
International Standard



6835

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Surface active agents — Washing powders — Determination of total boron content — Titrimetric method

Agents de surface — Poudres à laver — Dosage du bore total — Méthode titrimétrique

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6835 was developed by Technical Committee ISO/TC 91, *Surface active agents*, and was circulated to the member bodies in January 1980.

It has been approved by the member bodies of the following countries :

Australia	Germany, F.R.	South Africa, Rep. of
Austria	Hungary	Spain
Belgium	India	Switzerland
China	Japan	USA
Egypt, Arab Rep. of	Korea, Rep. of	USSR
France	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

Netherlands

This International Standard has also been approved by the International Union of Pure and Applied Chemistry (IUPAC)

Surface active agents — Washing powders — Determination of total boron content — Titrimetric method

1 Scope and field of application

This International Standard specifies a titrimetric method for the rapid determination of the total boron content of commercial washing powders, without interference from other compounds usually present.

The method may be used in the presence of sequestering agents.

2 References

ISO/R 385, *Burettes*.

ISO 607, *Surface active agents and detergents — Methods of sample division*.

ISO 648, *Laboratory glassware — One-mark pipettes*.

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*.

3 Principle

Removal of phosphates from an aqueous solution of a washing powder by passing over an ion-exchange resin, followed by formation and titration of the boric acid-mannitol complex.

4 Reagents

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

4.1 D-mannitol.

4.2 Hydrochloric acid, 100 g/l solution.

Place 25 ml of hydrochloric acid (ρ_{20} approximately 1,18 g/ml) in a 100 ml volumetric flask, dilute to volume and mix.

4.3 Hydrochloric acid, 10 g/l solution.

Place 10 ml of the hydrochloric acid solution (4.2) in a 100 ml volumetric flask, dilute to volume and mix.

4.4 Sodium hydroxide, 100 g/l solution.

Dissolve 10 g of sodium hydroxide in water in a 100 ml volumetric flask, dilute to volume and mix.

4.5 Sodium hydroxide, 10 g/l solution.

Place 10 ml of the sodium hydroxide solution (4.4) in a 100 ml volumetric flask, dilute to volume and mix.

4.6 Boric acid, solution containing 0,5 g of boron oxide (B_2O_3) per litre.

Weigh, to the nearest 0,1 mg, 0,888 g of boric acid (H_3BO_3), dissolve it in water in a 1 000 ml volumetric flask and dilute to volume.

1 ml of this solution corresponds to 0,5 mg of boron oxide.

4.7 Sodium hydroxide, standard volumetric solution, $c(NaOH) \approx 0,05$ mol/l.

4.7.1 Standardization

By means of a pipette (5.3), place 25,0 ml of the boric acid solution (4.6) in a 150 ml beaker, add 75 ml of water, and proceed as specified in 7.2.3.

4.7.2 Calculation of concentration

The concentration, c , expressed in moles of NaOH per litre, is given by the formula

$$c = \frac{0,0125}{V_0 \times 0,0348}$$

where V_0 is the volume, in millilitres, of sodium hydroxide solution used for the titration of 0,0125 g of boron oxide.