
INTERNATIONAL STANDARD



3120

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

di Sodium tetraborates and crude sodium borates for industrial use — Determination of water content — Gravimetric method

Tétraborates disodiques et borates de sodium bruts à usage industriel — Dosage de l'eau — Méthode gravimétrique

First edition — 1976-04-01

MAR 20 1977

ANSI Internat Doc Sect

UDC 661.652 : 546.212 : 543.21

Ref. No. ISO 3120-1976 (E)

Descriptors : sodium borates, sodium tetraborates, chemical analysis, determination of content, water, gravimetric analysis.

Documents
Document Sharing Hub
Price based on 7 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

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 3120 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and circulated to the Member Bodies in April 1973.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Romania
Austria	India	South Africa, Rep. of
Belgium	Ireland	Spain
Bulgaria	Israel	Switzerland
Czechoslovakia	Italy	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
France	New Zealand	United Kingdom
Germany	Poland	U.S.S.R.

No Member Body expressed disapproval of the document.

© International Organization for Standardization, 1976 •

Printed in Switzerland

*di*Sodium tetraborates and crude sodium borates for industrial use — Determination of water content — Gravimetric method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a gravimetric method for the determination of the water content of *di*sodium tetraborates and crude sodium borates for industrial use.

2 REFERENCE

ISO/R 383, *Interchangeable conical ground glass joints*.

3 PRINCIPLE

Heating of a test portion in a combustion tube, first at 250 °C and then at 500 °C. Passing of the released water in a stream of nitrogen into a tared absorber containing magnesium perchlorate.

Weighing of the absorber to determine the mass of water by difference from the original mass.

4 REAGENTS

During the analysis use only reagents of recognized analytical grade.

4.1 Magnesium perchlorate, in the form of tablets or granules of diameter 3 to 5 mm.

This reagent shall not contain more than 2 molecules of water of hydration (i.e. 13,9 %), this being confirmed by the method specified in annex A.

4.2 Nitrogen, dry and oxygen free.

5 APPARATUS

Ordinary laboratory apparatus and

5.1 Apparatus as shown in figure 1, assembled as shown in figure 2 and including the following items :

5.1.1 Combustion tube, of silica, diameter 20 mm and length 600 mm, with graded joint down to a 5/18 borosilicate ground glass joint (see ISO/R 383).

5.1.2 Two electric furnaces, one of which is movable, capable of being separately controlled at the required temperatures.

5.1.3 Absorber, fitted with 5/18 ground glass joints (see ISO/R 383) and packed with the magnesium perchlorate (4.1).

The absorber shall be suitably stoppered when not connected to the combustion tube.

5.1.4 Combustion boat, glazed porcelain or silica, of length 50 mm, width 15 mm and depth 10 mm.

5.1.5 Silver coil, prepared from 0,1 mm diameter silver wire.

6 PROCEDURE

6.1 Test portion

Weigh into the combustion boat (5.1.4) the appropriate mass of the test sample as given in the following table :

Presumed state of hydration	Mass of test portion	Precision of weighing
Number of molecules of water	g	mg
0	10,0	± 5
5	0,3	± 0,1
10	0,2	± 0,1

6.2 Preparation of the apparatus

Dry the nitrogen (4.2) passing into the combustion tube (5.1.1) by passing it through a U-tube containing the magnesium perchlorate (4.1). Insert the silver coil (5.1.5) in the exit end of the combustion tube in order to prevent water condensing in the tube (see figure 1).

Fill the absorber (5.1.3) with the magnesium perchlorate (4.1) using silica wool retaining plugs at each end. Fit the stoppers on the absorber.

Pass the nitrogen at a rate of 20 to 30 ml/min for 15 min, then insert the absorber and pass nitrogen for a further 15 min. Remove the absorber and refit the stoppers.

Wipe the absorber with a clean dry cloth, place it in the balance case and, after 20 min, weigh it to the nearest 0,1 mg.