SLOVENSKI STANDARD
SIST EN 60851-4:2001/A2:2005

01-julij-2005

Navijalne žice - Preskusne metode - 4. del: Kemijske lastnosti

Winding wires - Test methods -- Part 4: Chemical properties

Wickeldrähte - Prüfverfahren -- Teil 4: Chemische Eigenschaften

Fils de bobinage - Méthodes d'essai -- Partie 4: Propriétés chimiques

Ta slovenski standard je istoveten z: **EN 60851-4:1996/A2:2005**

ICS:

29.060.10 Žice Wires

SIST EN 60851-4:2001/A2:2005 **en**

EUROPEAN STANDARD **EN 60851-4/A2**

NORME EUROPÉENNE

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ICS 29.060.10

English version

Winding wires – Test methods Part 4: Chemical properties (IEC 60851-4:1996/A2:2005)

Fils de bobinage – Méthodes d'essai Partie 4: Propriétés chimiques (CEI 60851-4:1996/A2:2005)

Wickeldrähte – Prüfverfahren Teil 4: Chemische Eigenschaften (IEC 60851-4:1996/A2:2005)

This amendment A2 modifies the European Standard EN 60851-4:1996; it was approved by CENELEC on 2005-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CENELEC member.

This amendment 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

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Foreword

The text of document 55/924/FDIS, future amendment 2 to IEC 60851-4:2005, prepared by IEC TC 55, Winding wires, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60851-4:1996 on 2005-03-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2008-03-01

Endorsement notice

The text of amendment 2:2005 to the International Standard IEC 60851-4:1996 was approved by CENELEC as an amendment to the European Standard without any modification.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60851-4

1996

AMENDEMENT 2
AMENDMENT 2
2005-01

Amendement 2

Fils de bobinage – Méthodes d'essai –

Partie 4: Propriétés chimiques

Amendment 2

Winding wires – Test methods –

Part 4: Chemical properties

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FOREWORD

This amendment has been prepared by IEC technical committee 55: Winding wires.

The text of this amendment is based on the following documents:

FDIS	Report on voting
55/924/FDIS	55/937/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

3 Test 12: Resistance to solvents (applicable to enamelled round wire with a nominal conductor diameter over 0,250 mm and to enamelled rectangular wire)

Replace the title and introductory statements of test 12 by the following:

3 Test 12: Resistance to solvents (applicable to enamelled round wire with a nominal conductor diameter over 0,250 mm and applicable to enamelled rectangular wire)

The test is not suitable for round wires with a nominal conductor diameter up to and including 0,250 mm.

Resistance to solvents is expressed by the pencil hardness of the wire after solvent treatment.

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3.2 Procedure

Replace the first two paragraphs by the following:

A straight piece of wire, approximately 150 mm in length, shall be preconditioned for (10 ± 1) min at (130 ± 3) °C in an oven with forced air circulation. A substantial length of the wire shall then be immersed in standard solvent contained in a glass cylinder and shall be maintained therein at a temperature of (60 ± 3) °C for a period of (30 ± 3) min. The wire shall then be removed from the solvent. The hardness of the wire surface shall then be determined in the following manner within a period of 30 s after removal from the solvent.

The specimen to be tested shall be laid on a smooth hard surface according to Figure 1. In the case of rectangular wires, the test shall be carried out on the largest side of the wire. The pencil shall be placed on the surface of the wire at an angle of approximately (60 ± 5)° and the sharpened edge shall be pressed slowly along the surface of the wire with a force of approximately (5 ± 0,5) N.

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4 Test 16: Resistance to refrigerants (applicable to enamelled round wire)

Replace the introductory statement and notes by the following:

Resistance to refrigerant is expressed by the quantity of matter extracted from the coating of the wire and by the breakdown voltage after exposure to a refrigerant.

NOTE 1 The data in this test method apply to monochlorodifluoromethane (refrigerant R 22). Other refrigerants may be used, in which case the critical data for such fluid should be observed and operation of the pressure vessel should comply with the revised test conditions.

NOTE 2 Refrigerants like monochlorodifluoromethane and rinsing fluids like trichlorotrifluorethane (refrigerant R 113) are ozone depleting chemicals (ODC). Refrigerant and rinsing fluid should be agreed upon between customer and supplier.

4.1.4 Procedure

Replace the text of this subclause by the following:

The eight specimens shall be placed in the siphon cup, which is suspended (25 ± 5) mm below the condenser coil on the pressure vessel cover. The pressure vessel shall be assembled and charged with (700 ± 25) g of distilled refrigerant free from lubricant. The condenser water supply and drain line shall be connected and the pressure vessel shall be heated by means of a controlled heating system with the temperature set to (75 ± 5) °C or a lower temperature if required to comply with the conditions of the following paragraph relating to critical pressure. The water flowing through the condenser shall be adjusted to maintain a reflux rate of 20 to 25 discharges per hour from the siphon cup. The extraction period shall be 6 h.

The pressure in the vessel shall not exceed 75 % of the critical pressure of the refrigerant chosen. Therefore, prior to use, the over-pressure control valve shall be checked to ensure its proper functioning.

NOTE It is recommended that the heating system be automatically deactivated if the pressure exceeds 75 % of the critical pressure of the refrigerant chosen or if the water flow through the condenser coil is interrupted.

At the end of the extraction period the pressure vessel shall be cooled. The refrigerant shall be removed from the pressure vessel and recovered using suitable means such as a refrigerant compressor and recovery system. The pressure shall be released and the pressure vessel opened.

For the following operations, the rinsing fluid shall be distilled before use.

The specimens and siphon cup shall be rinsed with the agreed rinsing fluid, the rinse poured into the pressure vessel and the walls of the pressure vessel washed with two successive rinses each of 100 ml of rinsing fluid. The fluid shall then be evaporated to (5 ± 1) mm from the bottom of the pressure vessel and recovered in a safe manner.

The liquid sample shall be transferred to a pre-dried tared aluminium weighing dish and the pressure vessel rinsed with 15 ml of rinsing fluid, which is transferred to the dish and then evaporated to dryness at (150 ± 3) °C for 60 to 65 min. The weighing dish shall then be cooled to room temperature in a desiccator. The dish with the residue shall be weighed to the nearest 0,0001 g and the original tared mass of the same dish subtracted. The difference is the total residue mass M_2 of the matter extracted from the eight specimens.

The insulation on the coils shall be removed by suitable chemical means not affecting the conductor and the bare conductors shall be dried at (150 ± 3) °C for (15 ± 1) min and cooled to room temperature in a desiccator. They shall be weighed to the nearest 0,0001 g and the mass of the eight conductors together is the total conductor mass M_3.

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4.1.5 Result

Replace the last sentence by the following:

One test shall be made. The masses M_1, M_2, M_3, the refrigerant, rinsing fluid, temperature, pressure of the pressure vessel and the percentage extractable matter shall be reported.

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4.2.3 Result

Replace the existing sentence by the following:

Five specimens shall be tested. The five individual values shall be reported.

5 Test 17: Solderability (applicable to enamelled round wire and bunched wire)

Add the following after the first paragraph:

Safety warning: Chemical hazard – Lead has been recognized by regulatory agencies to be a hazardous substance. Primary routes of exposure are by inhalation and ingestion. The information contained in the Material safety data sheet (MSDS) for lead, tin, flux and alcohol must be adhered to while using, handling or disposing of these products. Adequate ventilation or forced exhausting of solder pot vapours and products of decomposition from various solderable insulations may be necessary to comply with environmental regulations.

Safety warning: Thermal hazard – Care must be exercised in removing test specimens from the solder pot to avoid skin burns.

5.2 Specimen

Replace the title and existing text of this subclause by the following:

5.2 Equipment

The following equipment shall be used:

- Temperature controlled solder bath of sufficient volume to maintain a constant solder temperature when immersing the specimen at any temperature specified in the relevant standard. Solder composition shall be of a mass ratio of 60 parts tin to 40 parts lead; any dross which forms shall be removed from the surface of the solder before each test; the temperature shall be controllable with ±5 °C of the relevant specification temperature.
- Any suitable carrier that allows the wire to be held free for at least (35 ± 5) mm between the points of support (see Figure 4). The material used for the carrier shall be such that the solder bath does not undergo any contamination. The dimensions of the carrier shall not lead to appreciable changes in the bath temperature during immersion.

NOTE Contamination of the solder due to oxidation or from copper may affect the results.

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5.3 Procedure

Replace the second sentence of the first paragraph by the following:

The bottom end shall be lowered to (35 ± 5) mm below the surface of the bath.

Replace the second paragraph by the following:

The surface of the tinned wire shall be examined with a magnification of 6X to 10X. In the case of wire up to and including 0,100 mm nominal conductor diameter, the examination shall be restricted to the centre (25 ± 2,5) mm free length section between the supports. In the case of wire over 0,100 mm nominal conductor diameter and bunched wires, the examination shall be restricted to the lower 15 mm of the segment immersed in the pot.