



SLOVENSKI STANDARD

SIST EN 1598:2011

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Nadomešča:

SIST EN 1598:1999

SIST EN 1598:1999/A1:2002

Varnost in zdravje pri varjenju in sorodnih postopkih - Prosojne zavese, trakovi in zasloni pri obločnih postopkih

Health and safety in welding and allied processes - Transparent welding curtains, strips and screens for arc welding processes

iTeh STANDARD PREVIEW

Arbeits- und Gesundheitsschutz beim Schweißen und bei verwandten Verfahren -
Durchsichtige Schweißvorhänge, -streifen und -abschirmungen für
Lichtbogenschweißprozesse

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Hygiène et sécurité en soudage et techniques connexes - Rideaux, lanières et écrans
transparents pour les procédés de soudage à l'arc

Ta slovenski standard je istoveten z: EN 1598:2011

ICS:

13.100	Varnost pri delu. Industrijska higiena	Occupational safety. Industrial hygiene
13.340.99	Druga varovalna oprema	Other protective equipment
25.160.01	Varjenje, trdo in mehko spajkanje na splošno	Welding, brazing and soldering in general

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en,fr,de

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EUROPEAN STANDARD

EN 1598

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2011

ICS 13.340.99

Supersedes EN 1598:1997

English Version

Health and safety in welding and allied processes - Transparent welding curtains, strips and screens for arc welding processes

Hygiène et sécurité en soudage et techniques connexes - Rideaux, lanières et écrans transparents pour les procédés de soudage à l'arc

Arbeits- und Gesundheitsschutz beim Schweißen und bei verwandten Verfahren - Durchsichtige Schweißvorhänge, -streifen und -abschirmungen für Lichtbogenschweißprozesse

This European Standard was approved by CEN on 20 August 2011.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 1598:2011) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DIN.

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 March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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 1598:1997.

The significant changes from EN 1598:1997 as impacted by EN 1598:1997/A1:2001 are as follows:

- a) the time of ignition resistance was enlarged;
- b) a test for eyelet strength was added.

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.

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EN 1598:2011 (E)**1 Scope**

This European Standard specifies safety requirements for transparent welding curtains, strips and screens to be used for shielding of work places from their surroundings where arc welding processes are used. They are designed to protect people who are not involved in the welding process from hazardous radiant emissions from welding arcs and spatter.

Welding curtains, strips and screens specified in this standard are not intended to replace welding filters. For intentional viewing of welding arcs other means of protection shall be used.

The present standard is not applicable for welding processes where laser radiation is used.

NOTE Darker welding curtains or screens should be used for mutual separation of adjacent work places for reasons of comfort.

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 165:2005, *Personal eye-protection — Vocabulary*

EN 167, *Personal eye-protection — Optical test methods*

EN 168, *Personal eye-protection — Non-optical test methods*

EN ISO 11664-2, *Colorimetry — Part 2: CIE standard illuminants (ISO 11664-2:2007)*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 165:2005 and the following apply.

3.1 transparent
welding curtains, strips and screens that admit visibility to the working place without implying to be glass clear

4 Requirements**4.1 General**

For transparent welding curtains, strips and screens consisting of different materials all requirements for the whole material combination shall be met.

For optical test methods see EN 167.

After preparation, the test specimens shall be maintained at a temperature of $(23 \pm 5) ^\circ\text{C}$ and relative humidity of $(65 \pm 10) \%$ for a minimum of 16 h before testing.

4.2 Transmittance

The luminous transmittance r , based on the spectral distribution of CIE standard illuminant A according to EN 165 shall be greater than 0,000 1 %; scattered light diffused within 1° to the direction of the incident radiation shall be included in the measurement.

The spectral transmittance in the wavelength range between 210 nm and 313 nm shall be less than 0,002 %, in the wavelength range between 313 nm and 400 nm less than 3 %.

In the wavelength range from 400 nm to 1 400 nm the hazard level G shall be less than 1.

The hazard level is defined by:

$$G = \frac{1}{1\,000\text{ nm}} \sum_{\lambda_i = 400\text{ nm}}^{1\,400\text{ nm}} G(\lambda_i) \cdot \tau(\lambda_i) \cdot \Delta\lambda \quad (1)$$

where

λ_i is the wavelength;

$\tau(\lambda_i)$ is the spectral transmittance of the wavelength λ_i ;

$\Delta\lambda$ is the wavelength step for the summation, and

$G(\lambda_i)$ is the spectral risk factor at the wavelength λ_i .

The values of the individual risk factors:

$$g(\lambda_i) = \frac{G(\lambda_i)}{1\,000} \quad (2)$$

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are given for $\Delta\lambda = 10$ nm in Table 1. If a larger step width is used (e.g. 20 nm) the intermediate values can be omitted. For other wavelengths the risk factors may be calculated from Equation (3)

$$g(\lambda_i) = \begin{cases} 2,25 - 0,003\,75 \cdot \lambda & \text{for } \lambda < 600\text{ nm} \\ 0,001\,5 & \text{for } \lambda \geq 600\text{ nm} \end{cases} \quad (3)$$

In Equation (3), the wavelength, λ_i , shall be inserted in nm.

Table 1 — Wavelength dependence of the risk factor

Wavelength, λ_i , in nm	risk factor $g(\lambda_i)$
400	0,750 0
410	0,712 5
420	0,675 0
430	0,637 5
440	0,600 0
450	0,562 5
460	0,525 0
470	0,487 5
480	0,450 0
490	0,412 5
500	0,375 0
510	0,337 5
520	0,300 0
530	0,262 5
540	0,225 0
550	0,187 5
560	0,150 0
570	0,112 5
580	0,075 0
590	0,037 5
600 to 1 400	0,001 5

NOTE To separate close welding places it is recommended to use translucent welding curtains.

4.3 Reflectance

When measured with an Ulbricht sphere the spectral reflectance between 230 nm and 400 nm shall be less than 10 %. The luminous reflectance shall be less than 10 % (based on the spectral distribution of CIE standard illuminant A according to EN ISO 11664-2).

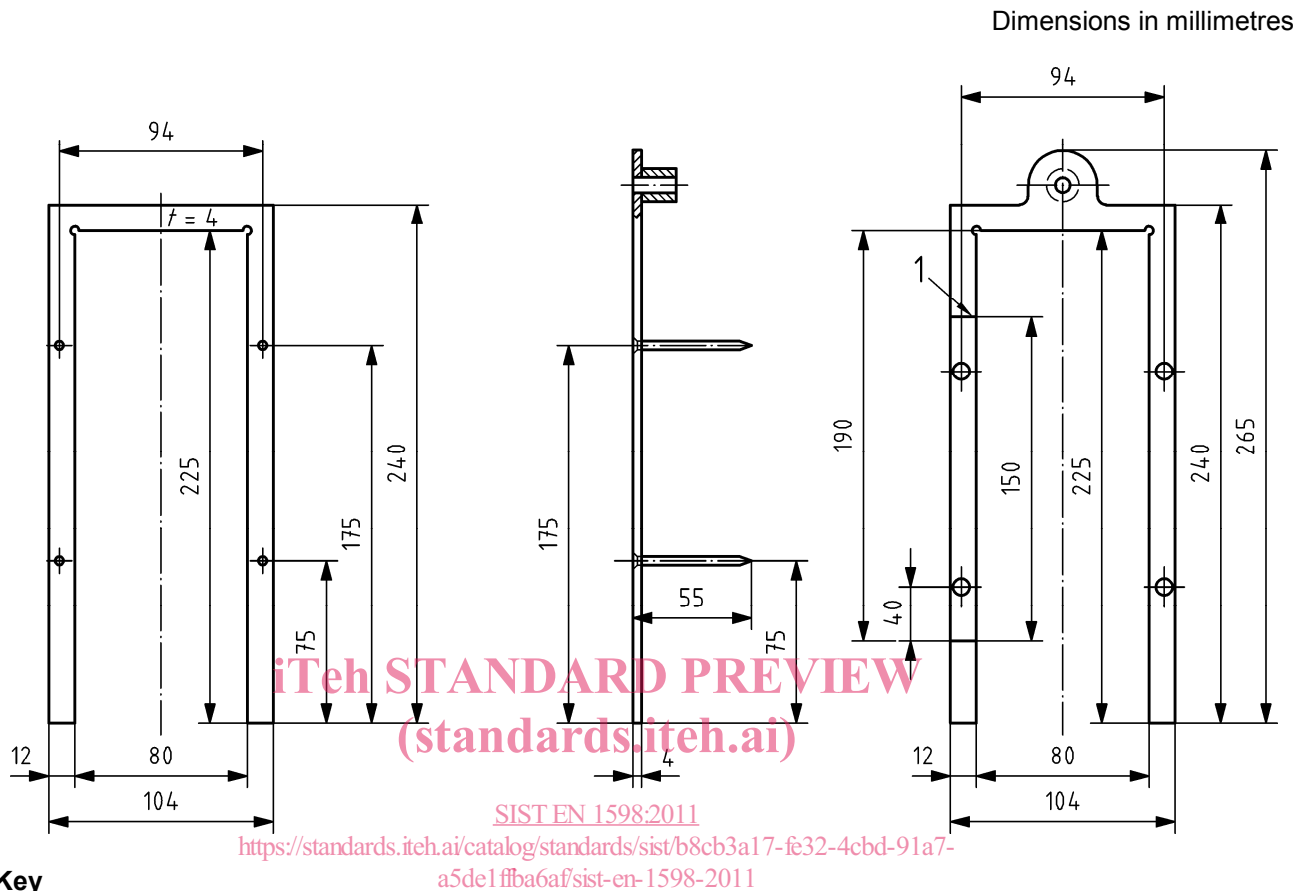
4.4 UV-Stability

The relative change of the luminous transmittance due to the test in EN 168 shall not be greater than ± 20 %. Exceedance is allowed unless the level of danger G of 1 according to 4.2 is not reached or exceeded.

4.5 Resistance to ignition

4.5.1 Testing shall be done at (23 ± 5) °C.

4.5.2 3 samples 190 mm long and 90 mm wide are cut from the welding curtain, strip or screen: the samples are put in the sample holder (see Figure 1). The lower end of the sample shall be 40 mm above the lower end of the sample holder.



Key

- 1 Test mark
- t* Thickness of sample holder

NOTE All dimensions have tolerances of $\pm 0,1$ mm.

Figure 1 — Sample holder

4.5.3 A propane burner having a flame height of 20 mm when put in upright position (see Figure 2) is used. The burner has to burn for at least 1 min. Then it is turned by an angle of 45° .

4.5.4 The burner is directed at the bottom of the sample so that the tip of the flame hits the sample in the geometric centre of the lower edge. The surrounding area shall be free from draughts when the test is carried out (see Figure 2).

4.5.5 After 15 s remove the burner and observe whether the flame self-extinguishes and the material ceases to glow within $3_{-0,5}^0$ s. Then carry out a visual inspection to see if the flame has reached the test mark 150 mm above the lower end of the sample (see Figure 2).