INTERNATIONAL STANDARD

ISO 11125-2

Second edition
2018-08

Corrected version
2019-04

Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives —

Part 2: Determination of particle size distribution

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Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Méthodes d'essai pour abrasifs métalliques destinés à la préparation par projection —

Partie 2: Analyse granulométrique

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

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This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products.*

This second edition cancels and replaces the first edition (ISO 11125-2:1993), which has been technically revised.

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

— 3.3, 5.1, 5.2, 5.7 have been renumbered and technically revised;

— Annex A has been technically revised.

A list of all parts in the ISO 11125 series can be found on the ISO website.

This corrected version of ISO 11125-2:2018 incorporates the following corrections:

— In Clause 7, "m_2" in Formula (1) has been corrected to "m_0".

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Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives —

Part 2: Determination of particle size distribution

1 Scope

This document specifies a test method for the determination of particle size distribution of metallic blast-cleaning abrasives by sieving.

This is one of a number of parts of ISO 11125 dealing with the sampling and testing of metallic abrasives for blast-cleaning.

The types of metallic abrasive and requirements on each are contained in the various parts of ISO 11124.

The ISO 11124 and ISO 11125 series have been drafted as a coherent set of International Standards on metallic blast-cleaning abrasives. Information on all parts of both series is given in Annex A.

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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.

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

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Apparatus

Ordinary laboratory apparatus and glassware, together with the following.

4.1 Balance, capable of weighing to an accuracy of 0,1 g.

4.2 Test sieves, circular, with a height of 25 mm to 50 mm and a sieving area approximately 200 mm diameter, made of woven metal wire cloth. The frame of the test sieves shall be of metal. The range of nominal mesh apertures depends on the specification for the product to be tested and shall comply with the requirements of ISO 565:1990, Table 2, as indicated in Table 1. The sieves shall have square openings. A lid and a residue pan shall also be provided.

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NOTE Smaller diameter sieves may not produce accurate separation of the sample.

Sieves shall be regularly checked for calibration and freedom from retained abrasive.

Table 1 — List of sieve mesh apertures to be used (from ISO 565; R20/3 and R40/3 sizes)

Dimensions in millimetres

0,045	0,355	1,40
0,053	0,425	1,70
0,063	0,500	2,00
0,075	0,600	2,36
0,125	0,710	2,80
0,180	0,850	3,35
0,250	1,00	4,00
0,300	1,18	4,75

4.3 Sieve shaker to agitate the sample.

Sieving shall be carried out in a suitable type of sieving machine leading to a 3D motion of the particles. The machine shall be placed on a solid surface.

EXAMPLE

Rotating and tapping machine having both a rotatory movement and a vertical movement producing a sharp jolting or tapping action.

Vibratory sieving with electromagnetic drive, combining a vertical movement with a rotation of the particles.

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4.4 1/1 sample divider.

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5 Sampling

Take a representative sample of the product to be tested, as described in ISO 11125-1.

6 Procedure

Carry out the determination in duplicate.

6.1 Using the 1/1 sample divider (4.4), obtain a sample of approximately 120 g.

6.2 Weigh out, using the balance (4.1), (120 ± 20) g of the sample, m_0.

NOTE Increased test-portion mass may lead to inaccurate separation.

6.3 Use all the test sieves listed against the grade under test as given in the grade and screening specification table in the appropriate part of ISO 11124 (see Annex A) or, in the case of materials not covered by ISO 11124, as otherwise agreed between the interested parties.

6.4 Arrange the test sieves (4.2) with the largest-aperture sieve on the top and progress to the smallest aperture at the bottom, with a pan to catch any abrasive that falls through the finest sieve.

6.5 Place the test portion in the top sieve.

6.6 Place a cover over the top sieve.

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6.7 Place the stack of sieves with the test portion in the sieve shaker machine (4.3) and agitate for a given time as specified according to technology of the sieve shaker machine, to reach the final point of sieving.

NOTE The agitation time is chosen so that increasing it by 1 min will result in no more than a 1 % change in the cumulative mass retained for any sieve in the stack. This can be considered as the final point of sieving.

6.8 Carefully remove the top sieve from the stack and transfer any retained abrasive on to the balance pan. Brush the sieve clean of any trapped abrasive and add this to the balance pan. Weigh to the nearest 0,1 g and record this result, m_1. Repeat for all the sieves in the stack, including the retaining pan, adding each fraction retained to that previously weighed. Calculate and record the cumulative percentage retained for each sieve. If less than 99 % of the original mass is re-captured, retest.

7 Expression of results

For each test sieve used, and for the residue in the pan, calculate the percentage of material retained, R, expressed as a percentage by mass, using the following Formula (1):

$$R = \frac{m_1}{m_0} \times 100 \tag{1}$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the residue on the sieve (or in the pan).

If the duplicate determinations of cumulative material retained for each test sieve differ by more than 10 % (relative to the higher result), repeat the procedure described in Clause 5.

Calculate the mean of two valid determinations of cumulative material retained.

Report the result to the nearest 1 %.

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8 Precision

Variation of sieve openings within the limits allowable in ISO 565 can cause major differences in results on the same material. Where deviation is experienced, an exchange of samples or sieves between customer and supplier is strongly recommended.

9 Test report

The test report shall contain at least the following information:

a) all details necessary to identify the product tested in accordance with the appropriate part of ISO 11124 (see Annex A), if applicable;

b) a reference to this document, i.e. ISO 11125-2:2018;

c) the result of the test;

d) any deviation from the test method specified;

e) the date of the test;

f) the name of the person who carried out the test.

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Annex A
(informative)

International Standards for metallic blast-cleaning abrasives

Requirements and test methods for metallic blast-cleaning abrasives are contained in ISO 11124 and ISO 11125, respectively.

ISO 11124 consists of the following parts, under the general title:

Preparation of steel substrates before application of paints and related products — Specification for metallic blast-cleaning abrasives

— *Part 1: General introduction and classification*

— *Part 2: Chilled-iron grit*

— *Part 3: High-carbon cast-steel shot and grit*

— *Part 4: Low-carbon cast-steel shot*

— *Part 5: Cut steel wire*[1)]

ISO 11125 consists of the following parts, under the general title:

Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives

— *Part 1: Sampling*

— *Part 2: Determination of particle size distribution*

— *Part 3: Determination of hardness*

— *Part 4: Determination of apparent density*

— *Part 5: Determination of percentage defective particles and of microstructure*

— *Part 6: Determination of foreign matter*

— *Part 7: Determination of moisture*

— *Part 9: Wear testing and performance*[2)]

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1) Under preparation. (Stage at the time of publication ISO/DIS 11124-5:2018.)

2) Under preparation. (Stage at the time of publication ISO/NP 11125-9:2018.)

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Bibliography

[1] ISO 11125-1, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 1: Sampling*

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