INTERNATIONAL STANDARD

ISO 11126-3

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

Part 3:
Copper refinery slag

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

Partie 3: Scories de raffinage du cuivre

Reference number
ISO 11126-3:1993(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11126-3 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.*

ISO 11126 consists of the following parts, under the general title *Preparation of steel substrates before application of paints and related products — Specifications for non-metallic blast-cleaning abrasives*:

— *Part 1: General introduction and classification*

— *Part 2: Silica sand*

— *Part 3: Copper refinery slag*

— *Part 4: Coal furnace slag*

— *Part 5: Nickel refinery slag*

— *Part 6: Iron furnace slag*

— *Part 7: Fused aluminium oxide*

— *Part 8: Olivine sand*

— *Part 9: Staurolite*

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— *Part 10: Garnet*

At the time of publication of this part of ISO 11126, parts 2, 7, 9 and 10 were in course of preparation.

Annex A of this part of ISO 11126 is for information only.

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

Part 3:
Copper refinery slag

WARNING — Equipment, materials and abrasives used for surface preparation can be hazardous if used carelessly. Many national regulations exist for those materials and abrasives that are considered to be hazardous during or after use (waste management), such as free silica or carcinogenic or toxic substances. These regulations are therefore to be observed. It is important to ensure that adequate instructions are given and that all required precautions are exercised.

1 Scope

This part of ISO 11126 specifies requirements for copper refinery slag abrasives, as supplied for blast-cleaning processes. It specifies ranges of particle sizes and values for apparent density, Mohs hardness, moisture content, conductivity of aqueous extract and water-soluble chlorides.

The requirements specified in this part of ISO 11126 apply to abrasives supplied in the "new" condition only. They do not apply to abrasives either during or after use.

Test methods for non-metallic blast-cleaning abrasives are given in the various parts of ISO 11127.

NOTES

1 Information on commonly referenced national standards for non-metallic abrasives is given in annex A.

2 Although this part of ISO 11126 has been developed specifically to meet requirements for preparation of steelwork, the properties specified will generally be appropriate for use when preparing other material surfaces, or components, using blast-cleaning techniques. These techniques are described in ISO 8504-2:1992, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 2: Abrasive blast-cleaning.*

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11126. 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 11126 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 11127-1:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 1: Sampling.*

ISO 11127-2:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 2: Determination of particle size distribution.*

ISO 11127-3:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 3: Determination of apparent density.*

ISO 11127-4:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 4: Assessment of hardness by a glass slide test.*

ISO 11127-5:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 5: Determination of moisture.*

ISO 11127-6:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 6: Determination of water-soluble contaminants by conductivity measurement.*

ISO 11127-7:1993, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 7: Determination of water-soluble chlorides.*

3 Definition

For the purposes of this part of ISO 11126, the following definition applies.

3.1 copper refinery slag: A synthetic mineral blast-cleaning abrasive manufactured, by granulation in water, drying and sieving, with or without mechanical crushing processes, from slag originating from copper smelting. It is basically iron silicate slag.

NOTE 3 Slags manufactured by air cooling instead of granulation in water are generally of a different mineral structure and are therefore not covered by this part of ISO 11126.

4 Designation of abrasives

Copper refinery slag abrasives shall be identified by "Abrasive ISO 11126" and the abbreviation N/CU indicating non-metallic, copper refinery slag abrasive. This shall be followed, without spaces, by an oblique stroke and then by the symbol G to indicate the required particle shape of the abrasive, when purchased, as grit. The designation shall be completed by numbers denoting the particle size range, in millimetres, required (see table 1).

EXAMPLE 1

Abrasive ISO 11126 N/CU/G 0,5-1

denotes an abrasive of the non-metallic copper refinery slag type, complying with the requirements of this part of ISO 11126, of initial particle shape grit and particle size range 0,5 mm to 1 mm.

It is essential that this full product designation is quoted on all orders.

5 Sampling

Sampling procedures shall be as specified in ISO 11127-1.

6 Requirements

6.1 General requirements

Copper refinery slag abrasives shall be vitreous amorphous materials that absorb no water but may be wetted on the surface only.

Silica in copper refinery slag abrasives shall be present as bonded silicate. The content of free crystalline silica (such as quartz, tridimite or crystobalite) shall not exceed 1 % (*m/m*), as determined by X-ray diffraction.

The material shall be free from corrosive constituents and adhesion-impairing contaminants.

NOTE 4 Copper refinery slag abrasives as supplied have a predominantly angular shape. More spherical particle shapes are not excluded as their effect on the surface profile obtained corresponds generally to that produced by angular abrasive particles.

6.2 Particular requirements

Particular requirements for copper refinery slag abrasives shall be as specified in table 2.

7 Identification and marking

All supplies shall be clearly marked or identified using the appropriate designation as specified in clause 4, either directly or by the accompanying delivery note.

8 Information to be supplied by the manufacturer or supplier

The manufacturer or supplier shall supply, if requested, a test report detailing results for any relevant property as determined by the appropriate method specified in table 2.

Table 1 — Particle size distribution

Particle size range[1]		mm	**0,2 to 0,5**	**0,2 to 1**	**0,2 to 1,4**	**0,2 to 2**	**0,2 to 2,8**	**0,5 to 1**	**0,5 to 1,4**	**1,0 to 2**	**1,4 to 2,8**
Oversize	Sieve size	mm	0,5	1	1,4	2	2,8	1	1,4	2	2,8
	Residue % (*m/m*)	max.	10	10	10	10	10	10	10	10	10
Nominal size	Sieve size	mm	0,2	0,2	0,2	0,2	0,2	0,5	0,5	1	1,4
	Residue % (*m/m*)	min.	85	85	85	85	85	80	80	80	80
Undersize	Sieve size	mm	0,2	0,2	0,2	0,2	0,2	0,5	0,5	1	1,4
	Through-flow % (*m/m*)	max.	5	5	5	5	5	10	10	10	10

1) By agreement between the interested parties, abrasives of different particle size ranges may be mixed together. Details of proportions of nominal size, oversize and undersize shall be specified. The maximum particle size shall not exceed 3,15 mm and the proportion of particles less than 0,2 mm shall not exceed 5 % (*m/m*).

Table 2 — Particular requirements for copper refinery slag abrasives

Property		**Requirement**	**Test method**
Particle size range and distribution		See table 1	ISO 11127-2
Apparent density	kg/m^3 [kg/dm^3]	(3,3 to 3,9) x 10^3 [3,3 to 3,9]	ISO 11127-3
Mohs hardness[1]		min. 6	ISO 11127-4
Moisture	% (*m/m*)	max. 0,2	ISO 11127-5
Conductivity of aqueous extract	mS/m	max. 25	ISO 11127-6
Water-soluble chlorides	% (*m/m*)	max. 0,002 5	ISO 11127-7

1) Another method for assessing hardness may be used, together with an appropriate minimum requirement, by agreement between the interested parties.

Annex A
(informative)

Bibliography

Commonly referenced national standards for non-metallic abrasives are as follows:

[1] DIN 8200:1982, *Strahlverfahrenstechnik; Begriffe, Einordnung der Strahlverfahren* (Blasting; terms, classification of blasting techniques).

[2] DIN 8201 Teil 1:1985, *Feste Strahlmittel; Einteilung, Bezeichnung* (Abrasives; classification, designation).

[3] DIN 8201 Teil 5:1985, *Feste Strahlmittel, natürlich, mineralisch; Quarzsand* (Natural mineral abrasives; quartz sand).

[4] DIN 8201 Teil 6:1985, *Feste Strahlmittel, synthetisch, mineralisch; Elektrokorund* (Synthetic mineral abrasives; electric corundum).

[5] DIN 8201 Teil 9:1986, *Feste Strahlmittel, synthetisch, mineralisch; Kupferhüttenschlacke, Schmelzkammerschlacke* (Synthetic mineral solid abrasives; copper refinery slag, melting chamber slag).

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