



SLOVENSKI STANDARD
SIST EN 15334:2007

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Sanitarne naprave - Metakrilne disperzije z visoko vsebnostjo polnila

Sanitary appliances - Methacrylic dispersions of high filler content

Sanitärausstattungsgegenstände - Hochgefüllte Methacryl Dispersionen

Appareils sanitaires - Dispersions méthacryliques a taux de charge élevée

Ta slovenski standard je istoveten z: EN 15334:2007

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ICS:

91.140.70 Sanitarne naprave Sanitary installations

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ICS 91.140.70

English Version

Sanitary appliances - Methacrylic dispersions of high filler content

Appareils sanitaires - Dispersions méthacryliques à taux de charge élevée

Sanitärausstattungsgegenstände - Hochgefüllte Methacryl Dispersionen

This European Standard was approved by CEN on 13 January 2007.

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 CEN Management Centre or to any CEN member.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15334:2007) has been prepared by Technical Committee CEN/TC 163 “Sanitary appliances”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

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

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1 Scope

This European Standard specifies test methods for measuring characteristics of pure methacrylic dispersions and sanitary appliances produced from dispersions by polymerisation.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 59, *Glass reinforced plastics - Measurement of hardness by means of a Barcol impressor*

EN 20105-A02, *Textiles - Tests for colour fastness - Part A02: Grey scale for assessing change in colour (ISO 105-A02:1993)*

EN ISO 62:1999, *Plastics - Determination of water absorption (ISO 62: 1999)*

EN ISO 178, *Plastics - Determination of flexural properties (ISO 178: 2001)*

EN ISO 179-1, *Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1: 2000)*

EN ISO 306:2004, *Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) (ISO 306: 2004)*

EN ISO 3451-1, *Plastics - Determination of ash - Part 1: General methods (ISO 3451-1: 1997)*

EN ISO 4892-2, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2: 2006)*

ISO 4586-2, *High-pressure decorative laminates - Sheets made from thermosetting resins - Part 2: Determination of properties*

ISO 9352, *Plastics - Determination of resistance to wear by abrasive wheels*

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

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 high filler content

filler percentage of inorganic materials greater than 50 % w/w

3.2 liquid methacrylic resin

solution of PMMA polymers and copolymers dissolved in MMA.

NOTE Other chemicals may be added to this resin (e.g. thixotropes, colorants, mould release agents), to further develop resin properties

3.3**methacrylic dispersion**

dispersion produced by mixing inorganic filler(s) with liquid pure methacrylic resin

3.4**methacrylic dispersion types**

existing methacrylic dispersions used as materials for sanitary appliances

NOTE Methacrylic dispersion types are given in Table 1.

Table 1 - Methacrylic dispersion types

Filler type	% of filler	Application (examples)	Comments
ATH (Aluminium tri-hydrate)	Around 60	Vanity basins Shower trays Work top surfaces	Soft repairable surface
Silica	Around 60	Kitchen sinks Baths Shower trays	
Quartz	Around 70	Kitchen sinks, wash basins, shower trays, work top surfaces	The functional surface has an higher content of filler than the bulk

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Material is purchased either as a resin mixed with filler or as a resin with the filler added by the sanitary appliance manufacturer

4 Characteristics of dispersion

The methacrylic dispersion manufacturer shall provide the following information:

- resin type (methacrylate esters);
- sedimenting /non sedimenting;
- filler type;
- polymerisation process (UV, redox, thermal, other).

5 Test methods**5.1 Tests on dispersion****5.1.1 Ash content****5.1.1.1 General**

See EN ISO 3451-1.

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Materials with filler made from aluminium trihydrate are exempt from this test.

5.1.1.2 Apparatus

Source of heat ensuring the combustion of organic materials.

Means of ensuring homogeneity of the dispersion to be tested (this is most important for dispersions with high levels of sedimentation).

Spatula for the sample.

5.1.1.3 Sample

2 g to 15 g of dispersion according to the dimensions of particles.

5.1.1.4 Procedure

Ensure the sample is representative of the material to be tested. Stir or roll a larger sample of product for a minimum of 1 h to ensure redispersion of the product.

Check that the crucible is clean and dry (heat the crucible to red hot to remove any combustible material). Allow to cool.

Weigh the crucible (A).

Give the product a final stir and then rapidly scoop a spatula full of material into the crucible. Do not wait to drain the material from the spatula as consistency at this time is key to achieving reproducible results.

Place the crucible on a scale and reweigh (B).

If additional material is required, repeat the final step (final stir of the product). If too much material has been added, dispose of the contents and repeat from step (check crucible is clean and dry).

Heat the crucible to red hot and burn off the combustible material. Ensure that the material does not spit out of the crucible during heating. This process will take a minimum of 5 min.

Gently shake the crucible to make sure the remaining inorganic particles are free to move. If there are any agglomerates, repeat the procedure (heat the crucible to red hot).

Allow to cool.

Weigh the crucible (C).

Calculate the ash content (A_C), as percentage, as follows:

$$A_C = \frac{C - A}{B - A} \times 100 \quad (1)$$

5.1.2 Agglomeration

5.1.2.1 General

This test is for solid coloured material only and applies to materials with a particle size lower than 50 μm .

5.1.2.2 Apparatus

Steel filter, mesh size $(180 \pm 20) \mu\text{m}$.

5.1.2.3 Sample

100 g of dispersion.

5.1.2.4 Procedure

Dilute 100 g of the material under test with an equal volume of clean methyl methacrylate monomer. Pour this through the filter and rinse with more clean monomer.

Check as to if agglomerates are left on the filter.

5.1.3 Contamination

5.1.3.1 Apparatus

Light box with an opal cover.

Clear polyester film (30 cm wide roll).

Laboratory balance.

Two glass plates (300 mm x 300 mm x 4 mm).

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5.1.3.2 Sample

100 g of dispersion. <https://standards.iteh.ai/catalog/standards/sist/24f855dd-3d9d-485a-a3d5-b63678264737/sist-en-15334-2007>

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5.1.3.3 Procedure

Place one glass plate on the balance. Cut a piece of polyester film approximately 0,5 m long and place it on the glass. Tare the balance and weigh 50 g of the sample onto the polyester film and cover with another similar sized piece of polyester film. Place the glass plate over the opal panel on the light box. Place the second glass on top of the "cell" allowing the sample to spread to form a circle approximately 0,25 m in diameter.

Count the number of contaminants within the viewing area.

Record the number of particles in the following size ranges:

- $0,01 \text{ mm}^2$ to $0,02 \text{ mm}^2$

- $0,02 \text{ mm}^2$ to $0,05 \text{ mm}^2$

- $0,05 \text{ mm}^2$ to $0,10 \text{ mm}^2$

- greater than $0,10 \text{ mm}^2$

5.1.4 Density

5.1.4.1 Apparatus

Conical flask (50 ml nominal capacity) complete with ground glass disc.