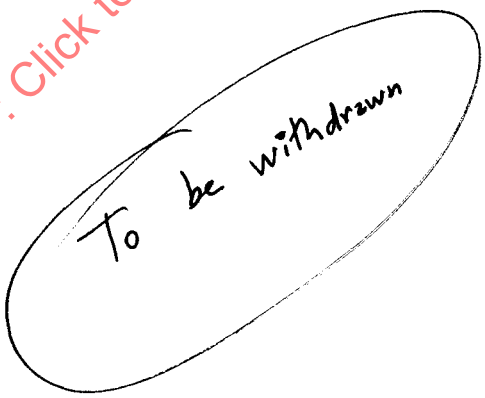
INTERNATIONAL STANDARD 982

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

Sodium hydroxide for industrial use — Determination of sulphate content — Barium sulphate gravimetric method

Hydroxyde de sodium à usage industriel — Dosage des sulfates — Méthode gravimétrique à l'état de sulfate de baryum

First edition — 1976-03-01



UDC 661.322.1 : 546.226 : 543.21

Ref. No. ISO 982-1976 (E)

Descriptors : sodium hydroxide, chemical analysis, determination of content, sulphates, gravimetric analysis.

Price based on 2 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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47 has reviewed ISO Recommendation R 982 and found it technically suitable for transformation. International Standard ISO 982 therefore replaces ISO Recommendation R 982-1969 to which it is technically identical.

ISO Recommendation R 982 was approved by the Member Bodies of the following countries :

Austria	Iran	Romania
Belgium	Ireland	South Africa, Rep. of
Chile	Israel	Spain
Cuba	Italy	Switzerland
Czechoslovakia	Japan	Thailand
Egypt, Arab Rep. of	Korea, Dem. P. Rep. of	Turkey
France	Netherlands	United Kingdom
Germany	New Zealand	U.S.S.R.
Hungary	Poland	Yugoslavia
India	Portugal	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

U.S.A.

The Member Body of the following country disapproved the transformation of ISO/R 982 into an International Standard :

United Kingdom

Printed in Switzerland

Sodium hydroxide for industrial use — Determination of sulphate content — Barium sulphate gravimetric method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a barium sulphate gravimetric method for the determination of the sulphate content of sodium hydroxide for industrial use.

The method is applicable to products having a sulphate content, expressed as sodium sulphate and calculated on NaOH equal to or greater than 0,10 % (*m/m*).

2 REFERENCE

ISO 3195, *Sodium hydroxide for industrial use — Sampling — Test sample — Preparation of the main solution for carrying out certain determinations.*

3 PRINCIPLE

Precipitation of sulphate as barium sulphate in dilute hydrochloric acid. Separation of the precipitate, heating at 800 ± 25 °C and weighing.

4 REAGENTS

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

4.1 Hydrochloric acid, ρ approximately 1,19 g/ml, about 38 % (*m/m*) or approximately 12 N solution.

4.2 Sulphuric acid, ρ approximately 1,84 g/ml, about 96 % (*m/m*) or approximately 36 N solution.

4.3 Barium chloride dihydrate ($BaCl_2.2H_2O$), 122 g/l solution, or approximately 1 N.

4.4 Silver nitrate, 5 g/l nitric solution.

Dissolve 0,5 g of silver nitrate in a small amount of water, add 10 ml of nitric acid solution, ρ approximately 1,40 g/ml, and dilute to 100 ml.

4.5 Methyl orange, 0,5 g/l solution.

5 APPARATUS

Ordinary laboratory apparatus and

5.1 Platinum crucible, having a top diameter of approximately 30 mm and a height of approximately 30 mm, with lid.

5.2 Electric oven, capable of being controlled at 110 ± 2 °C.

5.3 Electric furnace, capable of being controlled at 800 ± 25 °C.

6 PROCEDURE

6.1 Test portion

Weigh, to the nearest 0,01 g, a mass of the solid or liquid test sample corresponding to approximately 10 g of NaOH (see ISO 3195).

6.2 Preparation of the test solution

Place the test portion (6.1) in a 600 ml beaker. In the case of a solid product, dissolve the test portion in 100 ml of water; in the case of a liquid product, dilute to approximately 100 ml. Add 5 drops of the solution of methyl orange (4.5) and slowly, while stirring, the volume of the hydrochloric acid solution (4.1) required for the neutralization. Then add, *immediately,* 2 ml in excess of the acid.

Transfer the solution quantitatively to a 200 ml one-mark volumetric flask, dilute to the mark and mix.

Filter on a dry, ashless, slow-speed filter paper of diameter approximately 90 mm and discard the first 10 ml of the filtrate.

6.3 Determination

Place 100,0 ml of the test solution (6.2) in a beaker of suitable capacity (for example 600 ml).

Bring to the boil, stirring continuously, and add 10 ml of the barium chloride solution (4.3) drop by drop (the addition should take about 90 s).

Maintain boiling for 2 min, stirring all the time. Heat on a boiling water bath for 2 h, stop heating and allow to stand for about 16 h.

Filter on an ashless, slow-speed filter paper of diameter approximately 90 mm (pore diameter between 0,4 and 1 μm approximately). Wash the precipitate onto the filter paper with hot water until 10 ml of the liquid flowing from the funnel remain clear for 5 min after the addition of 10 ml of the nitric solution of silver nitrate (4.4).