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**Praškasti premazi - 1. del: Ugotavljanje porazdelitve velikosti delcev s sejanjem
(ISO/DIS 8130-1:2018)**

Coating powders - Part 1: Determination of particle size distribution by sieving (ISO/DIS 8130-1:2018)

Pulverlacke - Teil 1: Bestimmung der Teilchengrößenverteilung durch Sieben (ISO/DIS 8130-1:2018)

Poudres pour revêtement - Partie 1: Détermination de la distribution granulométrique par tamisage (ISO/DIS 8130-1:2018)

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Coating powders —

Part 1: Determination of particle size distribution by sieving

*Poudres pour revêtement —**Partie 1: Détermination de la granulométrie par tamisage*

ICS: 87.040

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 8130-1:1992), which has been technically revised.

The main changes compared to the previous edition are as follows:

- The title of the standard was changed from particle size distribution to particle size;
- a terms and definitions clause has been added;
- a principle clause has been added;
- manual sieving was added as an alternative method;
- the text has been editorially revised and the normative references have been updated.

A list of all parts in the ISO 8130- series can be found on the ISO website.

Coating powders —

Part 1:

Determination of particle size distribution by sieving

1 Scope

This part of ISO 8130 specifies a method for the determination of the particle size of coating powders by sieve analysis. Particle size distributions with a maximum of less than 100 µm should be determined by laser diffraction (see ISO 8130-13). This method is used especially for determining the oversize material or for the presence of contamination and may be used as a quality control procedure (“go”/“no go” test) by checking the amount of powder retained on a single sieve.

The following particle sizes are typical for coating powders, however the particle size can deviate depending on the application:

- thin-film technology: 1 µm to 63 µm
- electrostatic coating: 10 µm to 200 µm
- fluidizing-bed method: 100 µm and above

NOTE Sieves with a mesh size smaller than 32 µm are not practical and are likely to become blind during use.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 8130-14, *Coating powders — Part 14: Terminology*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

3 Terms and definitions

For the purposes of this document, the specific terms and definitions given in ISO 8130-14 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

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4 Principle

A weighed amount of the coating powder is separated into fractions by one or more sieves and the mass of the retained fraction on the sieve is determined. Sieve analysis can be carried out by using individual sieves or with a set of sieves either manually or using a machine. The transport of the coating powder particles through the sieve mesh is due to either gravity, shear and/or flow forces.

5 Apparatus

Ordinary laboratory apparatus, together with the following:

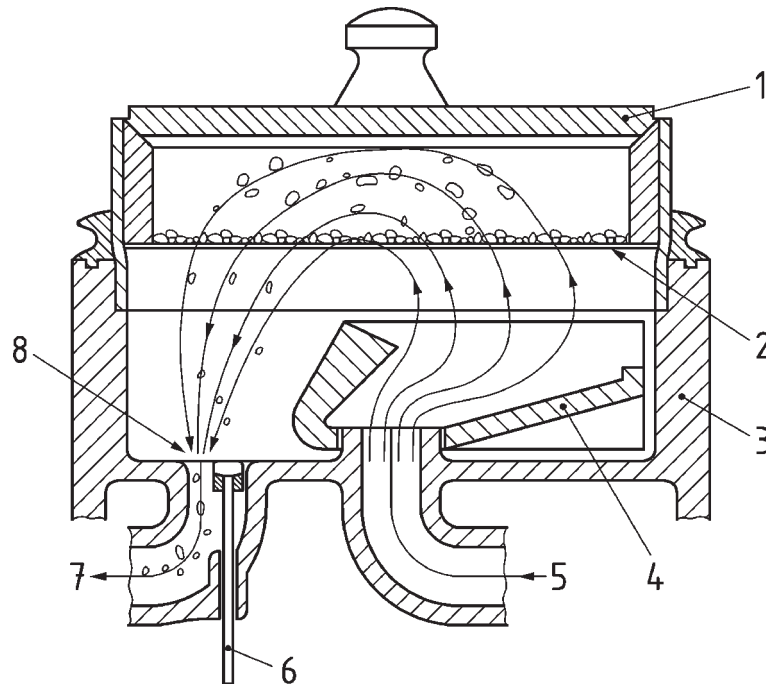
5.1 Test sieve with a sieve bottom according to ISO 3310-1 and ISO 3310-2, circular with a sieving area having a diameter of 200 mm. Sieves with a sieving area having a diameter of 300 mm may also be used. The frame and the mesh of the test sieves shall be of metal. The range of nominal mesh apertures shall be between 32 μm and 300 μm or as agreed and shall comply with the requirements of ISO 565 for supplementary sizes, see [Annex A](#). The test sieve shall be covered with a transparent lid.

The choice of mesh apertures, see [Annex A](#), will depend on the test sample. If the approximate particle size distribution of the sample is known, then it is necessary to use only those test sieves that are appropriate to the particular particle size range. It is also permissible to restrict the choice of test sieves to those that give sufficient data for a specific purpose. Appropriate details shall be agreed between the interested parties.

5.2 Air-jet sieve apparatus (see Figure 1), consisting of a cylindrical casing which contains the test sieve (5.1). In the base of the casing shall be an outlet to which an extractor fan is connected and an air inlet to permit the injection of air.

The air inlet is connected to a jet rotating at 20 min^{-1} to 25 min^{-1} and consisting of a slot-shaped nozzle arranged radially beneath and very close to the sieve mesh. When the jet rotates, it blows air continuously through the mesh, preventing the coating powder particles from blocking the test sieve. The air is then extracted through the outlet, drawing the finer particles through the sieve.

The flow of air is controlled by adjusting a slot at the outlet.

**Key**

- 1 Transparent lid
- 2 Sieve
- 3 Casing
- 4 Rotating rim
- 5 Air inlet
- 6 Manometer
- 7 To vacuum pump
- 8 Adjustable slot

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NOTE This diagram illustrates the functioning of the air-jet sieve apparatus and is schematic only.

Figure 1 — Air-jet sieve apparatus

5.3 Vibratory sieve machine, consisting of cylindrical casing which contains the test sieve (5.1). The machine can be set up with either a single sieve or can be used with a set of sieves stacked in order of decreasing particle size thereby allowing particles to pass through the apertures into a collection pan at the bottom of the stack. The degree of vibration may be machine dependent or as agreed between interested parties. It is important to ensure that the coating powder particles are not shattered due to attrition.

5.4 Balance, capable of weighing to the nearest 0,01 g.

5.5 Mallet, of light construction, with a plastic head, suitable for tapping the apparatus to dislodge deposited powder.

5.6 Magnifying glass, of magnification at least $\times 5$.

5.7 Ultrasonic cleaning bath, to clean the sieve mesh.

5.8 Soft hair cleaning pencil brush, to manually clear the apertures.

ISO/DIS 8130-1:2018(E)**6 Sampling**

Take a representative sample of the product under test as described in ISO 15528.

7 Choice of sieving method and sieve selectivity

The following sieving methods may be used for coating powders:

- a) manual sieving by hand using individual sieves or a set of sieves, if necessary with assistance by a gaseous, stationary fluid;
- b) machine sieving with a stationary single sieve or set of sieves with a gaseous, moving fluid, e.g. an air-jet sieve or a set of sieves with a vibrant air column;
- c) machine sieving with a moving single sieve or moving set of sieves (vibratory-sieve machine).

The choice depends on the requirements as agreed between the interested parties.

Factors which can influence sieving include, the nominal mesh size of the test sieve and its classification limit, these may not be identical and the latter should be determined with respect to the sieving method.

Sieve selectivity and its classification limit can be affected by the following:

- a) The apparatus and method:
 - 1) type of the sieve
 - 2) size and shape of the sieve mesh
 - 3) distribution of the sieve mesh apertures
 - 4) effective sieve area
 - 5) movement of the sieve
 - 6) sieving aid
 - 7) proportion of the not blinded sieve mesh
- b) The test material:
 - 1) mass and bulk volume
 - 2) particle size distribution
 - 3) shape of the particles
 - 4) agglomeration
 - 5) humidity
 - 6) hygroscopicity
 - 7) static
 - 8) strength (resistance against attrition)
- c) The test equipment
 - 1) sieving duration
 - 2) air jet flow
 - 3) vibration frequency