BRITISH STANDARD

BS 4427-3: 1989

Methods of test for

Sodium tripolyphosphate (*penta*sodium triphosphate) and sodium pyrophosphate (*tetra*sodium pyrophosphate) for industrial use —

Part 3: Condensed phosphates for industrial use (including foodstuffs): determination of iron content

Confirmed December 2011

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/34, upon which the following bodies were represented:

Chemical Industries Association
Consumer Standards Policy Committee of BSI
Department of the Environment
Department of Trade and Industry (Laboratory of the Government Chemist)
Ministry of Defence
Royal Society of Chemistry
Soap and Detergent Industry Association
Society of Dyers and Colourists

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Contents

Foreword

This Part of BS 4427 has been prepared under the direction of the Chemicals Standards Policy Committee to provide methods for the analysis of condensed phosphates for industrial use (including foodstuffs). This Part supersedes BS 4427-3:1969 (identical with ISO/R 852) which is withdrawn and from which it differs by making substantial reference to BS 6337-3, possession of which is essential, and by using 1,10 — phenanthroline for formation of the coloured complex rather than 2,2′ — bipyridyl. This Part of BS 4427 includes a procedure for the preparation of a test solution suitable for subsequent treatment of condensed phosphates and determination of iron content in accordance with the general method of BS 6337-3 which reflects current practice in technique and presentation.

This Part of BS 4427 is related to ISO/R 852, from which it differs for the same reasons.

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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 4427 describes a spectrometric method for determination of the iron content of condensed phosphates for industrial use (including foodstuffs). It is applicable to products having an iron content of not lower than 2 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 6337-3:1983.

3 Reagents

The reagents described in clause **4** of BS 6337-3:1983 and water complying with grade 3 of BS 3978 are required.

4 Apparatus

The apparatus described in clause **5** of BS 6337-3:1983 is required.

5 Procedure

5.1 Test portion and preparation of the test solution

Into a low-form 100 mL beaker, weigh, to the nearest 0.0001 g, a test portion of approximately 5 g. Add 50 mL of the hydrochloric acid (see **4.1** of BS 6337-3:1983), cover the beaker with a watch glass and boil gently for 30 min. Cool to room temperature.

5.2 Determination

Determine the iron content of the test solution by following the procedure described in clause **6** of BS 6337-3:1983, ensuring that all of the test solution (**5.1**) is used.

6 Calculation and expression of results

Calculate the mass of iron (Fe) in the test solution in accordance with clause **7** of BS 6337-3:1983. The iron content, expressed as milligrams of iron per kilogram, is given by the following expression:

$$\frac{M_1 - M_2}{M_0}$$

where

M_0 is the mass of the test portion (**5.1**) (in g);

M_1 is the mass of iron found in the test solution (see **5.2**) (in μg);

M_2 is the mass of iron found in the blank test solution (see **6.2** of BS 6337-3:1983) (in μg).

7 Test report

The test report shall include the following information:

a) a complete identification of the sample;

b) a reference to this British Standard, i.e. BS 4427-3:1989;

c) the results expressed in accordance with clause **6**;

d) details of any unusual features noted during the determination;

e) any operation not included in this British Standard or regarded as optional.

blank

Publications referred to

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

BS 6337, *General methods of chemical analysis.*

BS 6337-3, *Method for determination of iron content (1, 10-phenanthroline spectrophotometric method).*

ISO/R 852, *Sodium tripolyphosphate and sodium pyrophosphate for industrial use — Determination of iron content — 2,2′ — Bipyridyl spectrophotometric method*[1)].

[1)] Referred to in the foreword only.

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