



Global Impact Coalition | End of Life Optimization of Auto Parts

End-of-Life Vehicle Plastic Recycling Value Chain



Repurpose good parts with remaining life.

ASU| Private Partnerships with Universities

Sustainability challenges

- Daily activities distract individuals and companies from focusing on sustainability.
- Best ideas are not developed due to lack of impact analysis

Our solution

- Dedicated department “KAITEKI Center” funding students and professors to focus on the best ideas.
- Rigorous debate and analysis to ensure the ideas with the best impact are prioritized.
- Ideas that benefit others can be shared and developed by those who would benefit the most.

Key projects

- Co-development of single-use plastic replacement with Starbucks coffee.
- Protope of carbon capture equipment by government funding.
- Low emission building by Biomimicry of Cactus at School of Sustainability.

ASU ARIZONA STATE UNIVERSITY

DURABIO™ | Eliminate painting with partially bio-based engineering plastic

Sustainability challenges

- Multi-step painting and coating processes are among the most emissions-intensive and waste-generating stages in automotive manufacturing
- Difficult to achieve necessary aesthetics, impact, scratch, and UV-resistance without multi-step painting and coating

Our solution

- Polymerizing 100% bio-based monomer with an oil-based co-monomer results in DURABIO – a 40% -60% bio-based engineering plastic
- Excellent high-gloss surface and color eliminates painting and hard-coating processes
- More well-rounded performance profile than PMMA or PC

Key projects

- Customized DURABIO grade with improved shock and weather resistance for use on Suzuki S-Cross exterior grill
- Integrated front grill and radar cover components, consolidating parts and eliminating painting process
- Development of mold-in-color (MIC) high design interior parts


Interior Applications

Exterior Applications

Conclusion

- We live sustainability at Mitsubishi Chemical Group.
- Standard products promote sustainable solutions
  - Battery materials
  - Lightweight composites and materials
  - Mold-in-Color products eliminate VOC’s and paint oven carbon footprints.
- Every customer is different so we need to pursue multiple ideas simultaneously to get the biggest impact.
- Partnerships with customers, governments, universities and trade associations can leverage the effect.
- There needs to be more education in automotive about Scope 1, 2 and 3 emissions and how OEM’s and Suppliers can assist each other.
- Sustainability isn’t ‘free’ but it does have value. Companies that recognize this and pursue the most impactful ideas FOR THEM will have a market advantage.

MITSUBISHI CHEMICAL GROUP

Thank you.

Matt Orlando | Corporate Concierge

+1.248.535.8918

Matt.Orlando@mcgc.com

For more information visit our website