

# Mitsubishi Chemical Advanced Materials for the Railway Industry



Stock Shapes and Solutions for  
Original Equipment & Maintenance



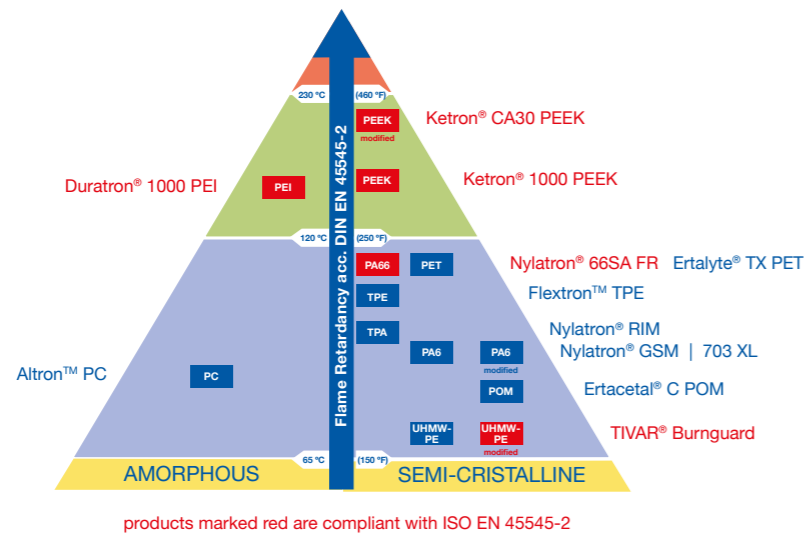
## Solutions for the Railway Industry

Mitsubishi Chemical Advanced Materials is the world's leading manufacturer of semi-finished products. Our materials range from UHMW polyethylene, nylon and acetal to ultra-high performance polymers that resist temperatures to over 425 °C.

We offer the largest portfolio of engineering plastics dedicated to the railway industry, to both rolling stock and infrastructure. Our core activity is the production of functional parts for moving, supporting and protecting applications including flame retardant products.

Users all over the world benefit from the special properties of the products of Mitsubishi Chemical Advanced Materials:

- Flame retardancy
- High impact strength and stiffness
- Low and high temperature resistance
- High corrosion resistance
- Excellent wear resistance
- Self-lubrication
- Very good sliding properties



### You are an OEM?

We offer a railway-specific portfolio of engineering plastics and special modified grades. Our flame retardant materials according to ISO EN 45545-2, our decades of experience, the modern production technologies and our products' compliance with technical and regulatory guidelines assist you in developing modern railway vehicles.

Chose the products of Mitsubishi Chemical Advanced Materials to achieve the right results:

- Weight reduction
- Noise reduction
- Cost reduction
- Impact protection
- Low temperature suitability
- Meet national and regional regulations
- Conformity with environmental requirements

## The Mitsubishi Chemical Advanced Materials Added Value

### Railway-specific Portfolio of Engineering Polymers

Acetron® POM	TIVAR® UHMW-PE
Duratron® PEI	Ertacetal® POM
Ertalon® PA	Ertalyte® PET
Fluorosint® PTFE	Ketron® PEEK
Nylatron® PA	Techtron® PPS
Altron™ PC	Monocast® MC PA
Flextron™ TPE	



### Processes • Technology • Design

- Compression molding
- Extrusion
- Custom casting
- Injection molding
- Thermoplastic Composites
- CNC Machining
- Research & development

### Knowledge of Market & Environment

- Flame retardancy
- Environmental regulation
- Technology standards
- Material certification
- Traceability

### You are Focusing on Reduction of Maintenance?

Your maintenance efforts will significantly benefit from choosing our plastic components for the job. The outstanding properties of our materials mean considerable advantages to you:

- Reduction of total cost of operation
- Longer maintenance cycles
- Extended lifetime in use
- Impact protection
- Reliability of materials and components
- Higher load bearing capability

The protection of components and electronic devices from ballast strikes, ice and any winter conditions as well as the outstanding wear and sliding properties of Mitsubishi Chemical Advanced Materials considerably

extend the components' lifetime in use. Downtime and costs are noticeably reduced.

The products of Mitsubishi Chemical Advanced Materials are tested and certified and simplify your own local testing and approval procedures. All manufacturing processes are fully documented and traceable.



## Components of Mitsubishi Chemical Advanced Materials



...in high-speed trains



...in underground railways



...in freight trains



...in tramways



...in mono-rails

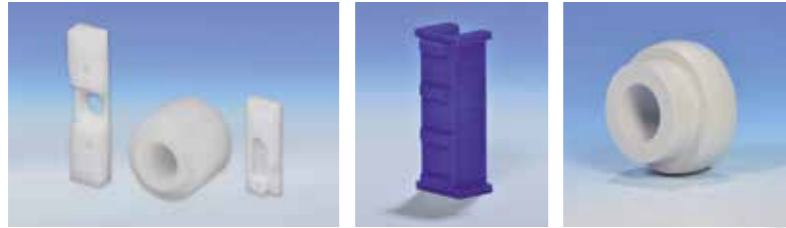


...in regional express trains



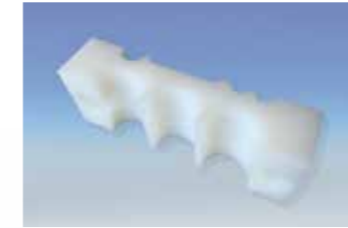
...in tank cars

# Solutions for the Railway Industry



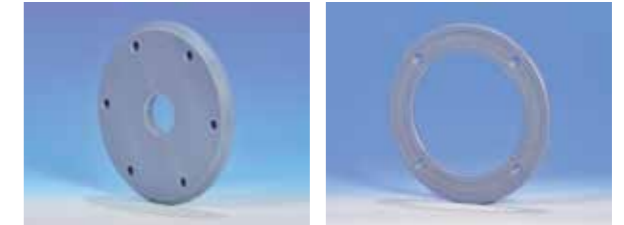
## Glide & Wear Solutions

Wear strips, gliding lists and rollers in seating and doors  
[TIVAR® 1000, Ertalon® 6SA, Ertalyte® TX]



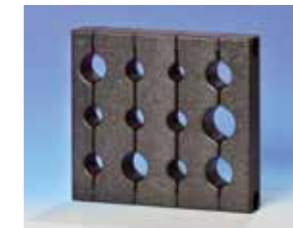
## Insulator Solutions

Electrical insulator [Ertalon®]



## Suspension Solutions

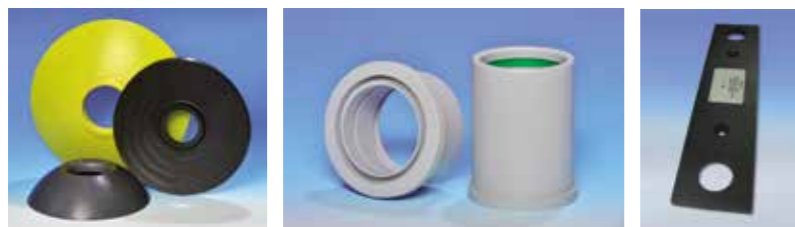
Sliding disk and ring for air suspension [TIVAR® DS]



## Flame Retardant Solutions

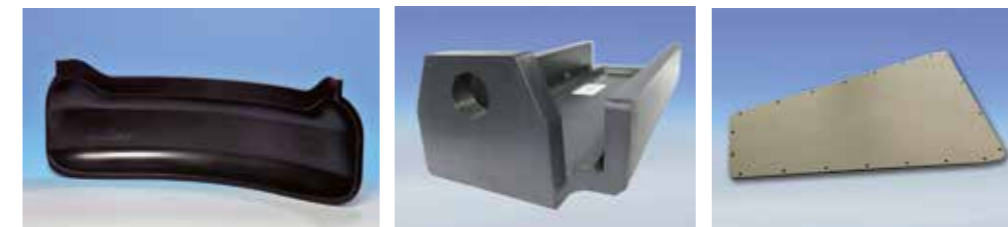
Cable guide [TIVAR® Burnguard]

## Bogie Wear Solutions



Center bowl liners [TIVAR®, Ertalyte®, Nylatron®]  
Bushing for anti-roll bar [Ertalyte® TX]  
Lateral liner [Nylatron® NSM]

## Protector Solutions



Protector for secondary air suspension chamber [Nylatron® RIM 3000]  
Underbody sensor protector [Ertalon® 6XAU]  
Sensor protector [Ketron® 1000 PEEK]

## Solutions for Bulk Material Handling

The Mitsubishi Chemical Advanced Materials offer includes special solutions for freight transport. To improve material flow and protect containers from corrosion we supply high quality lining materials for solid and liquid bulk materials – including a full-service package from consulting and planning to delivery of materials to the installation:

System TIVAR® Engineering for the railway industry.

Our preferred materials: **TIVAR® 88**

Please consult us for your individual solution.



## Mitsubishi Chemical Advanced Materials

### Europe

Mitsubishi Chemical Advanced  
Materials Europe NV  
Galgenveldstraat 12  
8700 Tielt, Belgium  
T +32[0] 51 42 35 11  
F +32[0] 51 42 33 10  
contact@mcam.com

### North America

Mitsubishi Chemical Advanced  
Materials Inc.  
2120 Fairmont Avenue  
PO Box 14235 - Reading, PA 19612-4235  
T 800 366 0300 | +1 610 320 6600  
F 800 366 0301 | +1 610 320 6638  
contact@mcam.com

### Asia-Pacific

Mitsubishi Chemical Advanced  
Materials Asia Pacific Ltd.  
Unit 7B, 35/F, Cable TV Tower,  
9 Hoi Shing Road, Tsuen Wan, Hong Kong  
T +852 2470 26 83  
F +852 2478 99 66  
contact@mcam.com

Belgium | Brazil | China | France | Germany | Hong Kong | Hungary | India | Italy | Japan | Korea | Mexico | Poland |  
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