MITSUBISHI CHEMICAL GROUP

Enduring Exterior Style

Automotive Exterior Solutions

Create automotive exteriors that capture attention even while facing harsh environmental conditions with innovative solutions from Mitsubishi Chemical Group. Our material scientists are passionate about reimagining chemistry that increases safety while decreasing our collective impact on the earth. Using composites, performance polymers, and engineering plastics paired with specialty additives and coatings, we develop beautiful components that stand the test of time.

Partnership

From reimagining lightweighting structural applications that reduce fuel consumption to redesigning parts to reduce components and processes, our customer-centric approach ensures mutual success. With a focus on decreasing the environmental impact, we partner with customers to develop solutions to their most challenging problems.

KAITEKI | Our Philosophy

At Mitsubishi Chemical Group, sustainability is more than a concept—it's a way of life. Through our focus on improving the health and well-being of people and the planet, we create innovative sustainable solutions globally. The sustainable well-being of people and our planet Earth—we call it KAITEKI.

We believe our role in the chemical industry is to be partners in innovation, developing material solutions that support a circular economy and sustainability of the earth and society. 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 extend raw materials 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.

MITSUBISHI CHEMICAL GROUP

Dynaflex™
Dynaflo™
Outer Skin

Acrypet™
Taillights

FUNCSTER™
CF FMC
Tailgate & Door
Inner Panels
Structure

Xantar™ LDS
Antenna

SymaLITE™
Wheel Arch Liners

DURABIO™
Acrypet™
Acryking™
Trims
Covers
Pillars

SUNPRENE™
VINIKA™
TREXPRENE™
TEFABLOC™
Window Seals

Metablen™
Dianal™ LP
Diabeam™
Door Mirror

Novaduran™
Wiper Arms

Nichigo™ G-Tape
Shipping Protection

Xantar™
Lens Cover
Reflectors
Bezels
Light Guides

DURABIO™
Front Grille

Automotive Exterior

Product	Description	Key Features						
Acryking™	UV-curable coating resin	Superior weatherability, chemical and abrasion resistant						
Acrypet™	PMMA	Crystal-clear transparency, high weather and chemical resistance		•		•		•	
CF-FMC	Carbon Fiber Forged Molding Compound	Lightweight CF-reinforced composite with strength and ease of molding				•	•	
Diabeam™	Weather-resistant hard coat	Excellent transparency, high scratch resistance						•	
Dianal LP™	Acrylic plastisol	High weatherability and thermal stability				•		•	
DURABIO™	Bio-based Engineering Plastic	Bio-based material with high transparency and good heat and impact resistance	•				•		
Duraflex™	TPO	High-gloss, high surface-durability							
Dynaflow™	TPO	Cost-effective performance							
FUNCSTER™	LGF-PP	Lightweight, unmatched glass dispersion				•	•		
KyronMAX™	Structural Thermoplastic Composites	World's strongest injection moldable thermoplastic		•		•	•		•
METABLEN™	Plastic Additive	Additive modifiers that amplify material properties							
Nichigo G-Tape™	Masking & Protection Tape	Patented technology, hand tearable, residue-free					•		
Novaduran™	PVC Resin	Excellent mechanical properties, rigidity, heat aging resistance and chemical resistance							
Pyrofil™	PAN-based Carbon Fiber	Excellent strength and stiffness				•			
SUNPRENE™	PVC	Excellent abrasion resistance and colorability						•	
TEFABLOC™	TPE	Soft, flexible and multi-material compatibility	•		•				
TREXPRENE™	TPV	Heat and UV stabilized, wide range of durometers		•		•			
Xantar™	PC & Blends	High impact strength and dimensional stability						•	

Innovation

Today, consumers demand more sustainable solutions, driving the need for technology development in materials, manufacturing, and end-of-life impact. As a vertically integrated manufacturer, Mitsubishi Chemical views material innovation through a sustainability lens, and develops custom solutions that address application challenges while also reducing negative environmental and social impacts.

Our sustainable materials support our customers in fulfilling their goals as well as the market demands by offering added value throughout the supply chain. Mitsubishi Chemical material technologies include offerings that:

- Enhance performance and functionality
- Offer state-of-the-art design
- Result in less waste at the end of life
- Optimize energy and resources
- Have less impact on the environment

Carbon Fiber | Fully Vertically Material Supply Chain

Mitsubishi Chemical Group is uniquely positioned to be able to provide a fully integrated material supply chain for Carbon Fiber - from raw materials to composites to molded parts.

Award-Winning Innovation | KyronMAX™ Roof Receivers

Mitsubishi Chemical Group, has developed a ground-breaking lightweight solution for the automotive industry. KyronMAX Roof Receivers are the first high-volume structural carbon fiber reinforced injection molded engineering thermoplastic composite in a weatherable structural body application.

Redefining lightweighting, the KyronMAX material solution was able to outperform the previous cast steel parts, slashing weight by approximately 80% and cutting material costs by 35%. In partnership with Stellantis, Mitsubishi Chemical Group proudly accepted the following awards:

2021 CAMX Unsurpassed Innovation Award
2021 Automotive News PACE Award
2021 Automotive News PACE Innovative Partnership Award
2021 SPE ACCE Award

Body Panels

Body panels pull double-duty on vehicles, creating aesthetics while protecting the passengers. These multi-functional pieces are challenged with some of the most stringent safety requirements as well as maintaining exceptional performance and reliability. With the amount of material used for these panels, lightweighting can play a significant role in reducing greenhouse gas emissions, making carbon fiber composites a natural fit. Mitsubishi Chemical Group is poised to ensure continuity of supply and quality with the only fully integrated carbon fiber value chain globally.

Prepreg Compression Molding (PCM) | Body panels

CF FMC | Body panels & Structural components

Photo Courtesy Toyota

Award-Winning Innovation | CF FMC Roof

Mitsubishi Chemical Group's Carbon Fiber Forged Molding Compound (CF FMC) won the 2021 SPE ACCE Innovation Award for its roof application. CF FMC was selected for the combination of high corrosion and heat resistance, dimensional stability, and high impact strength. In the GR Yaris roof, the material lowers the center of gravity, an important attribute for sports grade vehicles. CF FMC is available in various resin and fiber types for optimal design applications, with strength and modulus properties comparable to aluminum alloys. Additionally, the material cost for Mitsubishi's material is lower than prepreg or RTM, also providing higher productivity.

Through our fully integrated carbon fiber supply chain, unique material proposal and quality management, Mitsubishi Chemical's CF-FMC is an ideal choice for lightweight primary & secondary structural applications, closure panels and even visual CFRP applications.

Front Lighting

Critical to passenger safety, vehicle front lighting demands innovative materials that can withstand severe weather exposure while maintaining pristine clarity and transparency for years. Mitsubishi Chemical Group leverages decades of material science in automotive applications and a passion for innovation to continually develop next-generation lighting materials to provide the ultimate safe driving experience.

Acryking™ Resin | Headlamp hardcoat

Acrypet™ PMMA | Fog lights

Xantar™ PC-ABS | Headlamp

Rear Lighting

Rear lighting presents unique challenges and material requirements than other portions of the vehicle. However, utilizing PMMA lens covers offers one of the most significant opportunities for truly circular materials. As one of the premier suppliers of PMMA globally, Mitsubishi Chemical Group is pioneering the chemical recycling of PMMA to deliver fully recycled materials with virgin quality.

Diakon™ PMMA | Lens covers

Other Lighting

With future demands of exterior lighting to communicate with pedestrians and other vehicles, developing materials for light diffusion, edge lighting, light guides, and selective light transmittance are challenging OEMs like never before. Mitsubishi Chemical Group's material engineers partner with customers to develop new materials for their most challenging lighting applications, delivering products that endure through time and the elements.

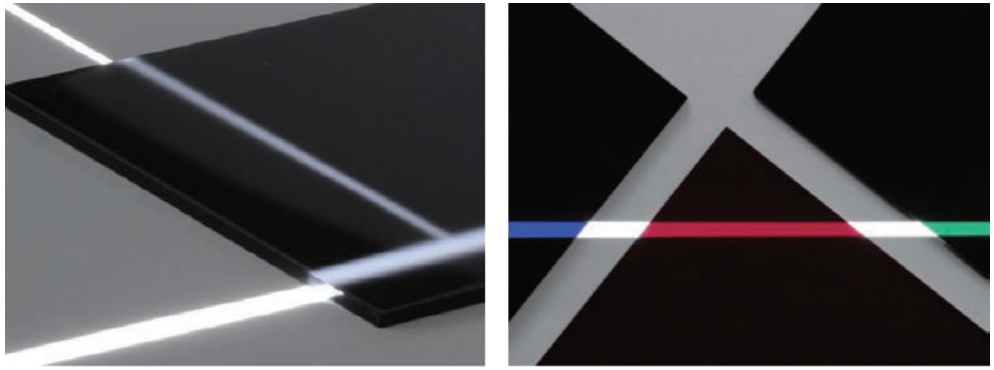
Acrypet™ PMMA | Light diffusion design effects

Diakon™ PMMA | Light guides, cover lens, bezels, reflectors

Iupilon™ PC | Cover lens, metalized bezels, light guides

Xantar™ PC-ABS | Non-metalized bezels

DURABIO™ | Bio-based selective light transmittance



DURABIO™ | Bio-based selective light transmittance

Openers & Closures

Moving components responsible for vehicle opening and closures must endure abuse from the elements and passengers alike. Durability is critical in performance to ensure functionality and driver safety. Utilizing innovative composites such as glass and carbon fiber, Mitsubishi Chemical Group can deliver high-performance, lightweight, and durable materials.

- Dynaflex™ Dynaflo™ TPO | Truck bed rails, tailgate outer skin
- FUNCSTER™ LGF-PP | Tailgate and door panels
- CF FMC | Tailgate and door panels
- KyronMAX™ | Brackets

Trim

Perfecting exterior aesthetics through compounding expertise and master batch color matching are core technologies that differentiate Mitsubishi Chemical Group in the automotive space. Our material experts partner with customers to customize trim materials with a focus on lightweighting and process elimination, to deliver high-performance, high-value, and sustainable solutions.

- DURABIO™ | Bio-based grill, spoiler, pillars, decorative parts
- Acrypet™ PMMA | Pillars, grill, rear garnish
- Novaduran™ PBT Resin | Wiper arm

Sensors

Vehicles are more connected than ever, sensing the surrounding environment to ensure passenger safety. From basic lens covers to millimeter wave RADAR emblems, RADAR/LiDAR absorbing materials, and integrated antennas, Mitsubishi Chemical Group is at the forefront of material technology development to deliver the future of the connected vehicle exterior.

Diabeam™ Hard Coat | LiDAR cover, millimeter wave RADAR emblem

Acryking™ Coating | Headlamp exterior

Acrypet™ Diakon™ PMMA | Lens covers

DURABIO™ | Bio-based RADAR covers

Novaduran™ PBT Resin | RADAR absorbing

Xantar™ LDS | Integrated antennas

Now In Development | Snow-repelling Hard Coat

The accumulation of snow and dirt on millimeter-wave emblems and LiDAR components may attenuate RADAR and cause safety concerns.

To increase driver safety, Mitsubishi Chemical Group is developing an inorganic coating material with specialty polymers and oligomers that repel snow and dirt, increasing millimeter-wave and LiDAR efficacy.

Seals

Automotive seals transform the driver experience, providing protection from noise and the elements. These materials must stand the test of time without physical changes or property degradation. Mitsubishi Chemical Group is a premier global partner, working with OEMs and Tiers to develop high-performance material solutions for critical seals applications.

TEFABLOC™ TPE | Thermoplastic seals

METABLEN™ Additive | Weatherstrip molding

DIANAL™ LP Acrylic Plastisol | Weatherstrip molding

SUNPRENE™ PVC | Weatherstrip molding

TREXPRENE™ TPV | Weatherstrip molding

Assembly | Masking | Transport

When considering vehicle assembly, transportation, and repair, ensuring the protection of wheels, body panel edges, and other delicate surfaces is critical. Mitsubishi Chemical Group has developed a multi-purpose protection and repair tape that is easily applied and removed without residue. This innovative technology is hand-tearable, eliminating the need for a knife or sharp tool. Additionally, it is easily repositionable, which reduces waste.

Nichigo™ G-Tape | Masking and Protection Tape