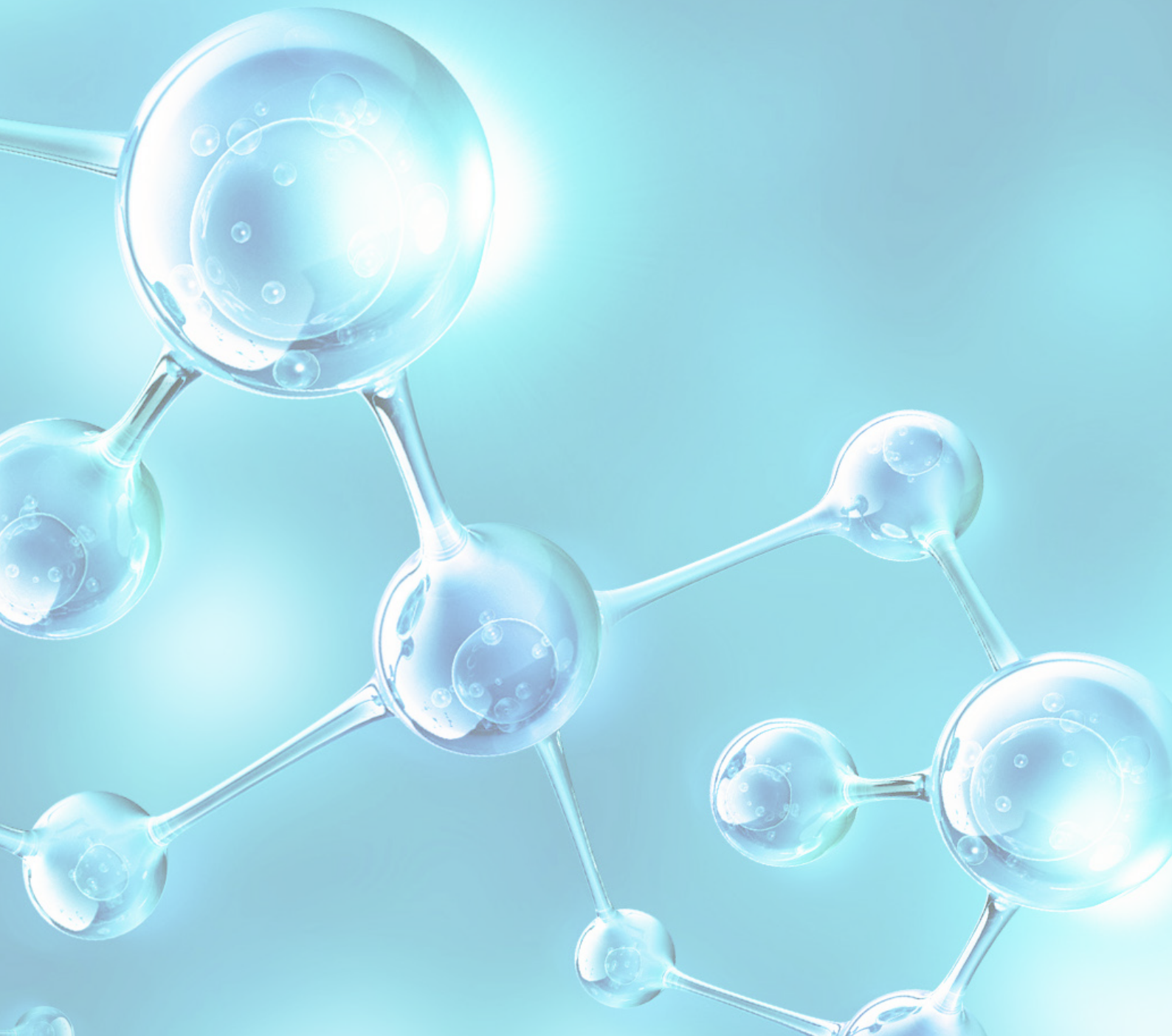




# Compounds BMC/SMC





# POLYNT REICHHOLD GROUP

## Compounds product overview



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### Production Sites



**Polynt Composites Germany GmbH**  
**Polynt Composites Poland Sp. z o.o.**  
**Polynt SpA (Italy)**



**Polynt Composites Korea Co., Ltd.**



## Polynt Group

After the merger with Reichhold on May 2017 the new Polynt Group is a global Company in the Intermediates, Coating and Composite Resins, Thermoset Compounds, Gel-coats and niche Specialties.

This combination enhances the Group's leading position as a global vertically integrated specialty chemicals player, with significant global presence in Europe, North America and Asia, a strategy initiated by Polynt with the successful integration of PCCR and CCP in the last years and now further reinforced by Reichhold's global scale, extensive product portfolio and R&D competencies.

Polynt Group is known for its superior quality and impressive range of products and with its excellent distribution network it can provide first-class service to customers whatever their market. Customer Service and Technical Service teams are renowned for their customer focus, offering the best service even after products have left manufacturing.

The Group strives to keep customers satisfied, assisting them in producing premium quality products every time they use its products. Product innovation is important for the Group's business and it's the reason for which it constantly works with customers to find solutions to problems. Introducing new or improved products ensures that Polynt Group continue not only to deliver what the market wants and needs, but also when it is wanted and needed.

## Polynt SMC and BMC

Compound materials known as SMC (Sheet Molding Compounds) and BMC (Bulk Molding Compounds) are produced using thermosetting polymeric matrices, the most commons are: Unsaturated Polyester, Vinylester and Epoxy resins. Thermosetting resins form the matrix and the chemical backbone of SMC/BMC imparting the required properties.

SMC and BMC are mostly reinforced with variable-length glass or carbon fibers: the choice between them depends on the required material properties.

BMC looks like a homogeneous mass reinforced with glass or carbon fibers (lengths range from 3mm to 24mm) and it is packaged in 10-15 kg bags, impermeable to styrene diffusion, according to the customers' requirements.

SMC looks like a continuous sheet reinforced with glass or carbon fibers (lengths range from 12mm to 50mm). It is produced as sheets with normally dimensions 4mm thick and 1500 mm wide packaged in rolls or in boxes as per the customers' specifications.

SMC and BMC can be processed with different hot-melting technologies such as compression, injection and transfer. During the moulding phase, thanks to the combined effect of heat and pressure, the material undergoes the crosslinking reaction and consolidating takes on the shape dictated by the mold geometry.





## Why SMC and BMC?

Among the main properties of SMC and BMC have certainly to be counted:

- Good mouldability, offering exceptional flexibility to the designer
- Weight reduction
- High dimensional stability
- Excellent electrical properties
- Good mechanical properties
- Fire retardancy (self-extinguishing)
- High surface quality with finishing "Top Class A"
- Low emissions
- Thermal resistance
- Chemical and corrosion resistance

In the field of metal replacement, a winning factor, especially for SMC reinforced with long glass or carbon fibers, is the high mechanical properties, both in terms of stiffness and impact resistance, which in relation to the density of the material makes them unique especially with the goal of reducing article weight.

When choosing the use of SMC and BMC have to be considered the cheapness of production and the extremely flexible design of the articles, thanks to the fact that substantially the control of the formulation (matrix, reinforcement, charge) during the production phase allows to design the material to optimize its performance according to the specific application.

## SMC and BMC sustainability and recycling

Nowadays the choice of the production material of an article (component for automotive, transport, electrical, building, etc.) is increasingly based on the assessment of the impact that the product has on the environment. In order to evaluate it it is important to look at all effects during all the different life-phases of the product.

The LCA (Life Cycle Assessment) is an internationally standardized methodology that helps to evaluate the environmental pressures and benefits given by products and the possible improvements, considering the product full life-cycle. LCA shows that SMC and BMC have in many specific applications a lower environmental impact than other materials such as metals, thermoplastics polymers and concrete. Thanks to a limited impact in production, a lower weight and a longer lifetime the total life-cycle impact is lower than other materials' one.

Composites are also valuable sources for new material, in compliance with the Waste Framework Directive (2008/98/EC) and End-of-Life Vehicle Directive (2000/53/EC): by grinding and re-using them like fillers in new SMC and BMC formulation it is possible to maintain characteristics up to 15% of recycled material.

SMC and BMC waste and end-life materials have are high-value fuel for cement ovens:

- resins have caloric value, useful for firing the cement oven
- glass fiber melt and contribute, as SiO<sub>2</sub>, to the final quality of the cement
- the fillers used in SMC and BMC are valuable additive in the cement

The cement kiln route is not used to generate energy from burning composite waste, but the main part of the material is turned into cement or as useful part of the cement composition.

For more info please see the European Composite Industry Association (EuCIA) position paper.

## Automotive, Trucks and Agricultural vehicles

Polynt Group SMC and BMC offers many advantages such as design freedom and parts integration, weight saving with excellent strength/stiffness, Class A surface, corrosion resistance, mass coloured, sound dampening, heat resistance, compatibility with steel and aluminum (comparable CLTE).

**Main car applications:** Body panels, Fenders, Hoods, Tailgates, Decklids, Engine under covers, Headlamp reflectors, Front-ends, Spare wheel wells, Spoilers, Roofs and Roof inner compartments, Filter housing; Oils sumps, Valve cover, Battery support.

**Main commercial and agricultural vehicles applications:** Fenders, Roofs, Engine cover, Steps, Interior cabs, Doors, Air foils, Spoiler.

APPLICATIONS	PRODUCT FAMILY NAME
Automotive, Trucks and Agricultural	BMC: 200, 240
	SMC: 3000, 2500, 2000, 6500 SD, 6700 LW, S 8000, HUP 10, HUP 14, HUP LE 14, CLASS A PREMIUM, HUP 14 LW LE, HUP LW 12, HUP 12, SMC SF 12, HUP 24, Epopreg 80.

For further information please contact us



## Mass transport vehicles (trains, subways)

This is another application sector in which SMC and BMC can bring benefits thanks to the excellent electrical insulating properties, flame retardancy halogen-free, compatibility with metals, weight saving, resistance to corrosion and abrasion, permeability of electronic waves.

Special grades of Polynt SMC and BMC have been developed to meet all the European and international standards in terms of flame retardancy, smoke and toxicity.

**Main mass transport applications:** Seats for trains, light railways, buses; Electrical insulator; Interior fittings; Windows frame; Panels; Spark guards; Cable trays for inside tunnels.

APPLICATIONS	PRODUCT FAMILY NAME
Mass transport vehicles	BMC: 600-20, 600-18, RF 9/20, RF 9/35, S 1850.
	SMC: 4800, 7850, 7880, HUP 29, HUP 45, HUP 45 LW, HUP 47, HUP 49.

For further information please contact us



## Aircraft

The aviation industry is one of the branches with the highest growth during the last years. Lightweight design and the use of lightweight materials are important key aspects for meeting the rising need for fuel-efficient civil aircraft in the future.

Polynt Group has invested many efforts in research and development for new class of thermoset reinforced materials to answer to the increasing aircraft market requests. In particular has been launched a new range of SMC for aircraft industries that fulfils the FAR Part 25 requirements (Federal Aviation Regulations Airworthiness Standards Transport Category Airplanes).



**Main Aircraft application:** Door frame lining; Brackets; Clips; Literature pocket; Pull-out table; Trolley box, Cover light pan; Oxygen mask container.

APPLICATIONS	PRODUCT FAMILY NAME
SMC HUP 27	Fire containment requirements for cargo areas. According FAR 25 App. F, Part I + V and the AITM 3.005
SMC HUP 63	Fire containment requirements for cabin and interiors. According FAR 25 App. F, Part I + V and the AITM 3.005.

For further information please contact us

## Electrical and Electronic

Polynt Group's SMC and BMC provides excellent electrical insulating properties, flame retardancy, low smoke and low toxicity in compliance with highest reference standards. Thanks to these properties combined with high strength, corrosion resistance, excellent flow and dimensional accuracy over a wide range of temperature, SMC and BMC are the ideal choice, offering economical high performance solutions for electrical and electronic applications. The material resistance to weathering and moisture is a major benefit for outdoor applications avoiding painting and surface treatment.

**Main Electrical and Electronic applications:**

BMC is more suitable for smaller, more intricate high precision part as Fuse carrier; Circuit breakers; Transformer; Plugs and Sockets. SMC is ideal for Electrical Cabinets for indoor and outdoor applications; Lamp housing, requiring higher mechanical properties.



APPLICATIONS	PRODUCT FAMILY NAME
Electrical and Electronic	BMC: RF 600, RF 9/25, RF 1600, 300, S 1850.
	SMC: 3000, 3400, 3300, 3600, 3800, HUP 16, HUP 17, HUP 19, HUP 21, HUP - GO.

For further information please contact us



## Building and Construction

Thanks to its variety of SMC and BMC products Polynt Group can support the growing market of building and construction where materials are chosen for their corrosion resistance, high strength, good electrical insulating properties, excellent weathering resistance and sound dampening freedom from maintenance. SMC and BMC are often cheaper than traditional materials, furthermore they can benefit from self-colouring and the ability to replicate natural materials (e.g. wood effect doors).

### Main Building and Construction application

Water tank panel, access covers, inspection chambers, modular balconies, drainage grids, wall cladding, ceiling panels, sanitary furniture, roof shingles.



APPLICATIONS	PRODUCT FAMILY NAME
Building and Construction	BMC: SUP 6000, 300.
	SMC: 3000, 4300, HUP 16/40, HUP 16, HUP 17, HUP 19, HUP 22, HUP 24, HUP 25.

For further information please contact us

## Domestic (House holding)

SMC and BMC are preferred for domestic appliances because they have less limitation than competing materials, for example: metals are temperature resistant but have no insulating properties; thermoplastics are easily transformable, but their thermal behaviour is limited. The household applications of Polynt Group's SMC and BMC are manifold: chemical and scratch resistant kitchen sinks, chair structures, thermal resistant pan and oven handles. Trays in SMC that are used in motorway restaurants, canteens and even hospitals, can be emphasized as they have to withstand the severe conditions in industrial dishwashing machines. Polynt SMC and BMC meet the requirements of European Regulation (EU) No. 10/2011 on plastic materials and articles intended to come in contact with food.

### Main House holding applications

Kitchen sinks, oven handles, trays, heat shields of irons, toaster, waffle maker, sanitary as bath tubs, shower trays.



APPLICATIONS	PRODUCT FAMILY NAME
Domestic (House holding)	BMC: 400, 300, 270, 750
	SMC: 4200, 4500, 4400, HUP 16, HUP 17, HUP 16, SMC FC 19, HUP 19 Deco, HUP LW 19 Deco

For further information please contact us **7**

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