BRITISH STANDARD

BS EN ISO
11124-1:1997

Incorporating Amendment No. 1 to BS 7079-E1:1994 (renumbers BS as BS EN ISO 11124-1: 1997)

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1998

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

Part 1: General introduction and classification

The European Standard EN ISO 11124-1:1997 has the status of a British Standard

ICS 25.220.10; 87.020

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Surface Treatments and Coatings Standards Policy Committee (STC/-) to Technical Committee STC/21, upon which the following bodies were represented:

Association of Consulting Engineers
British Chemical Engineering Contractors' Association
British Coatings Federation Ltd.
British Constructional Steelwork Association Ltd.
British Grit Association
British Railways Board
British Steel Industry
Department of Transport
Electricity Association
Institute of Corrosion
National Federation of Painting and Decorating Contractors
Oil and Colour Chemists' Association
Paint Research Association
Royal Society of Chemistry

This British Standard, having been prepared under the direction of the Surface Treatments and Coatings Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 March 1994

The following BSI references relate to the work on this standard:
Committee reference STC/21
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Amendments issued since publication

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Contents

National foreword

This Part of BS 7079 has been prepared under the direction of the Surface Treatments and Coatings Standards Policy Committee. It is identical with ISO 11124-1:1993 *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives — Part 1: General introduction and classification,* published by the International Organization for Standardization (ISO).

In 1997, the European Committee for Standardization (CEN) accepted ISO 11124-1:1993 as European Standard EN ISO 11124-1:1997.

International Standard ISO 11124-1 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.

The other Parts of ISO 11124 are identical with the following Parts of BS 7079:

— *Part E1: General introduction and classification;*

— *Part E2: Specification for chilled-iron grit;*

— *Part E3: Specification for high-carbon cast-steel shot and grit;*

— *Part E4: Specification for low-carbon cast-steel shot.*

A further Part, ISO 11124-5 *Cut steel wire,* is in preparation.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN ISO title page, pages 2 to 6 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 11124-1

January 1997

ICS 87.020

Descriptors: See ISO document

English version

Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives — Part 1: General introduction and classification

(ISO 11124-1:1993)

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
(ISO 11124-1:1993)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen — Anforderungen an metallische Strahlmittel — Teil 1: Allgemeine Einleitung und Einteilung
(ISO 11124-1:1993)

This European Standard was approved by CEN on 1996-12-27. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

The text of the International Standard from Technical Committee ISO/TC 35, Paints and varnishes, of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 139, Paints and varnishes, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 1997, and conflicting national standards shall be withdrawn at the latest by July 1997.

According to CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11124-1:1993 has been approved by CEN as a European Standard without any modification.

Introduction

This 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[1)] provides photographic examples of the change in appearance imparted to steel when blast-cleaned with different abrasive types.

ISO 8503-2[2)] describes the assessment of the surface roughness of prepared surfaces using comparators. Table 1 of this part of ISO 11124 identifies the type of comparator to be used with each of the blast-cleaning abrasives considered.

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 11124 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 part of ISO 11124 applies to abrasives supplied in the "new" or unused condition only. It does not apply to abrasives either during or after use.

NOTE 1 Although this part of ISO 11124 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 Definitions

For the purposes of this part of ISO 11124, the following definitions apply.

2.1
blast-cleaning abrasive

solid material intended to be used for abrasive blast-cleaning

2.2
abrasive blast-cleaning

impingement of a high-kinetic-energy stream of blast-cleaning abrasive on to the surface to be prepared

2.3
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

2.4
grit

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

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1) ISO 8501-1:1988/Suppl, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings — Informative Supplement to Part 1: Representative photographic examples of the change of appearance imparted to steel when blast-cleaned with different abrasives. (To be published).*

2) ISO 8503-2:1988, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel — Comparator procedure.*

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

Type			Abbreviation	Initial particle shape (see 3.2)	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]
		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 the introduction).

[b] Certain types of abrasive 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.

2.5
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

3 Classification

3.1 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 2 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.

3.2 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 3 As the particle shape of an abrasive may 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-edged	C

3.3 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 or approximate midpoint of the size range in millimetres × 100.

EXAMPLE 1

Grade 200

Approximate middle of the particle size range or nominal diameter of the grade	2,00 mm
Particle size range	over 2,36 mm Nil
	over 1,70 mm > 80 %

4 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, again 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.

EXAMPLES

2 Abrasive ISO 11124 M/CI/G100

denotes an abrasive of the metallic, chilled-iron type, complying with 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).

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

denotes an abrasive of the metallic, high-carbon cast-steel type, complying with 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.

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

5 Package identification and lot traceability

All supplies shall be clearly marked and identified using the appropriate designation as specified in clause **4**. The unit of sale, i.e. pallet, drum, box, etc., 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.

NOTE 4 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.

Annex A (informative) International Standards for metallic and non-metallic blast-cleaning abrasives

A.1 Requirements and test methods for metallic blast-cleaning abrasives are contained in ISO 11124 and ISO 11125, respectively.

ISO 11124 will consist 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.

ISO 11125 will consist 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 8: Determination of abrasive mechanical properties.

A.2 Requirements and test methods for non-metallic blast-cleaning abrasives are contained in ISO 11126 and ISO 11127, respectively.

ISO 11126 will consist 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;

— Part 10: Garnet.

ISO 11127 will consist of the following parts, under the general title:

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

— Part 1: Sampling;

— Part 2: Determination of particle size distribution;

— Part 3: Determination of apparent density;

— Part 4: Assessment of hardness by a glass slide test;

— Part 5: Determination of moisture;

— Part 6: Determination of water-soluble contaminants by conductivity measurement;

— Part 7: Determination of water-soluble chlorides;

— Part 8: Determination of abrasive mechanical properties.

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London
W4 4AL