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

**Part 10:
Almandite garnet**

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

Partie 10: Almandite



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO 11126 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 11126-10 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 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*
- *Part 10: Almandite garnet*

Part 2 has been deleted.

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

Part 10: Almandite garnet

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 almandite garnet 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 ISO 11127.

NOTE 1 Information on commonly referenced national standards for non-metallic abrasives is given in the Bibliography.

NOTE 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 8504-2:2000, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 2: Abrasive blast-cleaning*.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 11126. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 11126 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC 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 Term and definition

For the purposes of this part of ISO 11126, the following term and definition apply.

3.1

almandite garnet

material manufactured from the naturally occurring mineral garnet which is dried and sieved, with or without mechanical crushing, and prepared for use as a blast-cleaning abrasive

NOTE 1 Almandite garnet is an iron aluminium silicate with the chemical formula $\text{Fe}_3\text{Al}_2(\text{SiO}_4)_3$.

NOTE 2 Other forms of garnet, such as andradite garnet which is a calcium iron silicate with the chemical formula $\text{Ca}_3\text{Fe}_2(\text{SiO}_4)_3$, exist, but these garnet abrasives are not covered by this part of ISO 11126.

4 Designation of abrasives

Almandite garnet abrasives shall be identified by "Abrasive ISO 11126" and the abbreviation N/GA indicating non-metallic, almandite garnet 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 values denoting the particle size range, in millimetres, required (see Table 1).

EXAMPLE

Abrasive ISO 11126 N/GA/G 0,2-1

denotes an abrasive of the non-metallic almandite garnet type, complying with the requirements of this part of ISO 11126, of initial particle shape grit and particle size range 0,2 mm to 1 mm.

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

Table 1 — Particle size distribution

Particle size range ^a			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

^a 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).

5 Sampling

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

6 Requirements

6.1 General requirements

Almandite garnet abrasives are natural mineral grains that absorb no water but may be wetted on the surface only.

Silica in almandite garnet abrasives shall be present as bound silicate. The content of free crystalline silica (such as quartz, tridimite or cristobalite) shall not exceed 1,0 % (m/m), as determined by X-ray diffraction.

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

NOTE Almandite garnet 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 almandite garnet abrasives shall be as specified in Table 2.

Table 2 — Particular requirements for almandite garnet abrasives

Property	Requirement	Test method
Particle size range and distribution	See Table 1	ISO 11127-2
Apparent density kg/m ³ [kg/dm ³]	(4,0 to 4,2) × 10 ³ [4,0 to 4,2]	ISO 11127-3
Mohs hardness ^a	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
^a Another method for assessing hardness may be used, together with an appropriate minimum requirement, by agreement between the interested parties.		

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.

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 5:1985, *Feste Strahlmittel, natürlich, mineralisch; Quarzsand* (Natural mineral abrasives; quartz sand).

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