SLOVENSKI STANDARD
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Simulirana obrabno-korozijska metoda za odkrivanje niklja iz prevleļ enih predmetov

Method for the simulation of wear and corrosion for the detection of nickel release from coated items

Simulierte Abrieb- und Korrosionsprüfung zum Nachweis der Nickelabgabe von mit Auflagen versehenen Gegenständen

Méthode de simulation de l'usure et de la corrosion pour la détermination du nickel libéré par les objets revêtus

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39.060	Nakit	Jewellery

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Simulierte Abrieb- und Korrosionsprüfung zum Nachweis der Nickelabgabe von mit Auflagen versehenen Gegenständen

This European Standard was approved by CEN on 21 November 2005 and includes Amendment 1 approved by CEN on 21 May 2009.

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

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Contents

Foreword

This document (EN 12472:2005+A1:2009) has been prepared by Technical Committee CEN/TC 347 “Methods for analysis of allergens”, the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by December 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2009-05-21.

This European Standard supersedes ▌A1⟩ EN 12472:2005. ⟨A1▌

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

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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, 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.

Introduction

The wear of objects in contact with the skin depends very much on the type and shape of the objects and the activities of the person concerned. This procedure attempts to simulate the wear and corrosion on a coated article during two years of normal use. By its nature this is a pragmatic solution to the problems posed by the evaluation of coated items in contact with the skin, which may be subject to several kinds and varying degrees of wear.

In order to show compliance with Directive 94/27/EC, items should be tested in accordance with the appropriate European harmonised standard(s), the references of which have been published by the European Commission in the Official Journal of the European Communities. Currently, these are EN 1810, EN 1811 and this European Standard.

1 Scope

This European Standard specifies a method for accelerated wear and corrosion, to be used prior to the detection of nickel release from coated items that come into direct and prolonged contact with the skin.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1811, *Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin*

3 Principle

The items to be tested are exposed to a corrosive atmosphere before being placed into a tumbling barrel together with a wear medium of abrasive paste and granules. The barrel is rotated so as to subject the test pieces to wear from the wear medium. The items are then tested for nickel release in accordance with EN 1811.

4 Reagents and materials

Except where indicated, all reagents and materials that can come into contact with samples or reagents shall be demonstrably free of nickel, and all reagents shall be of recognized analytical grade or better.

4.1 Corrosion

4.1.1 Container

Container with a lid and a device for suspending the test pieces, all parts made of inert material (e.g. glass or plastic).

4.1.2 Corrosive medium

Dissolve 50 g DL-lactic acid, > 85 % purity, and 100 g sodium chloride in 1 000 ml de-ionized water.

4.1.3 Degreasing solution

An appropriately diluted, neutral, commercially available detergent shall be used, for example, a 0,5 % aqueous solution of sodium dodecylbenzene sulfonate.

4.1.4 De-ionized water

De-ionized water, specific conductivity maximum 1 µS/cm.

4.1.5 Laboratory oven

Laboratory oven, capable of maintaining a temperature of (50 ± 2) °C.

4.2 Wear

4.2.1 Tumbling barrel and retaining assembly

The tumbling barrel and retaining assembly shall be in accordance with the following description:

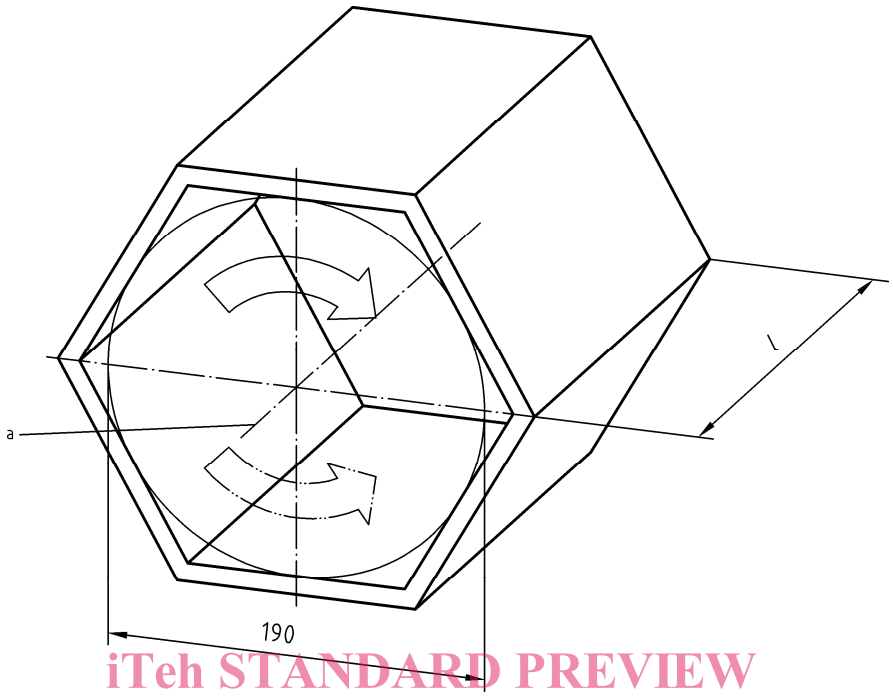
— barrel of hexagonal cross-section and internal diameter of 19 cm perpendicular distance between opposite sides designed to rotate around its axis which is orientated horizontally (see Figure 1);

— retaining assembly, suitable for attaching the test items so that they do not come into contact with each other during tumbling;

— retaining assembly, with items attached, shall be inserted into the barrel for tumbling.

NOTE Examples are given in Annex A of retaining assemblies suitable for attaching typical items.

Dimensions in millimetres



Key

l length of barrel axis, as required

a axis of rotation

Figure 1 — View of tumbling barrel

4.2.2 Wear test apparatus

A device capable of imparting to the barrel (4.2.1) a constant (30 ± 2) rotations per minute. The device shall be capable of allowing the direction of rotation to be reversed.

NOTE Information on sourcing suitable equipment is available from the CEN Management Centre.

4.2.3 Abrasive paste

Abrasive paste produced for dry-tumbling barrels. The abrasive paste shall comprise:

— 6 % to 8 % Ester wax of montanic acids-Wax E [CAS No. 73138-45-1];

— 3 % Octadecanoic acid (stearic acid) [CAS No. 57-11-4];

— 30 % to 35 % Petroleum distillates, hydrotreated light paraffinic [CAS No. 64742-55-8];

— 2 % Polyethylene glycol cetyl/oleyl ether [CAS No. 68920-66-1)] or Triethanolamine [CAS No. 102-71-6];

— 48 % Silicon dioxide (quartz) 200 µm mesh size [CAS No. 14808-60-7];

— 6 % to 9 % De-ionized water.

NOTE Information on sourcing a suitable paste is available from the CEN Management Centre.