



**High Performance Polyamides –
Our Specialty**

EMS
EMS-GRIVORY

Our products

EMS-GRIVORY – the leading specialist for high-performance polymers

Polyamides are among the most versatile and well-performing polymers. EMS-GRIVORY is the manufacturer with the broadest range of polyamides worldwide. These high-performance resins for use in injection-molding and extrusion processes are sold worldwide under the trade names Grivory®, Grilamid® and Grilon®. Polyamides from EMS-GRIVORY are used in applications in the following market segments: automotive, industrial and consumer goods, electro and electronics, telecommunication, optics, healthcare and packaging.

We always provide a solution

The strengths of EMS-GRIVORY lie not only in the development and manufacture of these high-performance polymers but also in the creation of innovative system solutions together with customers anywhere in the world. Cost and

weight savings through metal replacement are the focal point, but EMS-GRIVORY also offers unique solutions for high-quality surfaces, designs and colors.

In this way, EMS-GRIVORY provides intensive customer support throughout the whole development process and even during running serial production. The service performance is tailor-made to suit individual customer requirements in each market segment. Starting with the first feasibility studies and economic analyzes, experienced development engineers accompany customers through prototype manufacturing and specific component testing as well as in mold optimization and process technology.

Where necessary, products are adapted to meet special requirements. This means that customers are provided with a complete solution and can differentiate themselves in their markets with cost savings, weight reduction or new designs.

Development partner for innovative solutions

Weight and cost-savings through metal replacement in automotive construction

In the automotive industry, EMS-GRIVORY has contributed significantly for more than 40 years to the development of modern vehicle components of the highest quality. Our products always fulfill the increasingly demanding requirements. They enable customers to achieve reductions in component weight and improved energy efficiency while satisfying high standards of comfort and safety.



Further factors are their economic processing and recyclability. Our materials are in particularly high demand for the replacement of metal components in power train. For this purpose, we have developed high-performance polyamides with especially high heat resistance for use in applications, such as air ducts and coolers for turbo-charged engines, heat exchangers and throttle bodies. Polymers from EMS-GRIVORY are also found in electrical and electronic automotive systems, which must ensure trouble-free operation under extreme climatic conditions. In addition, our polyamides are used in chassis and power train components where resistance to motor oils and hydraulic fluids is required.

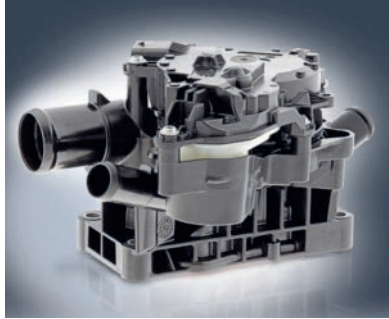


Grilamid®
EMS

GRIVORY®
EMS

GRILON®
EMS





Examples of these applications are clutch, brake or steering systems. In automotive interiors, polyamides from EMS-GRIVORY replace conventional die-cast alloys as materials for functional parts such as arm rests, covers or dashboard brackets. External metal-replacement applications include door handles, wing mirrors or windshield wiper units. In addition, our polyamide materials, which are resistant to chemicals, corrosion and weathering, allow efficient manufacturing of media supply systems such as fuel or cooling water lines. EMS-GRIVORY has a broad product portfolio for electric vehicles with flame retardant properties and coolant resistance, e.g. for power electronics, thermal management or intelligent lightweight designs.

Metal and glass replacement in high-quality applications for industrial and consumer goods

In the construction and machine industry, our products meet the high demands for longevity and safety in a wide range of applications. As a result of the progressing digitalization towards industry 4.0, there are additional application possibilities, especially in the areas of production automation and intralogistics. In the sanitary market, polyamides from EMS-GRIVORY with excellent long-term resistance and international approvals for use in contact with drinking water are used for water meters, water filter housings, filter bowls and pressure reduction valves. In this way, significant cost advantages can be achieved compared to the use of brass. In coffee machine applications, special products are used, which



all have necessary approvals for use in direct contact with hot water and food.

Highest levels of precision and reliability in electrical and electronic applications

As stiff, and yet impact-resistant, housings for thin-walled components in mobile phones, smart-watches and tablets, polyamides from EMS-GRIVORY protect the internal electronic components while satisfying the highest requirements in strength and design. Typical applications are structural frames, housings and display windows.

In miniaturized electronic components, such as LEDs or connectors, our materials ensure highest precision in combination with heat resistance at temperatures required for soldering processes. Increasing complexity and more stringent safety requirements also place high demands on mechanical and thermal requirements. Our high-temperature resistant materials, with outstanding strength values and flame retardant modification, help provide new and innovative solutions.

High-performance polyamides in healthcare

Polyamides from EMS-GRIVORY are used in a wide range of healthcare applications including sophisticated laboratory apparatus, instruments, containers, medical infrastructure, protective equipment and mobility aids. Our specialty polymers show excellent resistance to various sterilization processes as well as aggressive disinfectants and cleaning agents. The product



portfolio meets the high performance requirements of the medical industry with both transparent and reinforced polymers as an alternative to metal.

Global market leader in eyewear

Polyamides from EMS enable the perfect combination of functionality and unlimited individual possibilities in design, color and UV protection for sun and sports glasses. Our polyamides are also used to make ultra-lightweight and practically unbreakable frames for corrective glasses. For safety glasses, our products provide the highest levels of safety through impact strength and break resistance.

Thanks to outstanding resistance to chemicals and stress-cracking, as well as excellent optical and mechanical properties, EMS-GRIVORY is the world market leader for transparent polyamides with Grilamid TR in the optics market.

Optimally packaged with polyamides from EMS-GRIVORY

Packaging and containers made from our polyamides provide excellent barrier properties against oxygen, carbon dioxide and flavors so that food and beverages as well as cosmetics and medicines remain fresh for longer. Our products fulfill the high regulatory requirements and have the corresponding international approvals.



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About us

EMS-GRIVORY is part of the High Performance Polymer business area of the EMS Group and employs more than 1000 people worldwide. The largest development center and production site is located in Domat/Ems, Switzerland, with further production sites in Germany, China, Taiwan and the USA. We also have development and sales organizations in all major markets in Europe, Asia and America, enabling us to react quickly to customer inquiries.

We are active worldwide, prompt and customer-oriented

Specific market requirements are satisfied by the independent but closely cooperating business units EMS-GRIVORY Europe, EMS-GRIVORY Asia and EMS-GRIVORY America. Customers worldwide benefit from the locally competent and close global cooperation of these business units in Marketing & Sales, Research & Development, Application Development and Production.



HIGH PERFORMANCE POLYMERS
SPECIALTY CHEMICALS