

2000年9月28日

1996年8月20日

British Standard Methods of test for

Boric acid, boric oxide, *disodium* tetraborates, sodium perborates and crude sodium borates for industrial use

Part 12. Determination of total titanium content of crude sodium borates

[ISO title: Crude sodium borates for industrial use – Determination of total titanium content – Photometric method]

97年08月22日

98年7月2日

2004年6月3日

Méthodes d'essai de l'acide borique, de l'oxyde borique, des tétraborates disodiques, des perborates de sodium et des borates de sodium bruts à usage industriel
Partie 12. Dosage du titane total dans les borates de sodium bruts

Prüfmethoden für Borsäure, Bortrioxid, Dinatriumtetraborate, Natriumperborate und rohe Natriumborates für industrielle Verwendung
Teil 12. Bestimmung des Gesamttitangehalts in rohen Natriumboraten

NOTE. It is recommended that this Part be read in conjunction with the information in the 'General introduction', published separately as BS 5688 : Part 0.

99年7月20日

National foreword

This Part of BS 5688 is identical with ISO 2761 'Crude sodium borates for industrial use – Determination of total titanium content – Photometric method' published by the International Organization for Standardization (ISO).

Where the words 'International Standard' appear, referring to this standard, they should be interpreted as 'British Standard'.

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

Additional information

Water. Water complying with the requirements of clause 3 is specified in BS 3978 'Water for laboratory use'.

WARNING NOTE. Potassium titanium oxalate, the use of which is specified in 3.4, is toxic. Inhalation of the dust and contact with the eyes and skin should be avoided.

2002年6月2日



5月 四年十月三十日

2006年7月4日



1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a photometric method for the determination of the total titanium content of crude sodium borates for industrial use, for material containing up to 0,1 % titanium.

The method, as specified, is not applicable in the presence of vanadium or high silica content. Molybdenum and chromium also interfere. (See clause 8, "Bibliographical reference"). The same reference also states that fluoride destroys the colour and that phosphates and alkali sulphates have a slight fading action.

2 PRINCIPLE

Fusion of a test portion with sodium carbonate, extraction of the cooled melt with sulphuric acid and the addition of hydrogen peroxide.

Photometric measurement, at a wavelength of approximately 420 nm, of the yellow-coloured complex ions formed.

3 REAGENTS

During the analysis, use only reagents of recognized analytical reagent grade and only distilled water or water of equivalent purity.

3.1 Sodium carbonate, anhydrous.

3.2 Sulphuric acid, approximately 9 M solution.

3.3 Hydrogen peroxide, approximately 30 % (m/m) solution.

3.4 Titanium, standard solution, corresponding to 0,100 g of TiO_2 per litre.

Weigh, to the nearest 0,001 g, 0,443 g of potassium titanium oxalate dihydrate [$\text{K}_2\text{TiO}(\text{C}_2\text{O}_4)_2 \cdot 2\text{H}_2\text{O}$] and transfer it to a Kjeldahl flask. Add 1 g of ammonium sulphate and 100 ml of sulphuric acid, approximately 18 M solution.

Heat the mixture gradually to boiling and keep it boiling gently for 10 min. Cool the solution and pour it slowly and quantitatively, with stirring and cooling, into 750 ml of cold water. Transfer the solution quantitatively to a 1 000 ml one-mark volumetric flask, dilute to the mark and mix.

1 ml of this standard solution contains 0,000 10 g of TiO_2 .

3.5 Titanium, standard solution, corresponding to 0,020 g of TiO_2 per litre.

Take 100,0 ml of the standard titanium solution (3.4), transfer it to a 500 ml one-mark volumetric flask, dilute to the mark and mix.

1 ml of this standard solution contains 0,000 020 g of TiO_2 .

3.6 Universal indicator paper.

4 APPARATUS

Ordinary laboratory apparatus and

4.1 Platinum crucible, with platinum lid.

4.2 Spectrophotometer, or

4.3 Photoelectric absorptiometer.

5 PROCEDURE

5.1 Test portion

Weigh, to the nearest 0,001 g, approximately 1 g of the test sample into the platinum crucible (4.1).

5.2 Blank test

Carry out a blank test, at the same time as the determination, following the same procedure and using the same quantities of all the reagents used for the determination.