SLOVENSKI STANDARD
SIST EN 263:2009

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Nadomeġļa:
SIST EN 263:2002

Sanitarne naprave - Kopalne kadi in kadi za prhanje iz litih akrilnih ploġļ

Sanitary appliances - Crosslinked cast acrylic sheets for baths and shower trays for domestic purposes

Sanitärausstattungsgegenstände - Vernetzte gegossene Acrylplatten für Badewannen und Duschwannen für den Hausgebrauch

Appareils sanitaires - Feuilles d'acrylique réticulées coulées pour baignoires et receveurs de douche a usage domestique

Ta slovenski standard je istoveten z: **EN 263:2008**

ICS:

83.140.10	Filmi in folije	Films and sheets
91.140.70	Sanitarne naprave	Sanitary installations

SIST EN 263:2009 **en,fr,de**

EUROPEAN STANDARD

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EN 263

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ICS 83.140.10; 91.140.70

Supersedes EN 263:2002

English Version

Sanitary appliances - Crosslinked cast acrylic sheets for baths and shower trays for domestic purposes

Appareils sanitaires - Feuilles d'acrylique réticulées coulées pour baignoires et receveurs de douche à usage domestique

Sanitärausstattungsgegenstände - Vernetzte gegossene Acrylplatten für Badewannen und Duschwannen für den Hausgebrauch

This European Standard was approved by CEN on 12 January 2008.

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.

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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 263:2008) 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 2008, and conflicting national standards shall be withdrawn at the latest by August 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 263:2002.

The performance criteria for baths and shower trays for domestic purposes made from crosslinked cast acrylic sheets are divided into two European Standards as follows:

prEN 198 Sanitary appliances - *Baths made from crosslinked cast acrylic sheets - Requirements and test methods.*

prEN 249 Sanitary appliances - *Shower trays made from crosslinked cast acrylic sheets - Requirements and test methods.*

This revised version of EN 263 includes the following amendments, compared to the version of 2002:

— Deletion of reference to ISO 62 standard for water absorption test and replacement with the description of the test itself.

— Modification of eosine concentration in resistance to chemical and stains test.

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 the United Kingdom.

1 Scope

This European Standard specifies requirements and test methods for cross-linked cast acrylic sheets (called acrylic sheets hereafter) from which baths and shower trays for domestic purposes are manufactured.

NOTE For the purposes of this standard, the term "domestic purposes" includes use in hotels, accommodation for students, hospitals and similar buildings, except when special medical provisions are required.

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

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

EN ISO 527-2, *Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994)*

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

3 Requirements

3.1 General requirements

The acrylic sheet shall comply with the requirements given in Table 1.

Table 1 - General requirements

Property	Test method	Requirement
Vicat softening point	EN ISO 306 1)	≥ 105°C
Water absorption	4.7 of this standard	≤ 40 mg
Tensile strength	EN ISO 527-2 and 4.1 of this standard	≥ 60 MPa
Cross-linking	4.6 of this standard	no sign of dissolving or sticking
1) Method B 50, temperature raised at a rate of (50 ± 5)°C/h.		

3.2 Thickness

The thickness of the acrylic sheet shall be not less than 2,7 mm. The maximum tolerance on thickness Δh shall be $\pm$ (0,4 + 0,1h), *h* being the nominal sheet thickness in mm.

3.3 Heavy metal content

Heavy metal contents of crosslinked cast acrylic sheets for baths and shower trays should be lower than those defined in the European Directive 91/338/EEC.

3.4 Colour

The acrylic sheets shall be transparent or coloured. In the case of coloured sheet, the colourant shall be incorporated during the manufacture of the sheet and the colour shall be throughout the thickness of the material.

3.5 Thermal stability

When tested by the method given in 4.2, the acrylic sheet shall show no evidence of blistering.

3.6 Colour fastness

3.6.1 Resistance to UV light

When tested according to EN ISO 4892-2 with an irradiance of 0,5 GJ/m^2 in the wavelength range of 290 nm to 800 nm, the colour change noted in the acrylic sheet shall be recorded in terms of the grey scale for assessing colour change specified in EN 20105-A02. The fastness rating shall be not less than grade 3.

3.6.2 Resistance to hot water

When tested in accordance with 4.3, the colour change noted in the acrylic sheet shall be recorded in terms of the grey scale for assessing colour change specified in EN 20105-A02. The fastness rating shall be not less than grade 3.

3.7 Resistance to chemicals and stains

When tested in accordance with 4.4, the acrylic sheet shall show no permanent staining or deterioration.

3.8 Resistance to wet and dry cycling

When tested in accordance with 4.5, the acrylic sheet shall not show any adverse changes in appearance such as blisters, crazes, cracks and discoloration.

4 Test methods

4.1 Determination of tensile strength

The test specimen shall be of type 1B according to EN ISO 527-2. The thickness of the test specimen shall be that of the sheet from which it is cut.

The test shall be carried out at a temperature of (23 ± 2)°C and the test specimens shall be conditioned to this temperature for at least two days before testing.

The speed of testing shall be (5 ± 1) mm/min.

The mean of five determinations shall be recorded as the tensile strength of the material but if a test specimen breaks in the grips the result shall be disregarded and a further determination made. The tensile strength shall be calculated by dividing the breaking load by the cross-sectional area of the specimen before testing.

4.2 Determination of thermal stability

Hang two sheets 300 mm square, taken from the acrylic sheet, in a circulating oven at (200 ± 5)°C for 20 min when this nominal temperature is reached. Remove the sheets from the oven, allow them to cool to room temperature while hanging vertically and visually examine them for the presence of blisters. If blistering occurs, repeat the test using two new specimens which have been preconditioned at (80 ± 2)°C for 16 h.

4.3 Determination of colour fastness to hot water

Cut a test specimen 100 mm x 25 mm from the acrylic sheet and fix in a suitable carrier. Immerse the test specimen in a water bath maintained at (60 ± 2)°C for 30 min, remove and allow to drain and dry in air for 30 min.

Repeat the cycle one hundred times without interruption.

Allow 48 h for the test specimen to dry out before it is compared with a sample of the sheet from which it was cut.

The colour fastness of the material shall be recorded in terms of the grey scale for assessing colour change specified in EN 20105-A02.

4.4 Determination of resistance to chemicals and stains

4.4.1 Reagents

The list of reagents is given in Table 2. Each aqueous solution shall be prepared immediately before application. The reagents shall be made up and applied at (23 ± 5) °C.

Table 2 - Reagents

Family	Product	Concentration
Acids	Acetic acid	Volume fraction of 10%
Alkalis	NaOH	Mass fraction of 10%
Alcohol	Ethanol	Volume fraction of 70%
Bleaches	NaOCl	5% available chlorine
Staining agent	Methylene Blue	Mass fraction of 1%

4.4.2 Apparatus

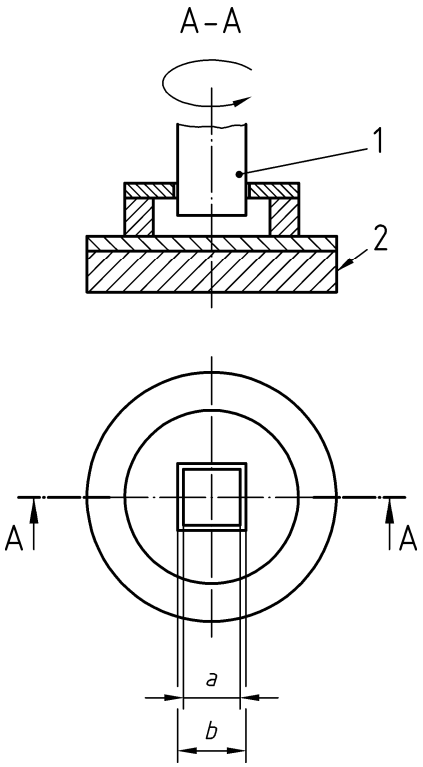
4.4.2.1 Borosilicate watch glasses

40 mm nominal diameter

4.4.2.2 Pipettes

4.4.2.3 Cleaning device

This is shown in Figure 1. It comprises a synthetic flexible open cell foam disc of 75 mm diameter and 15 mm thick. Use any rotating device applying a mass of (1 000 ± 50) g which loosely fits with the device. The lateral cleaning force shall only be that exerted by the mass of the cleaning device; this can be affected by a floating action between the drive shaft and the disc.



Key

1 square axle, a = b – 1 mm
2 foam
a inner dimension
b outer dimension

Figure 1 - Detail of cleaning apparatus

4.4.2.4 Test specimens

Specimens shall measure (100 ± 5) mm x (100 ± 5) mm.

4.4.3 Procedure

Use a separate test specimen for each reagent test. Clean the test area thoroughly with hot soapy water, rinse and dry with a clean soft cloth.

On each test specimen deposit a drop of the test solution. Cover the drop thus formed with a watch glass concave downwards. The drop size shall be determined in order to be completely covered by the watch glass. Allow to act for a time of (120 ± 5) min, at a temperature of (23 ± 5)°C with the test areas protected from the affects of sunlight.

Thoroughly rinse the test specimen with demineralized water and check for adverse changes in appearance by visual examination. If deterioration exists, dip the foam disc of the cleaning device into demineralized water and place it on the surface to be cleaned. Rotate the device at 60 min^{-1}.

Clean for thirty revolutions.

Rinse with demineralized water and visually examine the test area. If deterioration persists repeat the cleaning process with an abrasive agent added to demineralized water. This abrasive agent is defined as follows: alumina used for surface polishing, with particle size comprised between 0,1 µm and 2 µm and centred on 0,5 µm.