SLOVENSKI STANDARD
SIST EN 50267-1:1999

01-julij-1999

Nadomešča:
SIST HD 602 S1:1998

Splošne metode za preskušanje kablov v požarnih razmerah - Ugotavljanje nastajanja plinov pri gorenju kabelskih materialov - 1. del: Aparati

Common test methods for cables under fire conditions - Tests on gases evolved during combustion of materials from cables - Part 1: Apparatus

Allgemeine Prüfverfahren für das Verhalten von Kabeln und isolierten Leitungen im Brandfall - Prüfung der bei der Verbrennung der Werkstoffe von Kabeln und isolierten Leitungen entstehenden Gase - Teil 1: Prüfgerät

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Méthodes d'essai communes aux câbles soumis au feu - Essais sur les gaz émis lors de la combustion d'un matériau prélevé sur un câble - Partie 1: Appareillage d'essai

Ta slovenski standard je istoveten z: **EN 50267-1:1998**

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
29.060.20	Kabli	Cables

SIST EN 50267-1:1999 **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 50267-1

June 1998

ICS 13.220.40; 29.060.20

Partly supersedes HD 602 S1:1992

Descriptors: Electrical installation, electric cables, fire tests, combustion tests, combustion products, burning gases, corrosive gases, determination, acidity, corrosivity, test equipment

English version

Common test methods for cables under fire conditions Tests on gases evolved during combustion of materials from cables Part 1: Apparatus

Méthodes d'essai communes aux câbles soumis au feu - Essais sur les gaz émis lors de la combustion d'un matériau prélevé sur un câble
Partie 1: Appareillage d'essai

Allgemeine Prüfverfahren für das Verhalten von Kabeln und isolierten Leitungen im Brandfall - Prüfung der bei der Verbrennung der Werkstoffe von Kabeln und isolierten Leitungen entstehenden Gase
Teil 1: Prüfgerät

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Ref. No. EN 50267-1:1998 E

FOREWORD

This European Standard was prepared by the Technical Committee CENELEC TC20, Electric Cables.

When used in conjunction with EN 50267-2-3 this European Standard supersedes HD 602 S1:1992.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50267-1 on 1998-04-01.

The following dates were fixed:

-	latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	1999-03-01
-	latest date by which national standards conflicting with the EN have to be withdrawn	(dow)	2000-03-01

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1. Scope

EN 50267-1 specifies apparatus suitable for use with procedures for the quantitative determination of gases, especially acidic and corrosive gases, evolved when non-metallic materials taken from cables are subject to combustion.

2. Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 60695-4: Fire hazard testing. Part 4: Terminology concerning fire tests.

Note: IEC 60695 is in the course of re-numbering its Parts and Sections. This will also affect the equivalent ENs.

3. Definition

For the purposes of EN 50267-1 the following definition applies. The definition is taken from EN 60695-4.

3.1 **Combustion**: Exothermic reaction of a substance with an oxidizer with emission of effluent, generally accompanied by flames and/or glowing and/or emission of smoke.

4. Test apparatus

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4.1 General

The principle diagrams of the apparatus are shown in figures 1 to 5.

The assembly of the components which constitute the test apparatus shall be leak-tight. The connecting distances between the tube and the first wash bottle and between the first and the second wash bottle shall be as short as possible. Glass or silicone rubber tubing shall be used for these connections.

NOTE: At the exit side of the tube, as close to the end as possible, it is permitted to place a plug of silica wool (typically weighing about 3 g) to aid collection of condensates.

4.2 Tube furnace

The effective length of the heating zone of the furnace shall be 500 mm to 600 mm and its inside diameter 40 mm to 60 mm. It shall be equipped with an electrically adjusted heating system.

4.3 Tube

The furnace contains a fireproof tube made of silica resistant to the action of corrosive gases. The tube shall be approximately concentric to the tube furnace.

The inside diameter of the silica tube shall be within the limits of 32 mm to 45 mm. The tube protrudes on the entrance side of the furnace by a length of 60 mm to 200 mm, and on the exit side by 60 mm to 100 mm. The initial clearance should allow for thermal expansion.

4.4 Combustion boats

These are recommended to be either porcelain, fused quartz or soapstone and should have the following dimensions:

45 mm to 100 mm long
12 mm to 30 mm wide
5 mm to 10 mm deep

A preferred method for insertion of the combustion boats into the tube is shown in figure 1. Each boat should only be used three times before firing or renewing.

4.5 Bubbling devices for gases

At the exit of the tube, the gases pass through two wash bottles as described in the relevant Section of Part 2. (An example of a wash bottle is shown in figure 2.)

A magnetic stirrer shall be introduced in the first bottle to get a good swirling motion and a better absorption of the combustion gases. The tubes into the wash bottles shall have maximum internal diameter at their tip of 5 mm, also to aid better absorption.

The height of the liquid above the end of the tube shall be 100 mm to 120 mm in each bottle.

4.6 Air supply system

The gas used for combustion shall be air.

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The flow rate of air introduced into the tube shall be adjusted according to the actual internal cross-sectional area of the tube, such that the speed of air flowing across the sample is $20 ml \cdot mm^{-2} \cdot h^{-1}$.

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Because the speed of air cannot be directly measured it shall be regulated by reference to the flow rate of air. The flow rate of air shall be
$(0{,}0157 \cdot D^2)$ litre$\cdot h^{-1}$ ± 10%

NOTE: The derivation of the required flow rate of air to give the specified speed of air is:

$$\rho = V \bullet \frac{\pi D^2}{4}$$

where:

D is the internal diameter of the tube (mm)
ρ is the flow rate in air ($ml \bullet h^{-1}$)
V is the speed of air ($ml \bullet mm^{-2} \bullet h^{-1}$)

Because a tolerance of ±10% is specified for the flow rate of air this also applies to V.

The air supply, which shall be derived from a high purity source, shall be adjusted and controlled by a needle valve, and the flow rate monitored by a flowmeter of the appropriate range.

Method 1[1]

Use of synthetic air (compressed air in bottle as delivered). Air is introduced on the inlet side of the combustion tube. (See figure 3.)

Method 2[1]

Use of compressed air supplied in the laboratory. Air is introduced on the inlet side of the combustion tube and should be filtered. (See figure 4.)

Method 3[1]

Use the ambient air of the laboratory, after having filtered it suitably. In that case, the mixture of air and combustion gas is sucked by a pump. (See figure 5.)

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[1] The operator should take precautions, i.e. the wearing of eye protection and suitable protective clothing, because certain materials ignite quickly, and can cause 'blow-back' of hot gases. Care should also be taken to avoid over-pressurisation of the system, and to allow for venting of exhaust gases.

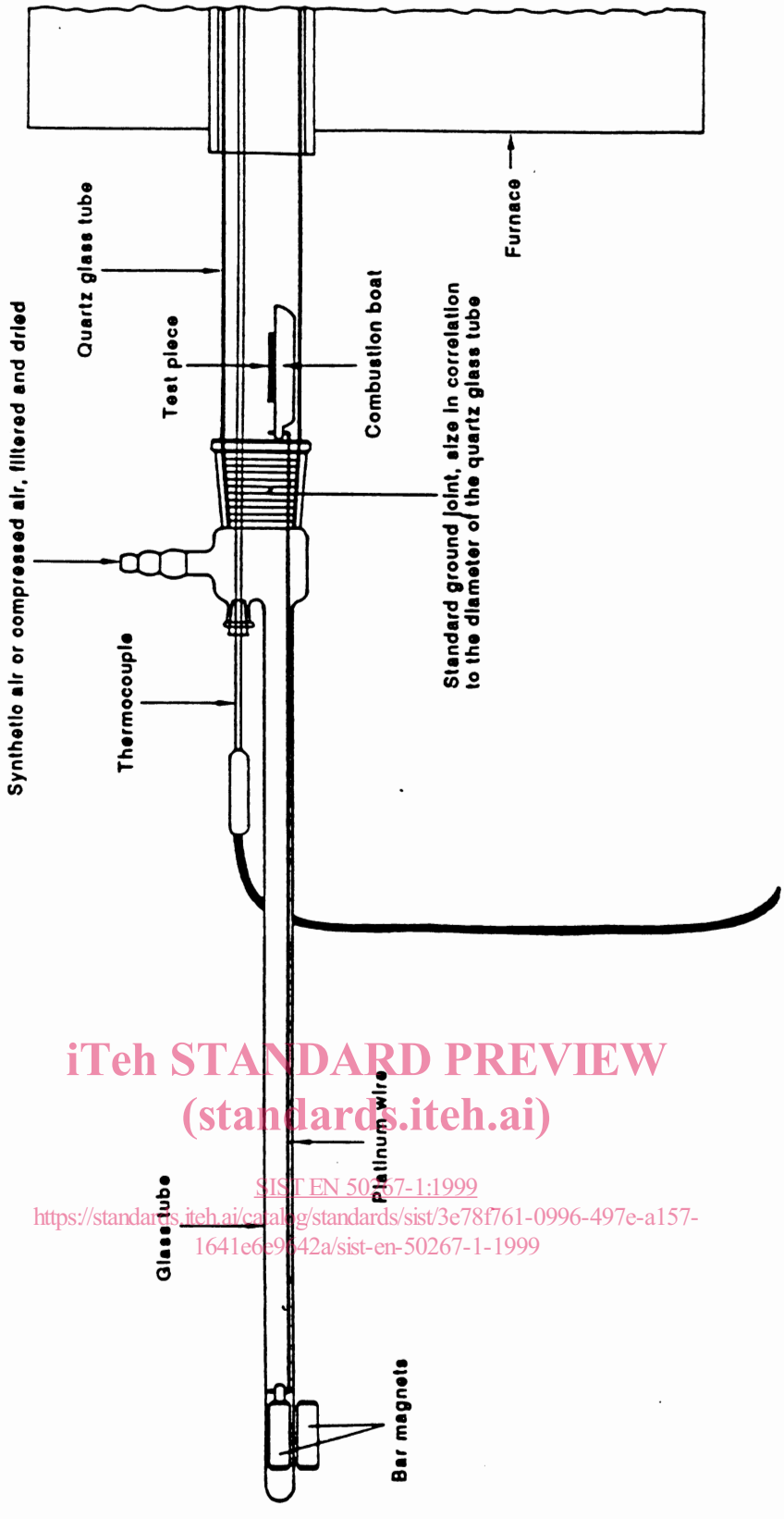

Figure 1 - Device for inserting combustion boat and sample

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