

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION R 805

ALUMINIUM OXIDE

PRIMARILY USED FOR THE PRODUCTION OF ALUMINIUM

DETERMINATION OF IRON CONTENT

1,10-PHENANTHROLINE PHOTOMETRIC METHOD

**1st EDITION**

August 1968

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## BRIEF HISTORY

The ISO Recommendation R 805, *Aluminium oxide primarily used for the production of aluminium – Determination of iron content – 1,10-phenanthroline photometric 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 by the Technical Committee began in 1961 and led, in 1964, to the adoption of a Draft ISO Recommendation.

In July 1966, this Draft ISO Recommendation (No. 1027) 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        | India         | Spain          |
| Belgium        | Ireland       | Sweden         |
| Brazil         | Israel        | Switzerland    |
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| France         | Poland        | U.S.S.R.       |
| Germany        | Romania       | Yugoslavia     |
| Hungary        | South Africa, |                |
| Korea, Rep. of | Rep. of       |                |

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in August 1968, to accept it as an ISO RECOMMENDATION.

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1. SCOPE

This ISO Recommendation describes a method for the photometric determination of iron content of aluminium oxide.

2. FIELD OF APPLICATION

The method is applicable to iron contents, expressed as iron (III) oxide ( $\text{Fe}_2\text{O}_3$ ), greater than 0.005 %.

3. PRINCIPLE

Preliminary reduction of trivalent iron by means of hydroxylammonium chloride.

Formation of the bivalent iron - 1,10 - phenanthroline complex in a buffered medium (pH value between 3.5 and 4.2)\*.

Photometric measurement at a wavelength of about 510 nm.

4. REAGENTS

Distilled water or water of equivalent purity should be used in the test.

- 4.1 *Hydroxylammonium chloride*, 10 g/l solution. Dissolve 10 g of hydroxylammonium chloride ( $\text{NH}_2\text{OH} \cdot \text{HCl}$ ) in water and dilute to 1000 ml.
- 4.2 *1,10-phenanthroline hydrochloride*, 2.5 g/l solution. Dissolve 2.5 g of 1,10-phenanthroline hydrochloride monohydrate ( $\text{C}_{12}\text{H}_8\text{N}_2 \cdot \text{HCl} \cdot \text{H}_2\text{O}$ ) in water and dilute to 1000 ml. (1,10-phenanthroline hydrochloride monohydrate may be replaced by 1,10-phenanthroline monohydrate.

\* Aluminium, elements usually present in aluminium oxide (impurities) and flux do not cause interference.