

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1620

CRYOLITE (NATURAL AND ARTIFICIAL)

DETERMINATION OF SILICA CONTENT

SPECTROPHOTOMETRIC METHOD USING THE REDUCED SILICOMOLYBDIC COMPLEX

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1620, *Cryolite (natural and artificial) – Determination of silica content – Spectrophotometric method using the reduced silicomolybdic complex*, 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 to the adoption of Draft ISO Recommendation No. 1620, which was circulated to all the ISO Member Bodies for enquiry in March 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	South Africa, Rep. of
Austria	Iran	Spain
Belgium	Israel	Sweden
Brazil	Italy	Switzerland
Chile	Netherlands	Thailand
Czechoslovakia	New Zealand	Turkey
France	Norway	U.A.R.
Germany	Peru	United Kingdom
Greece	Poland	U.S.S.R.
Hungary	Romania	Yugoslavia

The following Member Body opposed the approval of the Draft :

Canada

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

CRYOLITE (NATURAL AND ARTIFICIAL)**DETERMINATION OF SILICA CONTENT****SPECTROPHOTOMETRIC METHOD USING THE REDUCED SILICOMOLYBDIC COMPLEX****1. SCOPE**

This ISO Recommendation describes a spectrophotometric method, using the reduced silicomolybdic complex, for determining the silica content in natural and artificial cryolite.

2. FIELD OF APPLICATION

The method can be applied to the determination of the silica present in natural and artificial cryolite provided that the P_2O_5 content does not exceed 0.02 %.

NOTE. – The method is suitable for application to both the natural and synthetic materials whose ratio of NaF to AlF_3 is between 3 and 1.7.

2.1 Special case (under preparation)

Determination of silica when P_2O_5 contents greater than 0.02 % are present.

3. PRINCIPLE

Alkaline fusion of a test portion by means of a mixture of sodium carbonate and boric acid. Solution of the fused mass in excess nitric acid so that the pH of the final solution is between 0.7 and 0.9 after being diluted to 500 ml or between 0.3 and 0.5 after being diluted to 250 ml.

Formation, in a suitable aliquot, of the (yellow) oxidized silicomolybdic complex under clearly defined conditions of acidity, concentration of reagents, temperature and time.

Selective reduction of the complex in a high acidity sulphuric medium and in the presence of tartaric acid.

Spectrophotometric measurement of the reduced complex at a wavelength of about 815 nm.