

Methods of test for Desiccants —

Part 10: Determination of bulk density (dry basis)

NOTE It is recommended that this Part be read in conjunction with BS 3482-1 "*Sampling, and preparation and storage of test samples*" which is issued separately.

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Chemicals Standards Policy Committee (CIC/-) to Technical Committee CIC/2, upon which the following bodies were represented:

- Chemical Industries Association
- Ministry of Defence
- Royal Society of Chemistry
- Society of British Aerospace Companies Limited
- Society of Environmental Engineers

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Foreword

This Part of BS 3482 has been prepared under the direction of the Chemicals Standards Policy Committee. This revision of BS 3482 comprises Part 1, which describes procedures for sampling and preparation and storage of test samples and a number of Parts describing methods of test for desiccants. This revision supersedes BS 3482:1962 which is withdrawn. It differs from BS 3482:1962 in that individual methods have been published in separate Parts and have been generally updated. Some additional methods not included in BS 3482:1962 have also been incorporated.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, 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 Scope

This Part of BS 3482 describes two methods for the determination of bulk density of desiccants on a dry basis, based on the grain size.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definition

bulk density dry basis

the mass of desiccant per unit volume after subjection to a shaking process and after correction for moisture content

3 Method A. Method for desiccants of grain size greater than 2 mm

3.1 Principle

A fixed mass of desiccant is shaken in a measuring cylinder until the level remains constant. The bulk density is expressed as the ratio of the mass of desiccant to the volume occupied in the cylinder.

3.2 Apparatus

NOTE A convenient form of the apparatus is shown in Figure 1.

3.2.1 Graduated measuring cylinder, capacity 1 000 mL, complying with BS 604.

3.2.2 Rubber pad

3.3 Procedure

3.3.1 Test portion

Weigh, to the nearest 1 g, 500 g of the laboratory sample (see clause 2 of BS 3482-1:1991) into the cylinder (3.2.1).

3.3.2 Determination

Shake the cylinder (3.2.1) containing the test portion (3.3.1) up and down, using a fall of approximately 25 mm on to the rubber pad (3.2.2) until the level of the test portion remains constant.

Read the final volume (V) of the test portion from the graduations on the cylinder.

3.4 Calculation and expression of results

The bulk density, corrected for moisture content (dry basis) and expressed in grams per millilitre, is given by the following expression:

$$\frac{500 - (5 \times \text{moisture content})}{V}$$

where

V is the final volume of the test portion (in mL).

NOTE Moisture content is determined as described in BS 3482-2.

3.5 Test report

The test report shall include the following information.

- A complete identification of the sample.
- A reference to this British Standard method, i.e. method A of BS 3482-10:1991.
- The results, expressed in accordance with 3.4.
- Any unusual features noted during the determination.

4 Method B. Method for desiccants of grain size 2 mm or less

4.1 Principle

A fixed mass of desiccant is shaken in a measuring cylinder until the level remains constant. The bulk density is expressed as the ratio of the mass of desiccant to the volume occupied in the cylinder.

4.2 Apparatus

4.2.1 Graduated measuring cylinder, capacity 50 mL, complying with BS 604.

4.2.2 Rubber pad

4.3 Procedure

4.3.1 Test portion

Weigh, to the nearest 1 g, 30 g of the laboratory sample (see clause 2 of BS 3482-1:1991) into the cylinder (4.2.1).

4.3.2 Determination

Shake the cylinder (4.2.1) containing the test portion (4.3.1) up and down, using a fall of approximately 25 mm on to the rubber pad (4.2.2) until the level of the test portion remains constant. Read the final volume (V) of the test portion from the graduations on the cylinder.

4.4 Calculation and expression of results

The bulk density, created for moisture content (dry basis) and expressed in grams per millilitre, is given by the following expression:

$$\frac{30 - (0.3 \times \text{moisture content})}{V}$$

where

V is the final volume of the test portion (in mL).

NOTE Moisture content is determined as described in BS 3482-2.

4.5 Test report

The test report shall include the following information.

- a) A complete identification of the sample.
- b) A reference to this British Standard method, i.e. method B of BS 3482-10:1991.
- c) The results expressed in accordance with 4.4.
- d) Any unusual features noted during the determination.

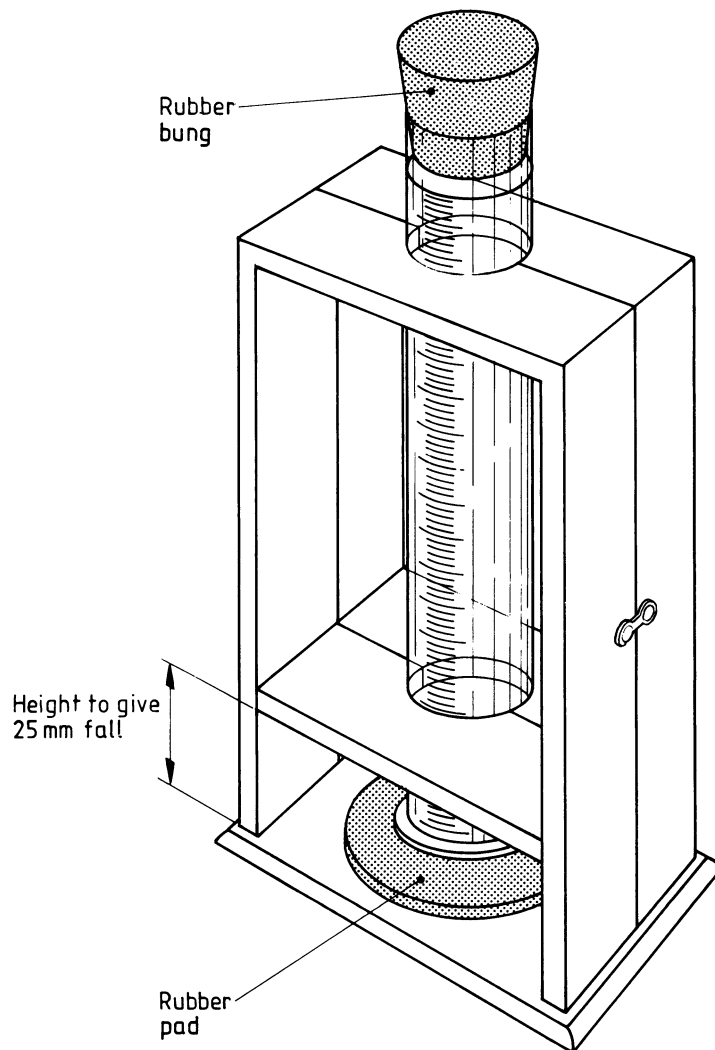


Figure 1 — Convenient form of apparatus for the determination of bulk density

Publication(s) referred to

BS 604, *Specification for graduated glass measuring cylinders.*

BS 3482, *Methods of test for desiccants.*

BS 3482-1, *Sampling, and preparation and storage of samples.*

BS 3482-2, *Determination of moisture content.*

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