



## Recommendations

MagPro<sup>®</sup> for SMC/BMC composites

# Description and application

The product under the trademarks MagPro® 150 and MagPro® 170 is high surface area magnesium oxide obtained by indirect calcination of milled natural magnesium hydroxide.

SMC (Sheet Molding Compound) and BMC (Bulk Molding Compound) are fiber-reinforced thermosetting semifinished products. They are produced in thin uncured and thickened sheets between 1 and 3 mm thick (SMC) or in the form of a loose formless mass (BMC) that can be handled easily.

Before molding, SMC are subjected to several handling operations such as charge cutting, folding, and placement in the mold. Such manipulations would not be possible without a significant thickening of the SMC pastes, even filled.



Similarly, during compression molding, it would not be possible to induce the fibrous reinforcement flow within the mold without a high viscosity of the SMC paste.

For these reasons, but also to prevent the phase separation within the resin itself after its processing, it is necessary to thicken the SMC paste, such a procedure being fundamental in the SMC process. For this purpose, a thickening agent is added into the paste during its processing.



# How does MagPro<sup>®</sup> work?

The most used in SMC formulations are Group IIA metal oxides and hydroxides, such as oxide magnesium and hydroxide magnesium.

These agents are incorporated (in the form of a dry powder or already dispersed in the resin for better homogenization) in the SMC paste with a nominal concentration ranging between 0,5% and 3% based on the resin and low profile additive.

The higher the value, the higher the thickening effect. Hence, SMC/BMC composition needs less time to achieve the required viscosity after mixing the ingredients, which means a shorter production cycle.

# Application

Typical SMC/BMC composite formulations are presented below.

*Table 1. General application sheet molding compound formulation*

Ingredient	wt%
Polyester resin + reactive monomer	25.00
Initiators	0.25
Inhibitors	0.05
Low profile additives (Polyvinyl Acetate solution)	4.00
Mineral filler (Calcium carbonate, dolomite, ATH)	40.00
Thickening agent MagPro® 150 or MagPro® 170	1.00
Mold release (zinc stearate)	0.70
Glass fibers	29.00
<b>Total</b>	<b>100.0</b>

# Application

Table 2. Flexible sheet molding compound formulation

Ingredient	wt%
Unsaturated polyester	20.7
Mineral filler (Calcium carbonate, dolomite, talcum)	34.9
Catalyst (TBPB)	0.1
Mold release agent (Zn stearate)	0.3
Dual-function additive (mix of isocyanates with polyols)	3.3
Phase stabilizing agent	0.7
Linear oligomer (acrylic-type)	1.0
Thickening agent MagPro® 170	1.0
Flexibility modifying agent	16.0
Glass fibers	22.0
<b>Total</b>	<b>100.0</b>

# **MagPro<sup>®</sup> advantages for manufacturing of SMC/BMC composites**

- Effective thickening agent for manufacturing of glass reinforced SMC/BMC composites.
- Does not contain critical impurities — sulfates and chlorides.
- Precise and stable particle size distribution.
- The best price/surface area ratio in the market.
- Safe in transportation, storage, production.
- Stable quality.

By choosing MagPro® products you ensure best technical support for application of product and receive a possibility to develop a custom solution with individual properties.

**Please contact us via request form.**



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