

SLOVENSKI STANDARD

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Nadomešča:
SIST EN 597-1:1995

**Pohištvo - Ugotavljanje vžiglјivosti postelјnih vložkov in oblazinjenih podnožij - 1.
del: Vir vžiga: tleča cigareta**

Furniture - Assessment of the ignitability of mattresses and upholstered bedbases - Part
1: Ignition source smouldering cigarette

Möbel - Bewertung der Entzündbarkeit von Matratzen und gepolsterten Bettböden - Teil
1: Zündquelle: glimmende Zigarette

Ameublement - Évaluation de l'allumabilité des matelas et des sommiers rembourrés -
Partie 1: Source d'allumage cigarette en combustion

Ta slovenski standard je istoveten z: EN 597-1:2015

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
97.140	Pohištvo	Furniture

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EUROPEAN STANDARD
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English Version

**Furniture - Assessment of the ignitability of mattresses
and upholstered bed bases - Part 1: Ignition source
smouldering cigarette**

Ameublement - Évaluation de l'allumabilité des
matelas et des sommiers rembourrés - Partie 1 : Source
d'allumage : cigarette en combustion

Möbel - Bewertung der Entzündbarkeit von Matratzen
und gepolsterten Bettböden - Teil 1: Zündquelle:
glimmende Zigarette

This European Standard was approved by CEN on 7 November 2015.

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

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European foreword

This document (EN 597-1:2015) 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of an identical text or by endorsement, at the latest by June 2016 and conflicting national standards shall be withdrawn at the latest by June 2016.

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 597-1:1994.

The test is based on EN 1021-1, *Furniture – Assessment of the ignitability of upholstered furniture – Part 1: Ignition source: smouldering cigarette*.

The main changes in relation to EN 597-1:1994 are:

- modification to the specification of the weight of the ignition source;
- modification to the test procedure to allow a third ignition source to be placed on the test sample if either of the two initial ignition sources self extinguish prior to the completion of the 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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 597-1:2015 (E)

Introduction

This European Standard is one of a series of standards concerned with the ignitability of mattresses and upholstered bed bases using different ignition sources. The ignition source used in this European Standard is a smouldering cigarette.

When mattresses or bed bases are used or stored on their own, it is desirable to know their ignitability in their own right.

It cannot be assumed that protection against flaming sources will automatically give protection against smouldering ignition. Users of the standard should therefore recognize the need to submit test specimens to both cigarette and flaming ignition tests.

WARNING — Attention is drawn to the fact that the tests given in the test report (see Clause 10) are not intended to reproduce the full fire hazards that may be encountered.

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[SIST EN 597-1:2016](https://ecommerce.sist.si/catalog/standards/sist/2002208f-c288-44a9-99f2-10458dd225a5/sist-en-597-1-2016)

<https://ecommerce.sist.si/catalog/standards/sist/2002208f-c288-44a9-99f2-10458dd225a5/sist-en-597-1-2016>

1 Scope

This European Standard specifies a test method to assess the ignitability of mattresses, upholstered bed bases or mattress pads when subjected to a smouldering cigarette as an ignition source.

Air mattresses and water beds are excluded from this standard.

The standard contains one annex:

Annex A (informative) Model test report form.

2 Terms and definitions

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

2.1

progressive smouldering

exothermic oxidation, not accompanied by flaming, that is self-propagating, i.e. independent of the ignition source, which may or may not be accompanied by incandescence

2.2

flaming

undergoing combustion in the gaseous phase with the emission of light

2.3

flammability

ability of a material or product to burn with a flame under the specified test conditions

2.4

ignitability

measure of the ease with which a material, product or component can be ignited so as to flame or progressively smoulder

2.5

ignition source

source of energy used to ignite combustible materials or products

2.6

mattress pad

upholstered product that is used in conjunction with, and to complement, a mattress or upholstered bed base

2.7

mattress

upholstered product intended for sleeping upon

2.8

bed base

structure that supports a mattress or the surface(s) of a mattress that support(s) a user

2.9

upper surface

surface of a bed base that supports a mattress or the surface(s) of a mattress that support(s) a user

3 Criteria of ignition

3.1 Progressive smouldering ignition

For the purposes of this European Standard, all the following types of behaviour are considered to be progressive smouldering ignitions:

- a) any test assembly that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
- b) any test assembly that smoulders until it is largely consumed within the test duration;
- c) any test assembly that smoulders to its full thickness, within the duration of the test;
- d) any test assembly that smoulders after one hour from the application of the ignition source;
- e) any test assembly that, on final examination (see 9.3), shows evidence of progressive smouldering.

NOTE In practice it has been found that there is usually a clear distinction between materials which can char under the influence of the ignition source but which do not propagate further (non-progressive combustion) and those where smouldering develops in extent and spreads (progressive combustion).

3.2 Flaming ignition

For the purposes of this European Standard, a flaming ignition is considered to be the occurrence of any flames initiated by a smouldering source.

4 Principle

To subject a full upper surface or upper surface characteristic features of a mattress, the bed base or the mattress pad to the contact of a smouldering ignition source by using smouldering cigarettes so that all the zones having different characteristics are tested.

5 Health and safety of operators

5.1 General

The test method specified in this European Standard presents a considerable hazard; suitable precautions shall be taken, which may include the provision of breathing apparatus and protective clothing.

5.2 Enclosure

For safety, the test should be conducted in a non-combustible fume cupboard. If such a cupboard is not available, a test enclosure should be constructed (see 6.2) so that the operator is protected from the fumes.

5.3 Extinguishers

Adequate means of extinguishing the assembly should be provided bearing in mind that some combinations may produce severe flaming during the test. A hand and/or fixed water spray which can be directed over the burning area can be useful. Other means such as suitable fire extinguishers, fire blankets and a bucket of water will assist.

In some cases smouldering may be difficult to extinguish completely and complete immersion in water may be necessary.

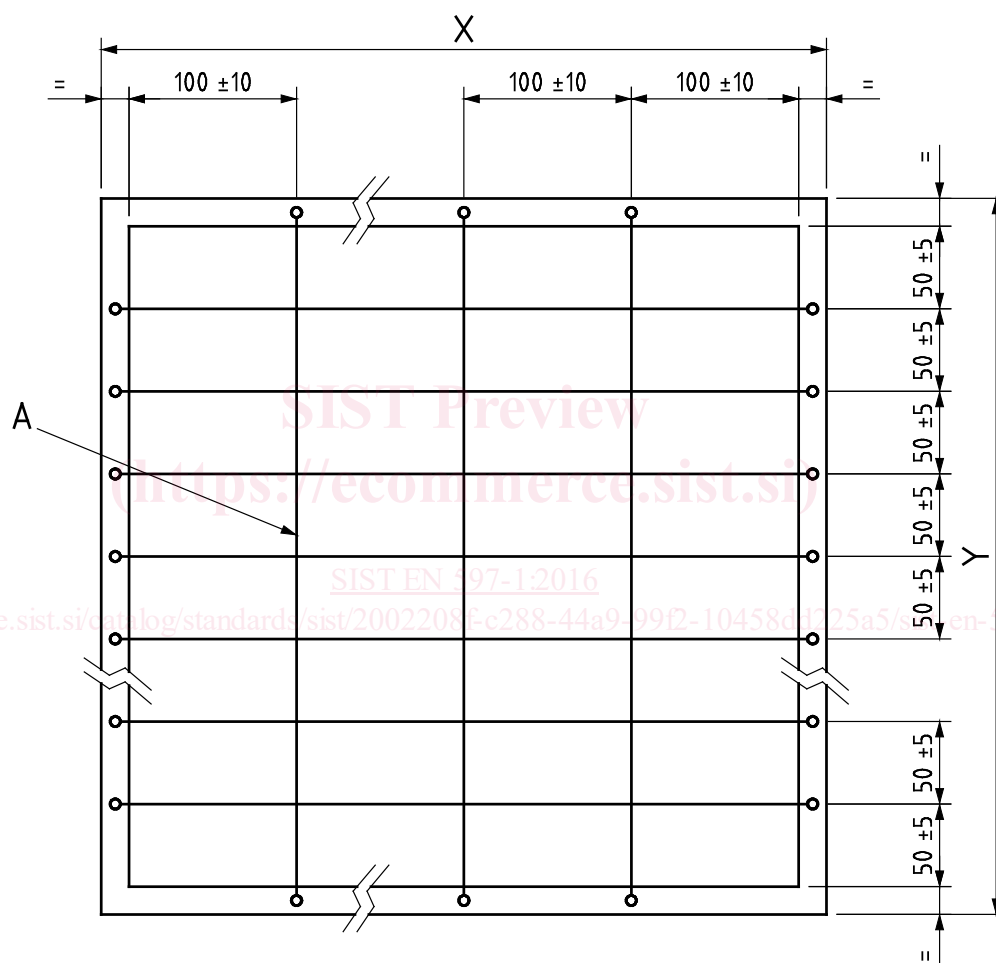
6 Apparatus

6.1 Test rig

Consisting of a platform of expanded steel or open mesh at least 450 mm x 450 mm supported at least 75 mm above a solid base (a suitable test rig mesh is illustrated in Figure 1). The size of the mesh is not critical.

For the tests, the rigs shall be sited within the enclosure (see 6.2) and the testing shall be performed in a basically draught-free environment permitting an adequate supply of air and removal of smoke from the area of the apparatus.

Dimensions in millimetres



Key

A mesh made from wire approximately 2 mm in diameter

X test rig width at least test specimen width

Y test rig length at least test specimen length

Figure 1 — Test rig assembly

EN 597-1:2015 (E)**6.2 Test enclosure**

The test enclosure shall consist of either a room with a volume greater than 20 m³ (which contains adequate oxygen for testing) or a smaller enclosure with a through flow of air. Inlet and extraction systems providing an air speed rate of less than 0,2 m/s in the locality of the rig provide adequate oxygen without disturbing the burning behaviour.

6.3 Clock

The clock shall be capable of measuring to at least 1 h with an accuracy of 1 s.

6.4 Ignition source smouldering cigarette

An un-tipped cylindrical cigarette complying with the following requirements shall be used:

- length: (68 ± 2) mm;
- diameter: (8 ± 0,5) mm;
- mass: (0,85 ± 0,15) g.

The smouldering rate shall be (7,5 ± 2) min/40 mm, when tested as follows.

Mark the cigarette, conditioned as described in 7.1 at 10 mm and 50 mm from the end to be lit. Light it as described in 9.2.1 and impale it horizontally in air (air speed rate less than 0,2 m/s) on a horizontal wire spike inserted not more than 13 mm into the unlit end.

Record the time taken to smoulder from the 10 mm to the 50 mm mark.

The smouldering rate shall be measured on one cigarette from a batch of 20 cigarettes. The smouldering rate may be measured on two cigarettes at the same time. The distance between cigarettes and between each cigarette and any nearby surface such as the wall or floor of the test enclosure shall be at least 150 mm.

If the cigarette ceases smouldering before reaching the 50 mm mark, the measurement of smouldering rate shall be repeated.

7 Atmospheres for conditioning and testing**7.1 Conditioning**

The materials to be tested and the cigarettes shall be conditioned for at least 24 h immediately before the tests in the following atmosphere:

- temperature: (23 ± 2) °C;
- relative humidity: (50 ± 5) %.

7.2 Atmosphere for testing

The test shall be carried out in an atmosphere having a temperature between 10 °C and 30 °C and a relative humidity between 15 % and 80 %.

8 Test specimen**8.1 General**

The test assembly materials shall be representative of the components and make-up of the finished mattress, mattress pad or upholstered bed base.