

Methods of test for

**Phosphoric acid
(orthophosphoric acid)
for industrial use —**

Part 5: Determination of silica content

Committees responsible for this British Standard

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Association of Public Analysts
 British Coal Corporation
 Chemical Industries Association
 Department of Trade and Industry (Laboratory of the Government Chemist)
 Fertiliser Manufacturers' Association Ltd.
 Institute of Trading Standards Administration
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Foreword

This Part of BS 4258 has been prepared under the direction of the Chemicals Standards Policy Committee to provide methods for the analysis of phosphoric acid (orthophosphoric acid) for industrial use. This Part supersedes BS 4258-5:1975, which is withdrawn, and from which it differs by making substantial reference to BS 6337-2, possession of which is essential. This Part includes a procedure for the preparation of a test solution suitable for subsequent treatment and determination of silica content in accordance with the general method which reflects current practice in technique and presentation.

This Part is closely related to ISO 3361, from which it differs in the same way as from BS 4258-5:1975.

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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 4258 describes a method for determination of the silica content of phosphoric acid (orthophosphoric acid) for industrial use. The method is applicable to products having silica contents of not less than 30 mg/kg.

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

2 Principle

The principle is described in clause 3 of BS 6337-2:1983.

3 Reagents

The reagents described in clause 4 of BS 6337-2:1983 and water complying with grade 1 of BS 3978 are required.

4 Apparatus

4.1 General. The apparatus described in clause 5 of BS 6337-2:1983, and the following are required.

4.2 One-mark volumetric flask, 1 000 mL, complying with BS 1792, class B.

5 Procedure

5.1 Test portion and preparation of the test solution

Weigh, to the nearest 0.0001 g, a test portion containing not more than 1 g of phosphate, expressed as P₂O₅. Transfer quantitatively to the volumetric flask (4.2), and dilute to the mark. Mix well. Transfer the test solution immediately to a bottle made of silica-free material.

NOTE It is recommended that reference be made to the information on sampling given in BS 4258-12.

5.2 Determination

Take an aliquot portion of the test solution, not exceeding 15 mL in volume and not containing more than 200 µg of silica, expressed as SiO₂. Determine the silica content of this aliquot portion by following the procedure described in clause 6 of BS 6337-2:1983.

6 Calculation

Calculate the mass of silica, expressed as SiO₂ (in µg), in the aliquot portion of the test solution in accordance with clause 7 of BS 6337-2:1983. The silica content, expressed as milligrams of silica (SiO₂) per kilogram, is given by the following expression:

$$\frac{m_1 - m_2}{m_0} \times \frac{1000}{V}$$

where

m_0 is the mass of the test portion (see 5.1) (in g);

m_1 is the mass of SiO₂ found in the aliquot portion of the test solution (see 5.2) (in µg);

m_2 is the mass of SiO₂ found in the blank test solution (see 6.2 of BS 6337-2:1983) (in µg);

V is the volume of the aliquot portion (see 5.2) (in mL).

7 Test report

The test report shall include the following information:

- a complete identification of the sample;
- a reference to this British Standard, i.e. BS 4258-5:1989;
- the results expressed in accordance with clause 6;
- details of any unusual features noted during the determination;
- any operation not included in this British Standard or regarded as optional.

Publications referred to

BS 1792, *Specification for one-mark volumetric flasks.*

BS 3978, *Specification for water for laboratory use.*

BS 4258, *Methods of test for phosphoric acid (orthophosphoric acid) for industrial use.*

BS 4258-12, *Guide to sampling techniques.*

BS 6337, *General methods of chemical analysis.*

BS 6337-2, *Method for determination of silicon content (reduced molybdosilicate spectrophotometric method).*

ISO 3361, *Phosphoric acid for industrial use — Determination of silicon content — Reduced molybdosilicate spectrophotometric method¹⁾.*

¹⁾ Referred to in the foreword only.

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