

Coating powders - Part 8: Assessment of the storage stability of thermosetting powders

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 8130-8:2010 sisaldab Euroopa standardi EN ISO 8130-8:2010 ingliskeelset teksti.

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This Estonian standard EVS-EN ISO 8130-8:2010 consists of the English text of the European standard EN ISO 8130-8:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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English Version

Coating powders - Part 8: Assessment of the storage stability of
thermosetting powders (ISO 8130-8:1994)

Poudres pour revêtement - Partie 8: Estimation de la
stabilité au stockage des poudres thermodurcissables (ISO
8130-8:1994)

Pulverlacke - Teil 8: Beurteilung der Lagerbeständigkeit von
wärmehärtenden Pulverlacken (ISO 8130-8:1994)

This European Standard was approved by CEN on 16 October 2010.

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Foreword

The text of ISO 8130-8:1994 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 8130-8:2010 by Technical Committee CEN/TC 139 "Paints and varnishes" the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.

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Endorsement notice

The text of ISO 8130-8:1994 has been approved by CEN as a EN ISO 8130-8:2010 without any modification.

Introduction

Coating powders are subject to two distinct ageing mechanisms: one involving the physical state of the powder and the other its chemical reactivity. Changes in the coating powder may lead to deterioration in the physical and chemical properties of the final coating.

This part of ISO 8130 describes the procedures to be adopted in assessing the tendency of a thermosetting coating powder to maintain its physical and chemical integrity after being subjected to defined storage conditions.

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Coating powders —

Part 8:

Assessment of the storage stability of thermosetting powders

1 Scope

This part of ISO 8130 deals with the estimation of the storage stability of thermosetting coating powders. It specifies the procedures for determining the changes both in the physical state of a thermosetting coating powder and in the chemical reactivity of the powder together with its capacity to form a satisfactory final coating. A correlation between changes in different properties is not to be expected. Similarly, there may be no correlation between the results obtained under different storage conditions.

The results of the procedures specified in this part of ISO 8130 give an indication of the ability of the coating powder to withstand the effects of storage prior to application.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8130. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8130 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1514:1993, *Paints and varnishes — Standard panels for testing*.

ISO 2808:1991, *Paints and varnishes — Determination of film thickness*.

ISO 2813:1994, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20 degrees, 60 degrees and 85 degrees*.

ISO 3270:1984, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*.

ISO 6272:1993, *Paints and varnishes — Falling-weight test*.

ISO 8130-6:1992, *Coating powders — Part 6: Determination of gel time of thermosetting coating powders at a given temperature*.

ISO 8130-9:1992, *Coating powders — Part 9: Sampling*.

3 Principle

The thermosetting coating powder is subjected to artificial storage conditions for a specified period of time at a defined temperature. Subsequently, any change in the ability of the powder to flow freely and its tendency to agglomerate or to cake according to a given rating scheme is noted. Any change in the ability of the powder to react chemically and to form a satisfactory final coating is then assessed.

Conditions at the bottom of the container may be simulated by placing a weightpiece on the test portion.

NOTE 1 The demonstration that one property of the material has deteriorated to an extent that it is unsatisfactory may make further tests unnecessary.

4 Required supplementary information

For any particular application, the test method specified in this part of ISO 8130 needs to be completed by supplementary information. The items of supplementary information are given in annex A.

5 Apparatus

5.1 Air-circulating oven, capable of being maintained at $(30 \pm 0,5) ^\circ\text{C}$ or $(40 \pm 0,5) ^\circ\text{C}$.

A water bath may also be used, but the samples shall be carefully sealed to protect against the ingress of water.

5.2 Test tubes, of glass, nominally 200 mm long and 40 mm external diameter.

5.3 Test-tube stoppers.

5.4 Test-tube stand that does not impede air (or water) circulation.

5.5 Standard loads, of mass $(100 \pm 1) \text{ g}$.

NOTE 2 A length of steel rod of diameter sufficient to fit closely within the test tubes (5.2) but without touching the sides is suitable.

5.6 Aluminium-foil discs, of diameter sufficient to fit closely within the test tubes (5.2) but without touching the sides.

5.7 Balance, capable of weighing 100 g to within 0,1 g.

5.8 Test panels, as described in annex B.

6 Sampling

Take a representative sample of the product to be tested, as described in ISO 8130-9.

7 Procedure

7.1 Preliminary examination

7.1.1 Determination of initial chemical reactivity of the powder

Determine the gel time of the sample in accordance with ISO 8130-6 at the temperature specified for the product under test and record the results.

7.1.2 Determination of initial physical and chemical properties of the coating

Prepare and coat at least three test panels (5.8), as described in annex B. Discard any test panels where the coating shows signs of pinholing, cratering or cracking. Retain one of the coated test panels for use when comparing the coating made (see 7.3.3) after the artificial-storage treatment of the product (see 7.2). Determine the specular gloss of the coating on two of the remaining panels at an angle of 20° , 60° or 85° depending on the gloss level of the coating, by the procedure described in ISO 2813. Then determine the resistance of the coating to deformation by falling weight using two of the remaining panels and an agreed procedure from ISO 6272.

If agreed between the interested parties, other tests may be specified to establish the initial properties of the product under test.

7.2 Artificial-storage treatment

7.2.1 Unless otherwise agreed, the temperature and respective times at which the product is maintained prior to assessment of its storage stability shall be as follows:

- a) $(30 \pm 1) ^\circ\text{C}$ for 7 days, 28 days and 2 months or
- b) $(40 \pm 1) ^\circ\text{C}$ for 24 h, 7 days and 28 days.

7.2.2 Check that the product under test is not agglomerated and, if necessary, pass it through a sieve of appropriate aperture to disperse the sample into its constituent particles.

7.2.3 For each artificial-storage condition (7.2.1) carry out the procedure in triplicate. Weigh $(100 \pm 1) \text{ g}$ of the sample into a test tube (5.2). Holding the test tube vertically, gently tap the bottom on a firm surface to ensure that the powder is not loosely packed. The simulation of conditions at the bottom of a container, if agreed, shall be achieved by application of a standard load (5.5) on an aluminium-foil disc (5.6). If it is agreed not to carry out this pro-