SLOVENSKI STANDARD
SIST EN 1876-2:1999

01-marec-1999

Gumirane ali plastificirane tekstilije - Nizkotemperaturni preskusi - 2.del: Udarni preskus na zavihku

Rubber- or plastics- coated fabrics - Low temperature tests - Part 2: Impact test on loop

Mit Kautschuk oder Kunststoff beschichtete Textilien - Prüfungen bei niedrigen Temperaturen - Teil 2: Schlaufen-Schlagprüfung

Supports textiles revetus de caoutchouc ou de plastique - Essais a basse température - Partie 2: Essai de choc sur boucle

Ta slovenski standard je istoveten z: **EN 1876-2:1997**

ICS:

59.080.40	Površinsko prevlečene tekstilije	Coated fabrics

SIST EN 1876-2:1999 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1876-2

November 1997

ICS 59.080.40

Descriptors: textiles, coated fabrics, fabrics coated with rubber, fabrics coated with plastics, thermal tests, low temperature tests, thermal shock tests, brittleness, limit temperature of brittleness, bend tests

English version

Rubber- or plastics- coated fabrics - Low temperature tests - Part 2: Impact test on loop

Supports textiles revêtus de caoutchouc ou de plastique - Essais à basse température - Partie 2: Essai de choc sur boucle

Mit Kautschuk oder Kunststoff beschichtete Textilien - Prüfungen bei niedrigen Temperaturen - Teil 2: Schlaufen-Schlagprüfung

This European Standard was approved by CEN on 16 October 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

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 May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

EN 1876 deals with low-temperature properties of coated fabrics and is composed of two Parts:

Part 1: Bending test
Part 2: Impact test on loop

Annex A is informative and gives examples of suitable apparatus.

NOTE : Persons using this standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

Introduction

The determination of the low temperature properties of rubber or plastic coated fabrics is important for many applications.

EN 1876 describes two methods : a method by bending that constitutes Part 1, and a method that deals with an impact on the material in a loop, and which constitutes Part 2.

The cold crack temperature is not a sharply defined temperature. This temperature depends on the stressed state of the fabric and also the rate of any impact on the loop. This method permits the determination of the temperature limit of brittleness.

The method to be employed should be chosen by those concerned, in order to ensure it matches as closely as possible the conditions likely in use. The results of these two methods are not equivalent and therefore should not be compared.

1 Scope

This European Standard specifies a method for determination of low temperature properties of coated fabrics.

This method is only considered suitable for materials which can, at room temperature, be easily bent into the configuration required by the test without damage to the specimen determined by a test carried out at room temperature.

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 ISO 2231 Rubber or plastics coated fabrics - Standard atmospheres for conditioning and testing.

EN 22286 Rubber or plastics coated fabrics - Determination of roll characteristics.

3 Definitions

For the purposes of this standard, the following definition applies :

3.1 Temperature limit of brittleness: lowest temperature at which at most one specimen in 20 breaks under the conditions of the test.

4 Principle

Rectangular test specimens, bent in the form of a loop and placed in a low temperature chamber, are quickly folded by means of an impact caused by a freely falling hammer.

Tests are continued at decreasing temperatures from a multiple of 5 by steps of 5 °C until more than one break is observed.

5 Sampling

From each laboratory sample, two sets of test specimens shall be cut, one set in the longitudinal direction and the other set in the transverse direction.

The test specimens shall be selected within the full length of the coated fabric and its usable width as defined in EN 22286.

The test specimens shall be (15 ± 0,5) mm wide and (60 ±1) mm long.

For each test temperature, at least 10 test specimens shall be tested (five being in the longitudinal direction and five in the transverse direction).

6 Apparatus

6.1 Impact apparatus having the following general characteristics :

- a test specimen holder permitting clamping of one or several test specimens over the whole width;

- an anvil capable of being attached to the specimen holder and withstanding impact without deformation during the test of . The anvil and the test specimen holder shall be level;

- a hammer of mass (200 ± 2)g made of a vertical axis cylinder, its diameter being between 17 mm and 30 mm. The base of the cylinder shall be chamfered to an angle of (45 ± 1)° ; the chamfered edge being (1 ± 0,1)mm high;

- a centering system for the hammer equipped with a holding down system to permit a free fall of the hammer from a height of (200 ± 2)mm.

Two examples of suitable impact apparatus are given in annex A.

6.2 Cold chamber containing the impact apparatus which shall permit a decrease of temperature by steps of 5°C. The temperature of the chamber shall be stabilised to ±1°C adjacent to the test specimen.

6.3 Lens, with a magnification of 4 x to 6x

7 Atmospheres for conditioning

The atmospheres for conditioning shall be as specified in EN ISO 2231.

NOTE: The samples should be conditioned for at least 24 h in a free state.

8 Procedure

Bend the ends of test specimen to form a loop and clamp on the test specimen holder.

Introduce the test specimen holder into the cold chamber (see 6.2).

After (120 ± 15) min, when the test specimens are in equilibrium with the test temperature, drop the hammer (see 6.1) onto the test specimens.

Take the test specimens out of the cold chamber and examine them with the lens (see 6.3).
A test specimen is considered broken when it shows a rupture visible with a lens, induced totally or partially over the thickness of the coating (fissures, cracks), and not a surface deformation such as a white line or a chap.

1 Base fabric
2 Intermediate layer
3 Upper layer

Figure 1 : Chap   Figure 2 : Fissure   Figure 3 : Crack

The initial test temperature shall be such that no break occurs. Unless otherwise agreed by the parties, it shall be a multiple of 5 °C.

At any test temperature (t), perform the test as follows:

- test 10 test specimens and check them for breaks;

- If two or more breaks occur, then the test is ended and the temperature (t_f) is noted;

- If one test specimen only breaks, then re-test a new set of 10 specimens. If one or more breaks of this new set occur, then the test is ended and the temperature (t_f) is noted; otherwise, lower the temperature of the chamber by 5 °C . Resume the test at this new temperature(t);

- If no break occurs, then lower the temperature of the chamber by 5 °C . Resume the test at this new temperature as (t).

9 Expression of results

The temperature limit of brittleness (t_b) is expressed by

$$t_b = t_f + 5$$

where t_f is the temperature noted at the end of the test;
t_b and t_f are expressed in °C.

10 Test report

The test report shall include the following particulars:

a) reference to this standard;

b) date of test;

c) identification of sample and sampling procedure, if required;

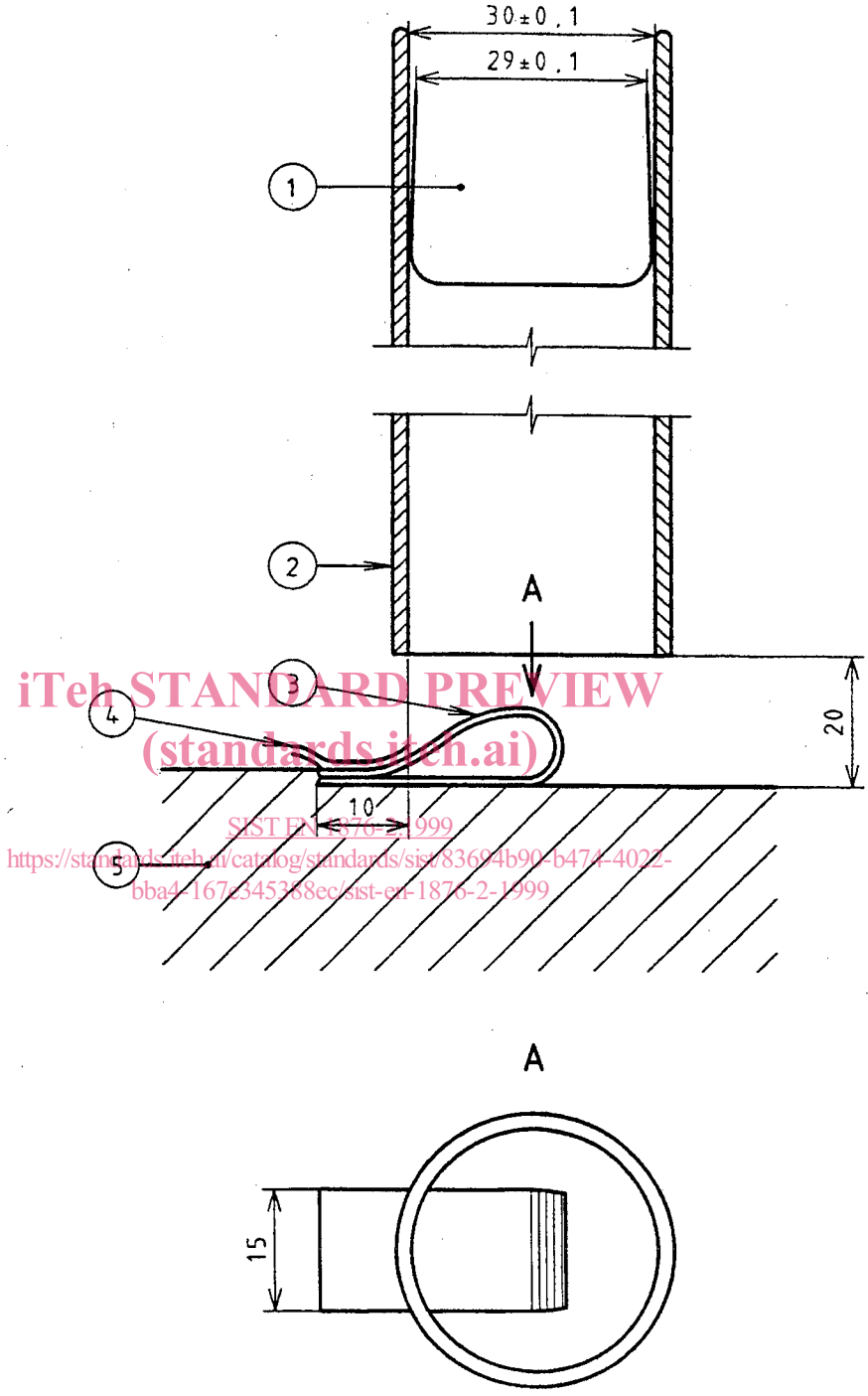
d) the temperature limit of brittleness specified in clause 9 and the type of damage observed on the sample;

e) any deviation from the procedure.

NOTE: Coated fabrics are generally anisotropic materials and frequently this test is ended because of breaking of the test specimens in one direction only, either longitudinal or transverse. In this case, it is recommended to indicate this direction in the test report.

Annex A(informative)

Examples of impact apparatus



1 Hammer
2 Centering tube
3 Test specimen
4 Grip
5 Specimen holder

Figure A.1: Impact apparatus, with a series of several centering tubes assembled