

CONFIRMED
DECEMBER 1998

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

Part 4: Determination of apparent density

The European Standard EN ISO 11125-4:1997 has the status of a
British Standard

ICS 25.220.10; 87.020

**BS EN ISO
11125-4:1997
BS 7079-E9:
1994**

*Incorporating
Amendment No. 1 to
BS 7079-E9:1994
(which it renumbers
as BS EN ISO
11125-4:1997)*

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

© BSI 04-2000

The following BSI references relate to the work on this standard:
 Committee reference STC/21
 Draft for comment 92/50237 DC

ISBN 0 580 23061 9

Amendments issued since publication

Amd. No.	Date	Comments
9728	November 1997	Indicated by a sideline in the margin

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
<hr/>	
Foreword	2
1 Scope	3
2 Normative references	3
3 Definition	3
4 Materials	3
5 Apparatus	3
6 Sampling	3
7 Procedure	3
8 Expression of results	4
9 Test report	4
<hr/>	
Annex A (informative) International Standards for metallic blast-cleaning abrasives	5
Annex ZA (normative) Normative references to international publications with their relevant European publications	6
<hr/>	
List of references	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee STC/21 and is the English language version of EN ISO 11125-4:1997 *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 4: Determination of apparent density*, published by the European Committee for Standardization (CEN). It is identical with ISO 11125-5:1993, published by the International Organization for Standardization (ISO).

International Standard ISO 11125-4 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 BS EN ISO 11125 are:

- *Part 1: Sampling*;
- *Part 2: Determination of particle size distribution*;
- *Part 3: Determination of hardness*;
- *Part 5: Determination of percentage defective particles and of microstructure*;
- *Part 6: Determination of foreign matter*;
- *Part 7: Determination of moisture*.

Cross-references

Publication referred to	Corresponding British Standard
EN ISO 3696:1995 (ISO 3696:1987)	BS EN ISO 3696:1995 <i>Water for analytical laboratory use — Specification and test methods</i>
EN ISO 11125-1:1997 (ISO 11125-1:1993)	BS EN ISO 11125 <i>Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives Part 1:1997 Sampling</i>

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, an inside back cover 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.

ICS 87.020

Descriptors: Paints, varnishes, substrates, steel products, blast-cleaning, abrasives, metallic abrasives, tests, density measurement, density (mass/volume)

English version

Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 4: Determination of apparent density

(ISO 11125-4:1993)

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 4: Détermination de la masse volumique apparente
(ISO 11125-4:1993)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen — Prüfverfahren für metallische Strahlmittel —
Teil 4: Bestimmung der scheinbaren Dichte
(ISO 11125-4:1993)

This European Standard was approved by CEN on 1997-05-28. 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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 a 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 December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

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

NOTE Normative references to International Standards are listed in Annex ZA (normative)

1 Scope

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.

This part of ISO 11125 specifies a test method for the determination of the apparent density of metallic blast-cleaning abrasives.

The purpose of the test is to establish the soundness of the metallic abrasive. Significant levels of internal shrinkage or hollow particles will reduce the apparent density.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11125. 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 11125 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 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

ISO 11125-1:1993, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 1: Sampling*.

3 Definition

For the purposes of this part of ISO 11125, the following definition applies.

3.1 apparent density

the mass of a given volume of metallic abrasive, as determined by the pyknometer method described in this part of ISO 11125

4 Materials

4.1 Distilled or deionized water, of at least grade 3 purity as specified in ISO 3696.

5 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

5.1 Pyknometer, Gay-Lussac type, of capacity 50 ml, with a capillary stopper.

5.2 Balance, capable of weighing to an accuracy of 0,01 g.

6 Sampling

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

7 Procedure

Carry out the determination in duplicate.

7.1 Weigh, using the balance (**5.2**), the clean, dry pyknometer (**5.1**) to an accuracy of 0,01 g (m_1).

7.2 Add approximately 100 g of the test sample and reweigh (m_2).

7.3 Add distilled or deionized water (**4.1**) to the pyknometer until it is completely filled. Replace the stopper and gently shake the pyknometer to displace air adhering to the test portion. Remove the stopper, fill with water and then replace the stopper, forcing excess water out through the capillary tube. Carefully dry the outside of the pyknometer. Ensure there are no air bubbles present. Reweigh the pyknometer and its contents (m_3).

7.4 Empty the pyknometer of water and test portion. Rinse several times to remove all traces of abrasive. Refill with distilled or deionized water, replace the stopper and ensure that there are no air bubbles present. Dry the outside of the pyknometer and weigh (m_4).

NOTE 1 Care should be taken that the pyknometer is handled as little as possible in order to prevent warming by hand. Pyknometer, test portion and water should as far as possible be at the same room temperature.

8 Expression of results

Calculate the apparent density ρ_A of the product tested, expressed in kilograms per cubic metre (kg/m^3), using the equation

$$\rho_A = \frac{m_2 - m_1}{(m_4 - m_1) - (m_3 - m_2)} \times \rho_W \times 10^3$$

where

m_1 is the mass, in grams, of the pyknometer;

m_2 is the mass, in grams, of the pyknometer and test portion;

m_3 is the mass, in grams, of the pyknometer, test portion and water;

m_4 is the mass, in grams, of the pyknometer and water;

ρ_W is the density, in kilograms per cubic decimetre of water, at the temperature of the determination.

If the duplicate determinations differ by more than 10 % (relative to the higher result), repeat the procedure described in clause 7.

Calculate the mean of two valid determinations and report the result to the nearest 100 kg/m^3 .

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 part of ISO 11125 (ISO 11125-4);
- 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.

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 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.

Annex ZA (normative)**Normative references to international publications with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication	Year	Title	EN	Year
ISO 3696	1987	<i>Water for analytical laboratory use — Specification and test methods</i>	EN ISO 3696	1995
ISO 11125-1	1993	<i>Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 1: Sampling</i>	EN ISO 11125-1	1997

List of references

See national foreword.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.