



SLOVENSKI STANDARD
SIST EN 14727:2006

01-februar-2006

Laboratorijsko pohištvo – Shranjevalne enote za laboratorije – Zahteve in preskusne metode

Laboratory furniture - Storage units for laboratories - Requirements and test methods

Labormöbel - Schränke und Regale für Laboratorien - Anforderungen und Prüfverfahren

Mobilier de laboratoire - Eléments de stockage pour laboratoires - Exigences et méthodes d'essai

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 14727:2005

[SIST EN 14727:2006](https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006)

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006>

ICS:

71.040.10	Kemijski laboratoriji. Laboratorijska oprema	Chemical laboratories. Laboratory equipment
97.140	Pohištvo	Furniture

SIST EN 14727:2006

en,fr,de

**iTeh STANDARD
PREVIEW
(standards.iteh.ai)**

[SIST EN 14727:2006](#)

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006>

EUROPEAN STANDARD

EN 14727

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2005

ICS 71.040.10

English Version

Laboratory furniture - Storage units for laboratories - Requirements and test methods

Mobilier de laboratoire - Eléments de stockage pour
laboratoires - Exigences et méthodes d'essai

Labormöbel - Schränke und Regale für Laboratorien -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 29 August 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

ITIH STANDARD
PREVIEW
(standards.iteh.ai)

SIST EN 14727:2006

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 General test conditions	6
4.1 Preliminary preparation	6
4.2 Test equipment	6
4.3 Tolerances	7
4.4 Sequence of testing	7
5 Test apparatus	7
5.1 Test floor	7
5.2 Test wall	7
5.3 Stops	7
5.4 Loading pad	7
5.5 Apparatus for slam open of extension elements	7
5.6 Dead loads	7
5.7 Glass marbles	8
5.8 Impact plate	8
6 General safety requirements	8
7 Test procedures and requirements	8
7.1 Shelves	8
7.1.1 Stable positioning of shelves	8
7.1.2 Deflection of shelves	9
7.2 Shelf supports	9
7.3 Pivoted doors	10
7.3.1 General	10
7.3.2 Strength of pivoted doors	10
7.3.4 Durability test on hinged and pivoted doors	10
7.3.5 Safety requirements	11
7.3.6 Durability requirement	11
7.4 Sliding doors and horizontal roll fronts	11
7.4.1 General	11
7.4.2 Slam open and shut	11
7.4.3 Durability test of sliding doors and horizontal roll fronts	12
7.4.4 Safety requirements	12
7.4.5 Strength and durability requirements	12
7.5 Drawers and extension elements	12
7.5.1 General	12
7.5.2 Slam open test for drawers equipped with open stops	12
7.5.3 Strength of drawers and extension elements	13
7.5.4 Durability test of drawers and extension element	13
7.5.5 Displacement of drawer bottoms	13
7.5.6 Safety requirements	14
7.5.7 Strength and durability requirements	14
7.6 Flaps	14
7.6.1 General	14
7.6.2 Strength test	14
7.6.3 Durability test	15
7.6.4 Safety requirements	15
7.6.5 Strength and durability requirements	15

7.7	Static load on top surfaces of storage units.....	15
7.7.1	Top Surfaces	15
7.7.2	Safety requirements.....	15
7.8	Wall and top mounted units	15
7.8.1	General	15
7.8.2	Tests on movable parts, shelf supports and top surfaces	16
7.8.3	Overload	16
7.8.4	Safety requirements.....	16
8	Stability	17
8.1	Stability with closed drawers and doors	17
8.2	Stability with open drawers, flaps and doors	17
9	Additional safety requirements for underbench cabinets on castors	17
9.1	Retention of drawers on sudden cessation of movement of unit	17
9.2	Stopping device	17
9.3	Safety requirements.....	17
10	Installation instructions.....	17
11	Test report	18
Annex A	(normative)	19
A.1	Slam open test of extension elements	19
A.1.2	Apparatus	19
A.1.3	Calibration	19
Annex B	(informative) Example of loading of wall hanging units (see 7.8.3 Overload)	22

iTeH STANDARD
PREVIEW
(standards.iteh.ai)

[SIST EN 14727:2006](https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006)

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006>

EN 14727:2005 (E)

Foreword

This European Standard (EN 14727:2005) has been prepared by Technical Committee CEN/TC 207 "Furniture", 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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 14727:2006](https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006)

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-fb5f-4fc2-a28c-66e77a5c5731/sist-en-14727-2006>

1 Scope

This European Standard specifies requirements and test methods for storage units (see 3.1) used in laboratories.

This European Standard specifies strength, durability and safety requirements to prevent serious injury through normal functional use, as well as misuse that might reasonably be expected to occur.

Safety, depending on the structure of the building, is not included e.g. the strength of wall hanging cabinets includes only the cabinet and its parts. The wall and the fixing in the wall are not included.

It should be understood that the tests do not ensure that structural failure will not eventually occur as a result of habitual misuse or after an excessively long period of service.

Assessment of ageing, degradation and the heating effect of appliances are not included nor are ergonomic aspects or resistance to fire.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 131-2, *Ladders -Requirements, testing, marking*

EN 14072:2003, *Glass in furniture – Test methods*

EN 14749:2005 *Domestic and kitchen storage units and worktops - Safety requirements and test methods*

ISO 7619-2, *Rubber, vulcanized or thermoplastic – Determination of indentation hardness - Part 2: IRHD pocket meter method*

3 Terms and definitions

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

3.1

storage unit

item of furniture consisting of cupboards and/or shelves and/or drawers, intended for the storage of laboratory materials and equipment

3.2

free-standing unit

unit not attached to the structure of the building

3.3

built-in unit

unit attached to the structure of the building, directly or via other units

3.4

wall-mounted unit

unit supported entirely by one or more walls of the building

EN 14727:2005 (E)**3.5****top mounted unit**

unit supported by the ceiling

3.6**mobile unit**

unit equipped with glides, wheels or castors

3.7**latching device:**

device which automatically holds a door in the fully open or fully closed position

3.8**locking mechanism**

device which prevents a door from opening once it has been activated by a deliberate movement

4 General test conditions**4.1 Preliminary preparation**

The furniture shall be tested as delivered. If of knock-down type, it shall be assembled according to instructions supplied with the furniture. If the furniture can be assembled or combined in different ways, the most adverse combination shall be used for each test. The same is valid for units that can be combined with other units or components.

The test unit shall be stored in indoor ambient conditions for at least one week immediately prior to testing. Any deviation from this procedure shall be stated in the test report.

Except for the deflection of shelves, the tests shall be carried out in indoor ambient conditions, but if during a test the temperature is outside the range 15 °C to 25 °C, the maximum and/or minimum temperature shall be recorded in the test report.

The tests for the deflection of shelves shall be carried out at a relative humidity of 45 % to 55 %, If during a test the relative humidity is outside this range, the maximum and/or minimum shall be recorded in the test report.

Where applicable, units shall be mounted with the fixing points specified by the manufacturer, using fixings which will not fail during the tests.

Tighten any assembly fittings before testing.

The tests refer to furniture parts with conventional function. Combination of tests may be necessary to cover the properties of multi-function components, e.g. a shelf that can be pulled out on runners shall be tested for strength of shelf supports and tested for strength of the runners.

4.2 Test equipment

The forces in the static load tests shall be applied sufficiently slowly to ensure that dynamic loads are negligible. Operation tests shall be carried out sufficiently slowly to ensure that kinetic heating does not occur.

Unless otherwise specified, the test loads may be applied by any suitable device because results are not dependent upon the apparatus, provided the test equipment does not restrict deformation under load or tipping except when specifically required.

4.3 Tolerances

Unless otherwise stated the following tolerances are applicable:

- forces $\pm 5\%$ of the nominal force;
- velocities $\pm 5\%$ of the nominal velocity;
- masses $\pm 1,0\%$ of the nominal mass;
- dimensions $\pm 1,0$ mm on the nominal dimension;
- Angles $\pm 2^\circ$ of the nominal angle.

The accuracy for the positioning of loading pads shall be ± 5 mm.

If masses are used instead of forces, the relationship $10\text{ N} = 1\text{ kg}$ shall be used.

4.4 Sequence of testing

All the tests specified for a component, e.g. doors, shall be carried out in the sequence laid down in this European Standard, but it is not necessary to test the different components of the article e.g. doors or drawers in the sequence of the clauses.

All tests specified for a component part and/or unit shall be carried out on the same sample.

5 Test apparatus

5.1 Test floor

A rigid, horizontal and flat surface.

5.2 Test wall

A rigid, vertical and plane surface.

5.3 Stops

Stops to prevent the article from sliding but not tilting, not higher than 12 mm except in cases where the design of the item necessitates the use of higher stops, in which case the lowest that will prevent the item from sliding shall be used.

5.4 Loading pad

A rigid cylindrical object, 50 mm in diameter, having a flat face with 12 mm radius on the edge.

5.5 Apparatus for slam open of extension elements

Two examples for a suitable apparatus as well as calibration instructions are given in annex A.

5.6 Dead loads

Masses shall be designed so that they do not reinforce the structure or redistribute the stresses.

Bags shall be divided into small compartments to prevent the contents from moving during the test.

EN 14727:2005 (E)**5.7 Glass marbles**

Marbles between 10 mm and 15 mm in diameter shall be used during the test described in 7.5 (slam open test of drawers). They shall be in a flexible bag large enough to allow them to move during the test.

5.8 Impact plate

A 1,7 kg impact plate, with a steel plate of 200 mm -109 mm -10 mm faced with a 3 mm thick layer of rubber with a hardness of (85 ± 10) IRHD according to ISO 7619-2.

6 General safety requirements

Components or parts of the storage units and worktops of storage units with which the user may come into contact during normal use shall have no burrs and/or sharp edges, nor shall there be open-ended tubes.

To avoid the hazard of a pinching or scissoring action between moving parts accessible during normal use the distance between such parts shall be kept to less than ≥ 8 mm or greater than ≥ 25 mm in any position during movement, with the exception of doors (including hinges) and extension elements (including runners), but including the distance between handles and other parts.

In order to avoid pinching points for feet the safety height for vertically moving units shall be at least 100 mm from the floor.

All roll front doors sliding vertically shall not move by themselves from any position higher than 50 mm measured from the closed position if this can cause any injury.

All extension elements whose mass including contents exceeds 10 kg (see table 1) shall have effective open stops, i.e. they shall resist being pulled out of the carcass once by a force of 200 N applied to the handle of the loaded drawer or they shall be supplied with a label on the drawer's front, that the drawer can easily be pulled out.

Any external, vertical glass component $\geq 0.1 \text{ m}^2$ in area where the smallest dimension is greater than or equal to 200 mm and any part of which is less than 900 mm above the floor, shall not break when tested according to EN 14072, when using a drop height of 60 mm or shall break as specified in EN 14072:2003, clause 7, C2 or C3.

At least two of the wheels or castors of movable units shall be lockable.

If high storage units are equipped with ladders, the ladders shall comply with the relevant requirements of EN 131-2.

The tests specified in clauses 7.1. 1; 7.2; 7.3.2; 7.5.2; 7.6.2; 7.7; 7.8; 8.1 and 8.2 are safety tests.

7 Test procedures and requirements**7.1 Shelves****7.1.1 Stable positioning of shelves**

All shelves shall be secured against falling out.

This requirement is fulfilled when the horizontal force applied to the middle of the front edge required to initiate movement of the unloaded shelf is more than 50 % of the weight of the unloaded shelf.

No unloaded shelf shall tip when a downward vertical force of 100 N is applied at any point 25 mm in from the front edge.

7.1.2 Deflection of shelves

Testing of the deflection of shelves, which are not made of metal, glass or stone, shall be carried out in a controlled humidity atmosphere (see 4.1).

Place the shelf on its supports in the unit.

The deflection of the shelf shall be measured at the front edge where it is greatest.

The deflection shall be measured to an accuracy of $\pm 0,1$ mm with reference to a straight line parallel to the front edge drawn between two adjacent supports.

Load the shelf uniformly with the maximum load specified by the manufacturer or within the loads in Table 1 and apply for:

- one hour for shelves made of metal, glass and stone;
- one week for all other shelves.

At the same points as specified above, measure and record the deflection under load to an accuracy of $\pm 0,1$ mm and as a percentage of the distance between the supports.

7.2 Shelf supports

All supports of the shelf for testing shall be tested.

For units with an indeterminate number of shelves, unless otherwise specified, divide the internal height of the article in millimetres by 300 and take the nearer integer. This number minus 1 shall then be the number of shelves to be fitted.

Load all components intended for storage purposes uniformly according to table 1.

SIST EN 14727:2006

<https://standards.iteh.ai/catalog/standards/sist/9ab414d0-b5c163-78c-66e77a5c5731/sist-en-14727-2006> **Table 1 — Required loads**

Shelves/flaps/bottoms	1,00 kg/dm ²
Baskets with internal heights ≤ 100 mm	0,65 kg/dm ³
All other baskets	0,20 kg/dm ³
Extension elements with ≤ 110 mm clear height	0,35 kg/dm ³
All other drawers	0,20 kg/dm ³

For the shelf being tested, distribute the load uniformly, except at approximately 220 mm from one support, where the impact plate (5.8) shall be tipped over 10 times at a point as close to the support as possible (see Figure 1). The striking surface shall be that faced with rubber.

After the test the shelf supports and/or the shelf/carcass shall show no fracture or other damage that can affect the safety.