SLOVENSKI STANDARD

SIST EN 14527:2006

01-oktober-2006

Kadi za prhanje za domaļ o uporabo

Shower trays for domestic purposes

Duschwannen für den Hausgebrauch

Receveurs de douche a usage domestique

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Ta slovenski standard je istoveten z: EN 14527:2006

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ICS:

91.140.70 Sanitarne naprave Sanitary installations

SIST EN 14527:2006 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14527

May 2006

ICS 91.140.70

English Version

Shower trays for domestic purposes

Receveurs de douche à usage domestique

Duschwannen für den Hausgebrauch

This European Standard was approved by CEN on 14 December 2005.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

iTeh STANDARD PREVIEW
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SIST EN 14527:2006
https://standards.iteh.ai/catalog/standards/sist/c6e56a9c-b8c0-4077-a9d8-54d9939b7967/sist-en-14527-2006

Foreword

This European Standard (EN 14527:2006) 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of an identical text or by endorsement, at the latest by November 2006, and conflicting national standards shall be withdrawn at the latest by February 2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 requirements, test methods and procedures for evaluation of conformity for shower trays used for domestic purposes which ensure that the product, when installed, used and maintained in accordance with the manufacturer's instructions, will satisfy cleanability and durability of cleanability when used for personal hygiene.

This standard is applicable to all sizes and shapes of shower trays.

This standard does not cover shower trays for use with medical provisions.

NOTE 1 For the purpose of this standard the term "domestic purposes" includes use in hotels, accommodation for students, hospitals and similar buildings.

NOTE 2 Annex A lists characteristics of materials commonly used for manufacturing shower trays.

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 251, *Shower trays - Connecting dimensions*

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EN 14483-1, *Vitreous and porcelain enamels - Determination of resistance to chemical corrosion - Part 1: Determination of resistance to chemical corrosion by acids at room temperature*

ISO 2722, *Vitreous and porcelain enamels - Determination of resistance to citric acid at room temperature*

SIST EN 14527:2006
https://standards.iteh.ai/catalog/standards/sist/c6e56a9c-b8c0-4077-a9d8-
SIST EN 14527:2006

ISO 2742, *Vitreous and porcelain enamels - Determination of resistance to boiling citric acid*

ISO 2744, *Vitreous and porcelain enamels - Determination of resistance to boiling water and water vapour*

ISO 4533, *Vitreous and porcelain enamels - Determination of resistance to hot detergent solutions used for washing textiles*

3 Terms and definitions

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

3.1
shower tray
sanitary appliance that collects the water from washing of the human body under a shower and directs it to a waste outlet

3.2
cleanability
characteristics which allow the surface intended to come into contact with water to be non-absorbent and readily kept visually free from dirt and/or stains when subject to a maintenance regime which may include, when appropriate, specific instructions for use and care specified by the manufacturer

3.3
durability of cleanability
attributes of materials and their surfaces intended to come into contact with water, which allow cleanability for the anticipated working life of the product.

4 Requirements

4.1 General

The manufacturer shall provide instructions with each shower tray covering installation and care.

NOTE Annex B gives advice which manufacturers can include in their instructions.

4.2 Cleanability

4.2.1 Appearance of surface

When a shower tray is inspected under strong and oblique illumination, the surfaces intended to come into contact with water shall be visibly smooth, non-absorbent and free from inaccessible corners that would impair cleanability.

NOTE Surfaces with cracks, chips, crazing and other similar defects are not considered to be smooth.

4.2.2 Drainage of water

Shower trays shall have at least one waste outlet hole. The dimensions of the waste outlet hole shall comply with the requirements of EN 251. Other dimensions are permissible, if the manufacturer provides or recommends a suitable waste fitting.

All water shall empty from the shower tray unless prevented by surface tension.

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4.3 Durability of cleanability

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4.3.1 General

Conformance with the requirements of 4.3.2 to 4.3.4 give an assurance of durability of cleanability.

4.3.2 Stability of bottom

When tested in accordance with 5.1, there shall be no permanent distortion or other defects, e.g. cracks, such that the requirements of 4.2.2 are not satisfied.

4.3.3 Resistance to chemicals and staining agents

4.3.3.1 General

When shower trays, other than those made from the materials specified in 4.3.3.2, are tested in accordance with 5.2, the surface finish shall be unaffected by the chemicals and staining agents specified in Table 1 except for superficial surface changes which are removable with water or with water and the specified abrasive agent.

Table 1 — Chemicals and staining agents

Family	Product
Acids	Acetic acid (CH_3COOH), 10 % V/V
Alkalines	Sodium hydroxide (NaOH), 5 % m/m
Alcohols	Ethanol (C_2H_5OH), 70 % V/V
Bleaches	Sodium hypochlorite (NaOCl), 5 % active chlorine (Cl_2) [a]
Staining agents	Methylene blue, 1 % m/m
[a] The above specified bleach may be replaced by sodium percarbonate ($2Na_2CO_3 \cdot 3H_2O_2$) prepared as follows: Dissolve 1 g of a commercial available powdery bleach based on sodium percarbonate containing 15 % to 30 % of the active component in 100 ml de-ionised water at room temperature.	

4.3.3.2 Particular requirements for shower trays made of enamelled steel and enamelled cast iron

Shower trays made from enamelled steel and enamelled cast iron shall comply with the requirements given in Table 2.

Table 2 — Requirements for shower trays made of enamelled steel and enamelled cast iron

Requirement	Parameter	Test method
Resistance to boiling water	< 10 g/m²	ISO 2744
Resistance to cold citric acid	Class 2	ISO 2722
Resistance to boiling citric acid	< 5 g/m²	ISO 2742
Resistance to cold sulphuric acid	Class 2	EN 14483-1
Resistance to alkali solutions	< 8 g/m²	Test apparatus according to ISO 2742 Test solution according to ISO 4533 Duration of test: 2,5 h

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SIST EN 14527:2006
https://standards.iteh.ai/catalog/standards/sist/cbe56a9c-06c0-4077-a9d8-54d9980b73f7/sist-en-14527-2006

4.3.4 Resistance to temperature changes

When tested in accordance with 5.3, all shower trays shall show no evidence of distortion or other defects, e.g. crazing, which will impair their cleanability.

Experience has shown that shower trays manufactured from the stainless steel grades listed in annex A, enamelled steel, enamelled cast iron and glazed ceramics comply with this requirement.

4.4 Dangerous substances

NOTE See Clauses ZA.1 and ZA.3.

5 Test methods

5.1 Stability of the bottom of the shower tray

5.1.1 Test apparatus

— an adequate number of reinforced cloth bags each with dimensions of approximately 500 mm x 200 mm filled with lead shot, iron shot or sand of a mass of 25 $^{+0,5}_{0}$ kg or 12,5 $^{+0,5}_{0}$ kg.

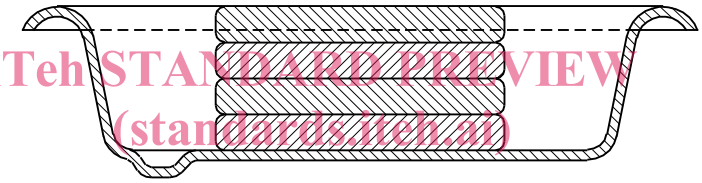
5.1.2 Determination of the load

The load to be applied for the test shall comprise the adequate number of cloth bags (see 5.1.1) equating to 100 kg.

5.1.3 Procedure

— Install the shower tray in accordance with the manufacturer's installation instructions.

— Position the adequate number of bags in the geometric centre of shower tray as shown in Figure 1.



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SIST EN 14527:2006
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Figure 1 — Load application

— Leave the load for 10 $^{+1}_{0}$ min.

— On completion of the tests remove all the bags.

— After 10 $^{+1}_{0}$ min verify that the shower tray complies with 4.3.2 by pouring copious amounts of water coloured in contrast with that of the shower tray around all the inner surface of the sides of the showering area.

5.2 Chemical resistance

5.2.1 Principle

The test is intended to give an indication of the effect of commonly used household chemicals, staining agents and cleansing agents.

5.2.2 Test apparatus and chemicals

a) chemicals and stains

A list of chemicals and stains to be used is specified in Table 1. Each chemical solution shall be prepared immediately before use with de-ionised water, and it shall be applied at a temperature (23 ± 5) °C.

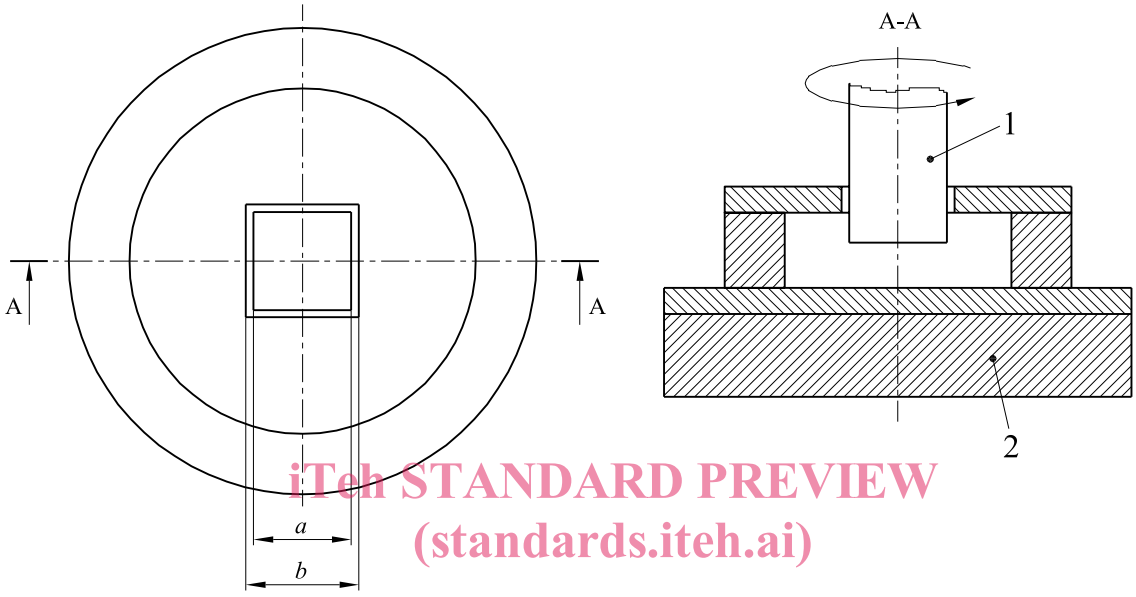
b) borosilicate watch glasses: 40 mm nominal diameter;

c) pipettes;

d) cleaning device;

A typical cleaning device is shown in Figure 2. It consists of a disc of 75 mm diameter, faced with synthetic flexible open cell foam 15 mm in thickness. The device is driven by means of a square axle which fits loosely into the device. Any device having a mass of (1000 ± 50) g can be used.

e) Abrasive comprising 12 h-alumina (suspension of aluminium oxide in water)[1)].



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Key

1 Square axle ($a = b - 1$ mm)

2 Disc faced with foam

Figure 2 — Cleaning device

5.2.3 Test specimens

Carry out the tests on the bottom, and on a flat part of the wall of the shower tray or on test specimens cut from these areas.

5.2.4 Procedure

— Select an area to be tested.

— Use each test area only once for each application. Clean the test area thoroughly with hot soapy water, rinse and wipe dry with a clean dry cloth.

— At each of the test areas deposit a drop of the test solution. Cover the drop with a watch glass concave face downwards. The drop size shall be such that it is completely covered by the watch glass. Leave for (120 ± 5) min with the test area protected from sunlight.

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1) A suitable product is available from MERCK Eurolab-Prolabo, 54 rue Roger Salengro, 94126 Fontenay sous Bois CEDEX, France, as DURMAX™ under product description N° 20993. This information is given for the convenience of users of this standard and does not constitute an endorsement by CEN of this product.

— Thoroughly rinse the test areas with de-ionised water and visually check for any adverse change in appearance. If any deterioration is noticed, dip the foam disc in de-ionised water and place it on the surface that was tested. Rotate the cleaning device at a speed of 60 min^{-1}. Clean for 30 revolutions.

— Rinse with de-ionised water, dry and visually re-examine the test areas. If any deterioration persists, repeat the cleaning process using the abrasive comprising 12 h-aluminia suspended in water and re-examine.

5.2.5 Expression of results

— Note the exact test area.

— Record:

  — whether or not the reagent causes a stain or deterioration of the surface;

  — whether or not such stain or deterioration is removed, and if so, whether with water or with water including abrasive agent.

5.3 Resistance to temperature changes

5.3.1 Test apparatus

a) Water supply capable of discharging cold and hot water with temperatures, flow rates and volumes as defined in 5.3.2;

b) shower handset;

c) thermometer with an accuracy of 1 % at the measured values;

d) flow meter for measuring a flow rate of water at (0,15 ± 0,015) l/s.

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SIST EN 14527:2006
https://standards.iteh.ai/catalog/standards/sist/c6e56a9c-b8c0-4077-a9d8-54d9595b0791/sist-en-14527-2006

5.3.2 Procedure

— By means of the shower handset 1 m above the floor of the shower tray in such a way that the water spray impinges on the edge of the shower tray and at least half of the shower tray floor, discharge (90 ± 1) l of water with a temperature of (75 ± 2) °C and a flow rate of (0,15 ± 0,015) l/s with the waste outlet hole open.

— Discharge immediately afterwards the same quantity of cold water with a temperature of (12 ± 3) °C and at the same flow rate as before with the waste outlet hole open.

— Repeat this procedure 100 times without interruption.

— After the last cycle apply over the surface, by means of a sponge or a paint brush, a solution of eosine in water of 100 g/l to which is added 1 cm^3/l of liquid detergent. Leave for 5^{+1}_{0} min, then remove the eosine from the surface by cleaning with a damp cloth.

— Visually check for any adverse change in appearance and for any trace of eosine.

— Record any failure to comply with the requirements of 4.3.4.

6 Marking

NOTE For CE marking, see Annex ZA.