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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 991

POTASSIUM HYDROXIDE FOR INDUSTRIAL USE
DETERMINATION OF THE CARBON DIOXIDE CONTENT,
EXPRESSED AS POTASSIUM CARBONATE
GAS-VOLUMETRIC METHOD

1st EDITION
February 1969

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BRIEF HISTORY

The ISO Recommendation R 991, *Potassium hydroxide for industrial use – Determination of the carbon dioxide content, expressed as potassium carbonate – Gas-volumetric method*, was drawn up by Technical Committee ISO/TC 47, *Chemistry*, the Secretariat of which is held by the Ente Nazionale Italiano di Unificazione (UNI).

Work on this question led, in 1966, to the adoption of a Draft ISO Recommendation.

In December 1966, this Draft ISO Recommendation (No. 1100) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

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

Three Member Bodies opposed the approval of the Draft :

Cuba
France
U.S.A.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in February 1969, to accept it as an ISO RECOMMENDATION.

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DETERMINATION OF THE CARBON DIOXIDE CONTENT,
EXPRESSED AS POTASSIUM CARBONATE
GAS-VOLUMETRIC METHOD

1. SCOPE

This ISO Recommendation describes a gas-volumetric method for the determination of the carbon dioxide content, expressed as potassium carbonate, in potassium hydroxide for industrial use.

2. FIELD OF APPLICATION

The general method is applicable to the determination of the carbon dioxide content in potassium hydroxide for industrial use.

Special case

Potassium hydroxide containing chlorate.

3. PRINCIPLE

Measurement of the volume of carbon dioxide evolved from a test portion by reaction with a hydrochloric acid solution.

4. REAGENTS

- 4.1 *Distilled water*, or water of equivalent purity, free from carbon dioxide at room temperature.

Eliminate any carbon dioxide present either by boiling the water for 10 minutes and cooling in the absence of atmospheric carbon dioxide or, more simply, by bubbling air free from carbon dioxide through it for 15 minutes.

The air is freed from carbon dioxide by passing it through a column containing pellets of sodium hydroxide. Store in the absence of atmospheric carbon dioxide.

- 4.2 *Hydrochloric acid*, approximately $d = 1.19$, 38 % (m/m) or 12 N solution.

- 4.3 *Sodium chloride*, coloured acid solution.

Dissolve 263 g of sodium chloride in water. Add 5 ml of a 93.6 % (m/m) sulphuric acid solution (approximately $d = 1.83$ or 35 N). Dilute to 1000 ml, add a small amount of 0.5 g/l methyl orange solution and mix thoroughly.

- 4.4 *Sodium hydroxide*, 20 % (m/m) solution, approximately $d = 1.22$ or 6 N solution.

Dissolve 120 g of sodium hydroxide in water. Dilute to 500 ml and mix thoroughly.