SLOVENSKI STANDARD
SIST EN 14434:2010

01-julij-2010

Nadomešča:

SIST EN 14434:2005

SIST EN 14434:2005/AC:2008

Table za pisanje za vzgojno-izobraževalne ustanove - Ergonomske, tehnične in varnostne zahteve ter preskusne metode

Writing boards for educational institutions - Ergonomic, technical and safety requirements and their test methods

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Wandtafeln für Bildungseinrichtungen - Ergonomische, technische und sicherheitstechnische Anforderungen und Prüfverfahren

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96abafba81c2/sist-en-14434-2010

Tableaux pour établissements d'enseignement - Exigences ergonomiques, techniques et de sécurité et méthodes d'essai correspondantes

Ta slovenski standard je istoveten z: EN 14434:2010

ICS:

03.180	Vzgoja in izobraževanje	Education
13.180	Ergonomija	Ergonomics
97.140	Pohištvo	Furniture

SIST EN 14434:2010 **en,fr,de**

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

SIST EN 14434:2010

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

SIST EN 14434:2010

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14434

January 2010

ICS 03.180; 13.180; 97.140

Supersedes EN 14434:2004

English Version

Writing boards for educational institutions - Ergonomic, technical and safety requirements and their test methods

Tableaux pour établissements d'enseignement - Exigences ergonomiques, techniques et de sécurité et méthodes d'essai correspondantes

Wandtafeln für Bildungseinrichtungen - Ergonomische, technische und sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 12 December 2009.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2010 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 14434:2010: E

SIST EN 14434:2010

Contents

Page

Foreword 4

1 Scope 5

2 Normative references 5

3 Terms and definitions 5

4 General test conditions 8
4.1 Preliminary preparation 8
4.2 Tolerances 8
4.3 Test installation 8

5 Test equipment 9

6 General safety requirements 9
6.1 All boards 9
6.2 Stability of mobile boards 9

7 Surface tests and requirements for whiteboards 10
7.1 General 10
7.2 Ability to write and erase 10
7.2.1 Testing 10
7.2.2 Method of marking the surface 10
7.2.3 Requirements 11
7.3 Scratch test and requirements 11
7.3.1 Testing 11
7.3.2 Requirements 11
7.4 Staining tests and requirements 12
7.4.1 Testing 12
7.4.2 Requirements for each staining liquid 12
7.5 Colour degradation test and requirements 12
7.5.1 Testing 12
7.5.2 Requirements 12

8 Surface tests and requirements for chalkboards 12
8.1 General 12
8.2 Ability to write on an unused chalkboard sample 13
8.2.1 Testing 13
8.2.2 Method of marking the surface 13
8.2.3 Requirement 13
8.3 Ability to write on an abraded chalkboard sample 13
8.3.1 Testing 13
8.3.2 Method of marking the surface 14
8.3.3 Requirements 14
8.4 Scratch test and requirements 15
8.4.1 Testing 15
8.4.2 Requirements 15
8.5 Staining tests and requirements 15
8.5.1 Testing 15
8.5.2 Requirements for each staining liquid 15
8.6 Colour degradation test and requirements 15
8.6.1 Testing 15
8.6.2 Requirements 16

9 Structural tests and requirements 16

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

SIST EN 14434:2010

9.1 Vertical static load tests and requirements 16
9.1.1 Vertical downwards static load for rail based systems and horizontally sliding boards 16
9.1.2 Vertical downwards static load for winged boards and pivoting boards 16
9.1.3 Vertical downwards static load for all prominent parts 16
9.1.4 Vertical upwards static load 17
9.2 Durability of moving elements 17
9.2.1 Rail based systems 17
9.2.2 Boards with rotating parts 17
9.2.3 Sliding boards with transmission elements 17
9.2.4 Power operated sliding boards 18
9.3 Test of rigidity 18
9.4 Test of stops 19
9.5 Surface deflection 19

10 Ergonomic requirements 20
10.1 Position of controls and handles 20
10.2 Operating forces 20
10.3 Requirements for moving forces 20

11 Test report 21

12 Installation instructions 21

13 Product information 21

Annex A (normative) **Assessment scale for the ability to write - Five levels chalk scale** 23

Annex B (informative) **Terminology** 24

Annex C (informative) **Significant technical changes in revised edition of this standard** 31

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

SIST EN 14434:2010

Foreword

This document (EN 14434:2010) 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 July 2010, and conflicting national standards shall be withdrawn at the latest by July 2010.

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 14434:2004.

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, Croatia, 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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

SIST EN 14434:2010

1 Scope

This European Standard specifies ergonomic, technical and safety requirements for wall mounted and free-standing writing boards for use in rooms for educational and training purposes, e.g. classrooms, lecture theatres for schools, universities, etc.

It is intended to prevent serious injury through normal functional use, as well as misuse that might reasonably be expected to occur.

This document applies to units after installation. Safety depending on the structure of the building is not included, e.g. the strength of wall mounted boards includes only the board and its parts. The wall and the wall attachment are not included.

Requirements concerning electrical safety are not included.

Annex A (normative) includes an assessment scale for the ability to write and erase.

Annex B (informative) includes terminology for display writing boards.

Annex C (informative) includes significant technical differences between this document and EN 14434:2004.

2 Normative references

iTeh STANDARD PREVIEW
(standards.iteh.ai)

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.

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

EN 438-2:2005, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called Laminates) — Part 2: Determination of properties*

EN 1023-3, *Office furniture — Screens — Part 3: Test methods*

3 Terms and definitions

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

3.1
board attachment
element by which the board is attached to the rail

NOTE See Annex B, Figure B.20.

3.2
chalkboard
writing board with a writing surface to be used for chalk

3.3
fixed board
board or assembly of boards fixed by various means

NOTE See Annex B, Figures B.1, B.2, B.3 and B.4.

3.4
fixing element
joint by which the rail is mounted to the wall

SIST EN 14434:2010

3.5
flip chart
one-sided board placed or fixed on an easel or a rail with the facility to attach a paper pad

NOTE See Annex B, Figure B.16.

3.6
horizontally sliding board
board with or without wing with only horizontal board movements in the same plane, manually or power operated

3.7
map holder
permanent system at the upper part of the board allowing maps, charts or other documents to be temporarily hung in place

NOTE See Annex B, Figure B.18.

3.8
mobile board
board or assembly of boards, which may be moved on the floor from one place to another

NOTE See Annex B, Figures B.5, B.6 and B.7.

3.9
overall frame
outer frame or structure allowing movement of a sliding board

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.10
pivoting board
two-sided board articulated on its horizontal or vertical axis and standing on braced feet, with or without castors

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

NOTE See Annex B, Figures B.5 and B.6.

3.11
rail based board/system
board hanging and/or sliding on horizontally wall mounted rails

NOTE See Annex B, Figure B.20.

3.12
roller board
revolving surface board
assembly with top and bottom horizontal rollers allowing a continuous loop of flexible writing surface to be revolved between rollers

NOTE These boards may be wall mounted or mobile (see Annex B, Figure B.17).

3.13
sash board
assembly of one or two-sided boards sliding vertically, independent of each other and individually counter-balanced

NOTE See Annex B, Figure B.10.

3.14
sliding board
board with horizontal and/or vertical movements in the same plane, manually or power operated

SIST EN 14434:2010

NOTE It does not include a railed-based system (see Annex B, Figures B.9, B.10, B.11, B.12 and B.13).

3.15
tilting board
manually or power-operated inclinable one-sided board articulated on its lower horizontal edge, e.g. screens for overhead projectors

NOTE See Annex B, Figure B.11.

3.16
to and fro system
assembly of one- or two-sided boards sliding vertically, counter-balancing each other in all positions

NOTE See Annex B, Figure B.9.

3.17
transmission element
any means to transmit a movement such as to and fro, or sash

3.18
tray
ledge placed at the lower part of the board upon which writing implements may be placed

NOTE See Annex B, Figure B.18.

3.19
vertically and horizontally sliding board
board with or without wing with vertical and horizontal movements in the same plane, manually or power operated

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96cbc0a81a2/sist-en-14434-2010

3.20
vertically sliding board
board with or without wing, with only vertical movements in the same plane, manually or power operated

NOTE See Annex B, Figures B.9, B.10, B.11, B.12 and B.13.

3.21
whiteboard
writing board with a writing surface of a light colour to be used for dry marker pen

3.22
wall mounted board
one-sided board fixed to the wall

NOTE See Annex B, Figure B.1.

3.23
wing
two-sided board mounted on a vertically hinged system

3.24
winged board
assembly comprising a one-sided board and one or more wings

NOTE Double-board, triple-board and book-leaf are examples of winged boards (see Annex B, Figures B.2, B.3 and B.4).

SIST EN 14434:2010

3.25
writing board
board with one or more writing surfaces for the display of information

3.26
writing surface
surface for the display of information by means of writing and/or by other methods

NOTE The surface is erasable and re-usable.

4 General test conditions

4.1 Preliminary preparation

Before any of the tests are commenced, the item shall be old enough to ensure that it has developed its full strength. In the case of surfaces and glued joints in timber and the like, at least four weeks in normal indoor conditions shall have elapsed between manufacturing and testing.

All boards shall be tested as delivered. If of knock-down type, it shall be assembled according to the instructions supplied with the board. If the board 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 tests shall be carried out in indoor conditions, but if during a test the temperature is outside the range of 15 °C to 25 °C, the maximum and/or minimum temperature shall be recorded in the test report.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Tighten any assembly fittings before testing. Further retightening shall not take place unless it is specifically required by the manufacturer.

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

4.2 Tolerances

Unless otherwise stated the following tolerances apply:

— Masses: ± 0,5 % of the nominal mass;

— Dimensions: ± 1,0 mm of the nominal dimension;

— Angles: ± 2° of the nominal angle;

— Forces: ± 5 % of the nominal force.

4.3 Test installation

For the structural tests in Clause 9, the board shall be installed according to the manufacturer's instructions.

Wall mounted boards shall be mounted to a structure sufficiently strong and stiff to eliminate the possibility of it affecting the results of the tests. The mounting of the structure shall be representative of the service installation.

Where the manner of mounting is ambiguously defined, the manner of mounting shall be recorded in the test report.

SIST EN 14434:2010

5 Test equipment

5.1 **Floor surface**, rigid, horizontal and flat.

5.2 **Wall surface**, rigid, vertical and flat.

5.3 **Chalk**, two types of white chalk:

a) made from calcium carbonate;

b) made from calcium sulphate.

5.4 **Pen**, red alcohol base, acrylic tipped dry marker.

6 General safety requirements

6.1 All boards

No part of the board shall constitute a risk of injury to the user during normal use. The board shall be such that damages to clothing and soiling are avoided during normal use.

All accessible edges and corners shall be rounded or chamfered and shall have no burrs. Hollow ends shall be capped or otherwise closed.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

In order to avoid shearing and pinching, the distance between parts moving relative to each other shall have safety distances, which shall always be less than 8 mm or more than 25 mm in any position during movement.

a) Shear and pinching points, which are held apart by rubber or plastic buffers are exempt from this requirement provided that the gap produced by the buffer is at least 25 mm.

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

b) For winged boards, the gap between two parts of the board is exempt from this requirement.

c) For vertically sliding boards (sash boards, to and fro boards), where there is a risk of entrapment, the requirement is applicable except between the boards. The gap between the boards shall be at least 25 mm.

NOTE For c) gaps of 50 mm or more are recommended.

For vertically sliding boards (sash boards, to and fro boards), there shall be at least 120 mm from the floor to the board if no front protection is provided.

It shall not be possible to remove detachable parts inclusive end caps without the use of a tool.

No part attached to the rail system shall be detached unintentionally.

Counterweight mechanisms shall not be accessible during normal use.

It shall not be possible to operate controls inadvertently or accidentally.

If castors are provided as means of mobility, at least half of them shall be lockable.

6.2 Stability of mobile boards

This requirement is only applicable to mobile boards.

The board shall not overturn when tested according to EN 1023-3.

SIST EN 14434:2010

7 Surface tests and requirements for whiteboards

7.1 General

There are three performance levels specified in this clause, Level 1, 2 and 3.

The minimum requirement for the writing surface is Level 1 (see also Clause 13).

The tests shall be carried out as specified in 7.2 to 7.5. Test samples shall have the same constitution as the board to be tested, unless otherwise specified.

7.2 Ability to write and erase

7.2.1 Testing

Testing shall be carried out according to EN 438-2:2005, Clause 11, using CS 10 grindstone.

Three samples shall be tested, one for 500 cycles, one for 1 000 cycles and one for 2 000 cycles.

7.2.2 Method of marking the surface

By using a pen (5.4), two parallel straight lines shall be made over the abraded area (Figure 1).

The pen shall be fixed at 45° to the surface of the board with a vertical force F of 20 N acting on the pen (Figure 2). The pen shall be pulled along a straight line at a speed of (20 ± 2) mm/s.

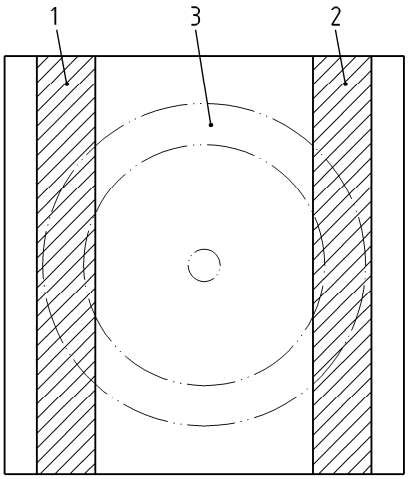
iTeh STANDARD PREVIEW
(standards.iteh.ai)

Assessment of the test result of the three samples shall be carried out after dry and wet cleaning as described in EN 438-2:2005, 26.7.

SIST EN 14434:2010
https://standards.iteh.ai/catalog/standards/sist/f2c8eda3-51f9-4c3d-93ba-a96aba0a81c2/sist-en-14434-2010

Dry cleaning shall be carried out with paper tissue.

Wet cleaning shall be carried out with water based window cleaner containing alcohol and surfactants.



Key

1 Pen mark 1
2 Pen mark 2
3 Abrasion area

Figure 1 — Marking the surface over the abrasion area