BRITISH STANDARD

BS EN ISO
787-11:1995
Incorporating
Amendment No. 1

General methods of test for pigments and extenders —

Part 11: Determination of tamped volume and apparent density after tamping

The European Standard EN ISO 787-11:1995 has the status of a British Standard

This British Standard, having been prepared under the direction of the Pigments, Paints and Varnishes Standards Committee, was published under the authority of the Board of BSI and comes into effect on
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The following BSI references relate to the work on this standard:
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Amendments issued since publication

Amd. No.	Date of issue	Comments
8685	December 1995	Indicated by a sideline in the margin

Contents

National foreword

This revision of Part B10 of BS 3483 has been prepared under the direction of the Pigments, Paints and Varnishes Standards Committee. It is identical with ISO 787-11 "*General methods of test for pigments and extenders — Part 11: Determination of tamped volume and apparent density after tamping*" published in 1981 by the International Organization for Standardization (ISO).

In 1995 the European Committee for Standardization (CEN) accepted ISO 787-11:1981 as European Standard EN ISO 787-11:1995. As a consequence of implementing the European Standard this British Standard is renumbered as BS EN ISO 787-11 and any reference to BS 3483-B10 should be read as a reference to BS EN ISO 787-11.

This Part of BS 3483 supersedes BS 3483-B10:1974 which is withdrawn.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words "This part of ISO 787" and "International Standard" appear, referring to this standard, they should be read as "This Part of BS 3483" and "British Standard" respectively.

Cross-references

International Standard	Corresponding British Standard
ISO 842:1974	BS 4726:1971 *Methods for sampling raw materials for paints and varnishes* (Technically equivalent)
ISO 4788:1980	BS 604:1982 *Specification for graduated glass measuring cylinders* (Identical)

The Technical Committee has reviewed the provisions of ISO 565, to which reference is made in the text and has decided that they are acceptable for use in conjunction with this standard.

A related British Standard for ISO 565:1972 is BS 410:1976 "*Specification for test sieves*".

Additional information. In the last paragraph of **5.2** of ISO 787-11:1981, it is stated that the whole procedure (clause **5**) is to be repeated if the duplicate determinations differ by more than 10 ml. In implementing this standard in the United Kingdom, it is recommended that, if repeat determinations are necessary, wherever possible both the sampling (clause **4**) and the procedure (clause **5**) should be repeated.[1)]

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 4, 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.

[1)] This change has been reported to the ISO in a proposal to amend the text of the International Standard.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 787-11

August 1995

ICS 87.060.10; 87.060.30

Descriptors: Paints, pigments, tests, chemical analysis, determination, density measurement, volume, volumeters

English version

General methods of test for pigments and extenders — Part 11: Determination of tamped volume and apparent density after tamping

(ISO 787-11:1981)

Méthodes générales d'essai des pigments et matières de charge — Partie 11: Détermination du masse volumique apparent et de la masse apparente après tassement
(ISO 787-11:1981)

Allgemeine Prüfverfahren für Pigmente und Füllstoffe — Teil 11: Bestimmung des Stampfvolumens und der Stampfdichte
(ISO 787-11:1981)

This European Standard was approved by CEN on 1995-03-23. 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 ISO/TC 35, Paints and varnishes, of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 298, Pigments and extenders.

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 February 1996, and conflicting national standards shall be withdrawn at the latest by February 1996.

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.

0 Introduction

This document is a part of ISO 787, *General methods of test for pigments and extenders.*

1 Scope and field of application

This part of ISO 787 specifies a general method of test for determining the tamped volume and the apparent density after tamping of a sample of pigment or extender.

NOTE When this general method is applicable to a given pigment or extender, only a cross-reference to it should be included in the International Standard relating to that pigment or extender, with a note of any detailed modification which may be needed in view of the special properties of the material in question. Only when this general method is not applicable to a particular material should a special method for determination of tamped volume and apparent density after tamping be specified.

2 References

ISO 565, *Test sieves — Woven metal wire cloth and perforated plate — Nominal sizes of apertures.*

ISO 842, *Raw materials for paints and varnishes — Sampling.*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders.*

3 Apparatus

Ordinary laboratory apparatus and

3.1 *Sieve*, of diameter 100 or 200 mm, with a nominal mesh aperture of 500 µm, complying with the requirements of ISO 565.

NOTE If necessary or specified, it is permissible to use sieves with other nominal mesh apertures or diameters. It is, however, recommended that the nominal mesh aperture chosen should correspond to one of the principal sizes given in ISO 565.

3.2 *Tamping volumeter* (see the Figure), composed of the following items.

3.2.1 *Measuring cylinder* of capacity 250 ml, complying with the requirements of ISO 4788, fitted with a suitable stopper, and with graduation marks at 2 ml intervals.

3.2.2 *Holder* for the measuring cylinder (**3.2.1**), with shaft. The total mass of the cylinder, stopper and shaft shall be 670 ± 45 g.

3.2.3 *Cam*, which lifts the shaft with the measuring cylinder once per revolution and which has a rotational frequency of 250 ± 15 r/min.

3.2.4 *Anvil*, so placed that the raised shaft falls from a height of 3 ± 0,1 mm over the anvil.

3.2.5 *Revolution counter*, to count the number of revolutions of the cam.

3.2.6 *Sleeve*, to guide the shaft, constructed of a suitable material to give minimum friction.

NOTE The apparatus should be so constructed that, without undue free play, the friction between the shaft and the sleeve is as low as possible without the use of a lubricant.

3.3 *Oven*, capable of being maintained at 105 ± 2 °C.

3.4 *Balance*, accurate to 0,5 g or better.

3.5 *Desiccator*, containing an efficient desiccant.

4 Sampling

Take a representative sample of the material to be tested as described in ISO 842.

5 Procedure

Carry out the procedure in duplicate.

5.1 Test portion

Take sufficient of the sample to carry out two determinations (about 500 ml), dry it in the oven (**3.3**) at 105 ± 2 °C for 2 h and allow it to cool in the desiccator (**3.5**).

NOTE It may be convenient to take a pre-determined mass of material such that it occupies the specified volume, and add this to the tared cylinder.

Pass the dried material through the sieve (**3.1**) to disperse any agglomerates and add it to the graduated measuring cylinder (**3.2.1**) (previously weighed to the nearest 0,5 g) so that no air pockets are formed. This may be achieved by tilting and turning the cylinder about its long axis whilst adding the material.

When 200 ± 10 ml of the material have been added, weigh the cylinder and the sample to the nearest 0,5 g (see the note). Tap the cylinder gently until the surface of the material is approximately horizontal. Replace the stopper.

NOTE It may be convenient to take a pre-determined mass of material such that it occupies the specified volume, and add this to the tared cylinder.

5.2 Determination

Place the cylinder in the holder (**3.2.2**) of the tamping volumeter (**3.2**) and tamp it for approximately 1 250 revolutions of the cam (**3.2.3**). Read off the volume of the material to the nearest 1 ml.

NOTE If the surface of the material is no longer horizontal after tamping, it should nevertheless be possible to estimate the volume to the nearest 1 ml.

Continue tamping in steps of approximately 1 250 revolutions, reading off the volume of the material after each step, until the difference between the volume at the end of two successive steps of 1 250 tampings is less than 2 ml. Record the final value as the volume of the material after tamping.

[2]If the two determinations differ by more than 10 ml, repeat the whole procedure (clause **5**).

6 Expression of results

6.1 Calculation

Calculate the tamped volume by the equation

$$v_t = \frac{100\ V}{m_1 - m_0}$$

Calculate the apparent density after tamping by the equation

$$\varrho_t = \frac{100}{v_t} = \frac{m_1 - m_0}{V}$$

where

m_0 is the mass, in grams, of the empty cylinder;

m_1 is the mass, in grams, of the cylinder and material;

V is the volume, in millilitres, of the material after tamping;

v_t is the tamped volume, in millilitres per 100 g, of the material;

ϱ_t is the apparent density, in grams per millilitre, of the material after tamping.

Take the mean of two determinations and report the result to the nearest 1 ml/100 g or 0,01 g/ml respectively.

6.2 Precision

No precision data are currently available.

7 Test report

The test report shall contain at least the following information:

a) the type and identification of the product tested;

b) a reference to this International Standard (ISO 787-11);

c) the result of the test as indicated in clause **6**;

d) any deviation, by agreement or otherwise, from the procedure specified;

e) the date of the test.

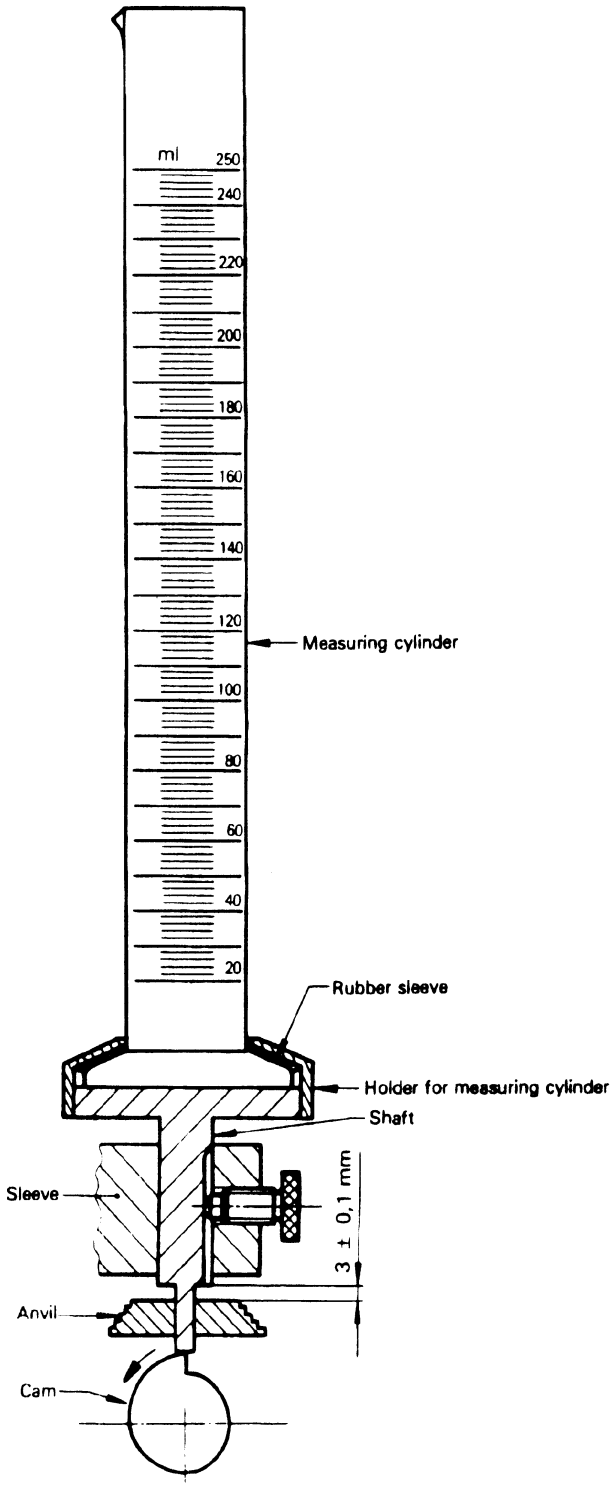

Figure — Tamping volumeter

[2] See the paragraph headed "Additional information" in the national foreword.

Publications referred to

See the national foreword.

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