INTERNATIONAL STANDARD

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

Part 1: General introduction and classification

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Spécifications pour abrasifs métalliques destinés à la préparation par projection —
Partie 1: Introduction générale et classification

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

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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.

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 11124-1:1993), which has been technically revised.

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

— 4.3, Clause 6 and Annex A have been technically revised.

A list of all parts in the ISO 11124 series can be found on the ISO website.

Introduction

This document is one of a number of parts of ISO 11124 specifying requirements for metallic abrasives for blast-cleaning.

Test methods for metallic blast-cleaning abrasives are given in the various parts of ISO 11125 (see Annex A).

The requirements for non-metallic abrasives commonly used for blast-cleaning are specified in the various parts of ISO 11126. Test methods to be used to define these requirements are contained in the various parts of ISO 11127 (see Annex A).

Abrasive blast-cleaning techniques are widely used to clean and prepare surfaces. During work on development of a series of International Standards dealing with the preparation of steel substrates before application of paints and related products, it was decided that a need existed for a series of International Standards covering those blast-cleaning abrasives commonly used in preparation of steelwork.

The type of blast-cleaning abrasive used and its particle shape can significantly affect the surface appearance and profile form of the treated surface.

The informative supplement to ISO 8501-1 provides photographic examples of the change in appearance imparted to steel when blast-cleaned with different abrasive types.

ISO 8503-2 describes the assessment of the surface roughness of prepared surfaces using comparators. Table 1 of this document identifies the type of comparator to be used with each of the blast-cleaning abrasives considered.

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

Part 1:
General introduction and classification

WARNING — Equipment, materials and abrasives used for surface preparation can be hazardous. It is important to ensure that adequate instructions are given and that all required precautions are exercised.

1 Scope

This document describes a classification of metallic blast-cleaning abrasives for the preparation of steel substrates before application of paints and related products.

It specifies the characteristics which are required for the complete designation of such abrasives.

This document applies to abrasives supplied in the "new" or unused condition only. It does not apply to abrasives either during or after use.

NOTE Although this document 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.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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/

3.1
blast-cleaning abrasive
solid material intended to be used for *abrasive blast-cleaning* (3.2)

3.2
abrasive blast-cleaning
impingement of a high-kinetic-energy stream of *blast-cleaning abrasive* (3.1) on to the surface to be prepared

3.3
shot
particles that are predominantly round, that have a length of less than twice the maximum particle width and that do not have edges, broken faces or other sharp surface defects

3.4
grit
particles that are predominantly angular, that have fractured faces and sharp edges and that are less than half-round in shape

3.5
cylindrical
sharp-edged particles, having a diameter to length ratio of 1:1, cut so that their faces are approximately at right angles to their centreline

4 Classification

4.1 Abrasive type

Blast-cleaning abrasives shall be classified according to material, origin or manufacture. Table 1 gives the abbreviated coding which shall be used to identify each of the types considered.

NOTE The metallic abrasives listed in Table 1 are those commonly used for the preparation of steel substrates before application of paints and related products. The list is not intended to be exhaustive.

Table 1 — Commonly used metallic (M) blast-cleaning abrasives for steel substrate preparation

Type			Abbreviation	Initial particle shape (see 4.2)	Comparator[a]
Metallic (M) blast-cleaning abrasives	Cast iron	Chilled	M/CI	G	G
	Cast steel	High-carbon	M/HCS	S or G	S[b] or G
		Low-carbon	M/LCS	S	S
	Cut steel wire	—	M/CW	C	S[b]

[a] Comparator to be used when assessing the resultant surface profile. The method for evaluating surface profile by comparator is described in ISO 8503-2 (see Introduction).

[b] Certain types of abrasive, depending on hardness, rapidly change their shape when used. As soon as this happens the appearance of the profile changes and becomes more similar to that of the "shot" comparator.

4.2 Initial particle shape

The particle shape characterizes the geometric form of the abrasive particles. Basic forms of metallic blast-cleaning abrasives are specified in Table 2, together with the symbol which shall be used to describe each.

NOTE As the particle shape of an abrasive can change during use, only the initial particle shape is given in the various parts of ISO 11124.

Table 2 — Initial particle shape

Designation and initial particle shape	Symbol
Shot — round	S
Grit — angular, irregular	G
Cylindrical — sharp-edges	C

4.3 Particle size range

Metallic blast-cleaning abrasives consist of mixtures of differently sized particles. These shall be classified into size ranges or grades. A 3-digit number shall be used to indicate each particular size range or grade. This number indicates the nominal particle size in millimetres × 100.

5 Designation of abrasives

Metallic abrasives shall be identified by using the full product designation, which consists of the term "Abrasive" followed by "ISO 11124" and the abbreviation specified in Table 1. This shall be followed, without spaces, by an oblique stroke and then by the symbol specified in Table 2 to indicate the required particle shape of the abrasive as purchased. The designation shall be completed, without a space, by a 3-digit number denoting the grade, or nominal particle size, required. If alternative hardnesses of abrasive are available, the particular Vickers hardness (HV) range required shall also be specified.

EXAMPLE 1

Abrasive ISO 11124 M/CI/G100

denotes an abrasive of the metallic, chilled-iron type, conforming to the requirements of the appropriate part of ISO 11124, of initial particle shape grit and of grade 100 (i.e. nominal particle size 1,00 mm).

EXAMPLE 2

Abrasive ISO 11124 M/HCS/G140/570-710HV

denotes an abrasive of the metallic, high-carbon cast-steel type, conforming to the requirements of the appropriate part of ISO 11124, of initial particle shape grit and of grade 140 (i.e. nominal particle size 1,40 mm), and with a hardness range of 570 HV to 710 HV.

This full product designation shall be quoted on all orders.

6 Package identification and lot traceability

All supplies shall be clearly marked and identified using the appropriate designation as specified in Clause 5. The unit of sale, i.e. commercial packaging unit, shall be clearly labelled with the full product coding, including hardness range, if applicable.

Sub-units, i.e. bags, shall be marked with the particle shape and grade codes.

Inclusion of additional marking to allow product traceability to a particular production period or lot is strongly recommended. Traceability references should be included at least at the pallet, drum or box level of package marking.