

Method for

Determination of apparent density after compaction of precipitated calcium carbonate

Co-operating organizations

The Chemicals Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives of the following Government departments and scientific and industrial organizations:

- Board of Trade
- British Iron and Steel Federation
- Chemical Industries Association*
- Fertilizer Manufacturers' Association
- Gas Council
- Institute of Vitreous Enamellers
- Institution of Gas Engineers
- Ministry of Defence, Army Department
- Ministry of Health
- National Sulphuric Acid Association
- Royal Institute of Public Health and Hygiene

The industrial organization marked with an asterisk in the above list, together with the following, was directly represented on the committee entrusted with the preparation of this British Standard:

- British Laboratory Ware Association
- British Paper and Board Makers' Association (Incorporated)
- British Polish Manufacturers' Association
- British Waterworks Association
- London Chamber of Commerce (Incorporated)
- Proprietary Association of Great Britain
- Toilet Preparations Federation
- Welwyn Hall Research Association

This British Standard, having been approved by the Chemicals Industry Standards Committee and endorsed by the Chairman of the Chemicals Divisional Council, was published under the authority of the General Council on 18 January 1967

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Foreword

This standard makes reference to the following British Standards:

BS 410, *Test sieves*.

BS 903, *Methods of testing vulcanized rubber — Part A7: Determination of hardness*.

This British Standard was first issued in 1948, (under the authority of the Fine Chemicals Industry Standards Committee, now incorporated into the Chemicals Industry Standards Committee), when it was developed from a test which had been in industrial use for many years¹. The method consists of ascertaining the bulk of a known mass of a prepared sample of precipitated calcium carbonate after compaction by a standardized procedure.

Following a considerable amount, of discussion and joint testing by eleven collaborating laboratories, it proved possible at that time to set the method down in greater detail than had been previously possible and to declare the order of reproducibility of results which was to be expected for different grades of precipitated calcium carbonate.

In making these tests three grades of precipitated calcium carbonate, having apparent densities after compaction (g/ml) about 0.30 (Sample A), 0.50 (Sample B), and 0.80 (Sample C), were used.

The results of the statistical analysis of the data obtained are set out in the Appendix.

The inference drawn from these tests was that, provided the same operator made the determinations regularly without conscious variation of technique, the reproducibility of results obtainable, particularly in triplicate tests, was quite good, having regard to the known difficulties inherent in this type of test.

When comparison of results obtained in different laboratories was considered, difficulty arose particularly with precipitated calcium carbonate such as Sample A. This was due to the fact that some feature of the test (probably associated with the transfer of the sample to the cylinder, or to the methods of sieving the precipitated calcium carbonate), was not readily susceptible of description and standardization in such a way as to be perfectly repeatable by different operators.

It was felt, however, that the issue of this standard method would serve a useful purpose in eliminating avoidable discrepancies and, in conjunction with the statements made above, in drawing attention to the limitations inherent in the method and indicating the degree of accuracy that could be expected in practice.

In the present revision, details of the apparatus, in particular of the cylinder, are given more specifically, as it has been found that the supply of suitable cylinders has proved a difficulty. All measurements have been given in metric units. In Figure 1 these should not be interpreted as requiring the apparatus to be made with more precision than is usual in such carpentry work and apparatus made to the original drawings is still suitable for use.

Consideration has been given to the mechanization of the method, but no mechanical apparatus has been specified. Laboratories wishing to mechanize the procedure, should ensure that the apparatus faithfully copies the manual operations and that a suitable test programme is followed to show correspondence of results between the manual and mechanised methods.

¹) Originally devised by Messrs. John and E. Sturge, Ltd.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 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.