



SLOVENSKI STANDARD

SIST EN 12575:1999

01-maj-1999

Polimerni materiali – Duromerni materiali za oblikovanje – Določevanje stopnje omočenja v SMC

Plastics - Thermoset moulding compounds - Determination of the degree of fibre wet out in SMC

Kunststoffe - Härtbare Formmassen - Bestimmung des Faserbenetzungsgrades in SMC

Plastiques - Compositions de moulage à base de thermocissables - Détermination du taux de mouillage des fibres dans les SMC

[SIST EN 12575:1999](https://standards.iteh.ai/catalog/standards/sist/60e862a8-704f-4b0c-9184-8d4a4c761f20/sist-en-12575-1999)

Ta slovenski standard je istoveten z: **EN 12575:1998**

ICS:

83.080.10 Duromeri Thermosetting materials

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EUROPEAN STANDARD
 NORME EUROPÉENNE
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EN 12575

May 1998

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Descriptors: plastics, reinforced plastics, plastic moulding, reinforcing materials, thermosetting resins, composition: property, tests, determination, rates: per unit time, wetting

English version

Plastics - Thermoset moulding compounds - Determination of
 the degree of fibre wet out in SMC

Plastiques - Compositions de moulage à base de
 thermodurcissables - Détermination du taux de mouillage
 des fibres dans les SMC

Kunststoffe - Härtbare Formmassen - Bestimmung des
 Faserbenetzungsgrades in SMC

This European Standard was approved by CEN on 1 May 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
 COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1998, and conflicting national standards shall be withdrawn at the latest by November 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

This test method provides a common basis for reinforcement manufacturers, compounders and moulders to compare data and follow the consistency of wet out. As wet out often improves during the first 24 h, samples of the same age are used for comparison purposes.

In a production situation the process and formulation are assumed to be constant and are sufficient to produce a visual standard level of wet out. Any drifts in paste viscosity, reinforcement fibre content, mass per unit area, compaction structure etc. which adversely affect wet out can be identified.

In a development situation the compounding process conditions need to define an acceptable wet out of the control.

Formulation or reinforcement specimens can be screened along with the control under identical process conditions.

The test is carried out after compounding allowing the products under test to be judged superior or inferior to the control.

1 Scope

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This European Standard specifies a test method to determine the degree of wet out of the reinforcement in a sheet moulding compound (SMC).

It is applicable for quality control by the user of the SMC as well as for the process control during the SMC production.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 472	Plastics - Vocabulary
ISO 8604	Plastics - Prepregs - Definitions of terms and symbols for designations

3 Definitions

For the purposes of this Standard, the terms and definitions of ISO 472 and 8604 and the following definitions apply :

3.1 fibre bundle

Discrete collection of many parallel fibre filaments, chopped or unchopped.

3.2 wet out

State in which all the reinforcing bundles in the SMC sheet, not necessarily each individual filament, are wet by the paste.

4 Sampling

From each item to be controlled (one roll or a sheet of SMC), obtain a laboratory sample consisting of a strip of 40 cm minimum accross the entire width of the SMC sheet.

5 Apparatus

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- a ruler (solvent resistant) ;
 - a sampling table (approximately 100 cm x 180 cm) ;
 - a solvent resistant opaque plate with an 10 cm x 10 cm inspection window (reading field) in its centre ;
 - solvent resistant gloves ;
 - a magnifying glass (magnification 10 x) ;
 - disposable spatula (such as tongue depressors).

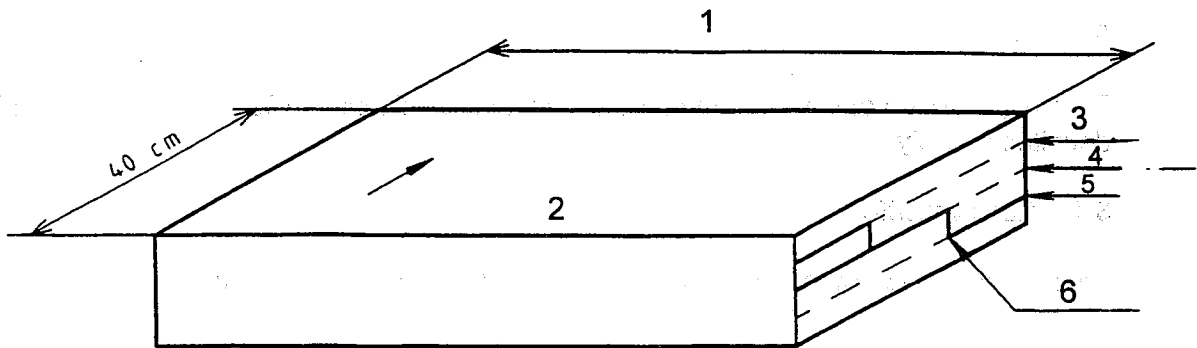
6 Procedure

6.1 Carry out the test immediately after compounding.

This procedure can be used as a quality control test at any specified time after manufacture.

6.2 Remove the top carrier film from the sample. Use the spatula to split the SMC at different levels of the sheet.

This results in a cross section of the SMC sheet in which one can observe the fibres on the top, middle and bottom of the SMC at the same time (see figure 1).



- 1) Width
- 2) Machine direction
- 3) Top
- 4) Middle
- 5) Bottom

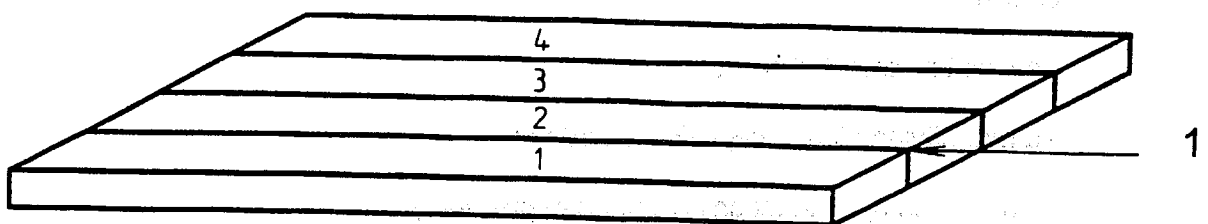
Figure 1

If the degree of wet out is 100 %, the use of the inspection window is unnecessary.

6.3 If there are dry spots, take a new sample and split it across the entire width along the level containing the most dry areas as previously observed (6.2).

Divide the sample into four identical strips of 10 cm length perpendicular to the machine direction and choose the strip which contains the largest dry spots (see figure 2).

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- 1) Chosen strip

Figure 2

6.4 Inspect the wet out conditions by moving the inspection window in 10 cm step from left to right.

In each 10 cm square (reading field), use the ruler to measure the dimensions of the dry spots to determine the surface area in square centimetres and record the readings. Summarize these readings to achieve the dry spot area of each reading field (Z_1).

NOTE 1 : The use of a magnifying glass when necessary, especially in the case of light colours, high filler content and low solubility sizing of the reinforcing fibres is recommended.

NOTE 2 : Pushing down on the SMC with any object (hands, spatula, knife, elbow etc.) will generally move the paste off the fibres and cause a defect.

NOTE 3 : Should any particular area parallel to the machine direction repeatedly exhibit a defect, the determination of the special cause of this defect allows its correction (i.e. wrinkles in film or partial blockage of the doctor blade).

7 Expression of results

Degree of fibre wet out is obtained by the equation :

$$D_w = 100 - \frac{\sum_{i=1}^n Z_i}{n \times A} \times 100$$

where :

- D_w is the degree of fibre wet out in percent ;
- n is the number of reading fields ;
- Z_i is the total dry spot area of an individual reading field in square centimetres ;
- A is the surface of the reading field (inspection window) in square centimetres.

8 Test report

The test report shall include the following details :

- 8.1 Reference to this European standard.
- 8.2 Formulation/designation of the SMC.
- 8.3 Date of production, batch number.
- 8.4 Number of reading fields of the inspected line (specimen).
- 8.5 Degree of fibre wet out (D_w).