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Fibre-reinforced plastics — Sheet moulding compound (SMC) — Requirements and specifications

Plastiques renforcés de fibres — Préimprégnés en feuille SMC — Exigences et spécifications

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

This third edition cancels and replaces the second edition (ISO 8605:2001), which has been technically revised.

The main changes are as follows:

— the title has been modified from "Textile-glass-reinforced plastics — Sheet moulding compound (SMC) — Basis for a specification" to " Fibre-reinforced plastics — Sheet moulding compound (SMC) — Requirements and specifications";

— fibre type and shrinkage code have been added;

— the designation of SMC has been added;

— test properties have been added;

— sampling position has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Fibre-reinforced plastics — Sheet moulding compound (SMC) — Requirements and specifications

1 Scope

This document establishes requirements and specifications for sheet moulding compound (SMC) used in the production of composite parts by hot moulding.

It is suitable for sheet moulding compound with glass fibres (GF) and carbon fibres (CF) as the sole or main reinforcement. Other fibre (e.g. natural fibre) reinforced sheet moulding compounds can also be used with this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 62:2008, *Plastics — Determination of water absorption*

ISO 75-2:2013, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test*

ISO 179-2, *Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test*

ISO 180, *Plastics — Determination of Izod impact strength*

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 472, *Plastics — Vocabulary*

ISO 527-4:2023, *Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*

ISO 1172, *Textile-glass-reinforced plastics — Prepregs, moulding compounds and laminates — Determination of the textile-glass and mineral-filler content using calcination methods*

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method*

ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pyknometer method*

ISO 1268 (all parts), *Fibre-reinforced plastics — Methods of producing test plates*

ISO 2577, *Plastics — Thermosetting moulding materials — Determination of shrinkage*

ISO 4589-2, *Plastics — Determination of burning behaviour by oxygen index — Part 2: Ambient-temperature test*

ISO 9782, *Plastics — Reinforced moulding compounds and prepregs — Determination of apparent volatile-matter content*

ISO 10352, *Fibre-reinforced plastics — Moulding compounds and prepregs — Determination of mass per unit area and fibre mass per unit area*

ISO 11359-2, *Plastics — Thermomechanical analysis (TMA) — Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature*

ISO 11667, *Fibre-reinforced plastics — Moulding compounds and prepregs — Determination of resin, reinforced-fibre and mineral-filler content — Dissolution methods*

ISO 12114, *Fibre-reinforced plastics — Thermosetting moulding compounds and prepregs — Determination of cure characteristics*

ISO 12115, *Fibre-reinforced plastics — Thermosetting moulding compounds and prepregs — Determination of flowability, maturation and shelf life*

ISO 14125, *Fibre-reinforced plastic composites — Determination of flexural properties*

ISO 14126, *Fibre-reinforced plastic composites — Determination of compressive properties in the in-plane direction*

ISO 14127, *Carbon-fibre-reinforced composites — Determination of the resin, fibre and void contents*

ISO 14130, *Fibre-reinforced plastic composites — Determination of apparent interlaminar shear strength by short-beam method*

ISO 17771, *Plastics — Thermoset moulding compounds — Determination of the degree of fibre wetting in SMC*

ISO 22821, *Carbon-fibre-reinforced composites — Determination of fibre weight content by thermogravimetry (TG)*

ISO 22836, *Fibre-reinforced composites — Method for accelerated moisture absorption and supersaturated conditioning by moisture using sealed pressure vessel*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60243 (all parts), *Electric strength of insulating materials — Test methods*

IEC 60695-2-12, *Fire hazard testing — Part 2-12: Glowing/hot-wire based test methods — Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-11-10, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods*

IEC 61621, *Dry, solid insulating materials — Resistance test to high-voltage, low-current arc discharges*

IEC 62631-2-1, *Dielectric and resistive properties of solid insulating materials — Part 2-1: Relative permittivity and dissipation factor — Technical Frequencies (0,1 Hz - 10 MHz) — AC Methods*

IEC 62631-3-1, *Dielectric and resistive properties of solid insulating materials — Part 3-1: Determination of resistive properties (DC methods) — Volume resistance and volume resistivity — General method*

IEC 62631-3-2, *Dielectric and resistive properties of solid insulating materials — Part 3-2: Determination of resistive properties (DC methods) — Surface resistance and surface resistivity*

EN 1842, *Plastics — Thermoset moulding compounds (SMC - BMC) — Determination of compression moulding shrinkage*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and the following apply.