

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 903

ALUMINIUM OXIDE PRIMARILY USED
FOR THE PRODUCTION OF ALUMINIUM
MEASUREMENT OF UNTAMPED DENSITY

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 903, *Aluminium oxide primarily used for the production of aluminium – Measurement of untamped density*, 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 1962 and led, in 1966, to the adoption of a Draft ISO Recommendation.

In May 1967, this Draft ISO Recommendation (No. 1173) 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	Sweden
Bulgaria	Japan	Switzerland
Canada	Korea, Rep. of	Thailand
Czechoslovakia	Netherlands	Turkey
France	New Zealand	U.A.R.
Germany	Norway	United Kingdom
Hungary	Poland	U.S.A.
India	Portugal	U.S.S.R.
Iran	Romania	Yugoslavia
Ireland	Spain	

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 December 1968, to accept it as an ISO RECOMMENDATION.

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MEASUREMENT OF UNTAMPED DENSITY

1. SCOPE

This ISO Recommendation describes a method for determination of the untamped density of aluminium oxide primarily used for the production of aluminium.

2. PRINCIPLE

Determination of the mass of a known volume of aluminium oxide collected after allowing it to fall freely into a stationary container, avoiding vibration.

3. APPARATUS

- 3.1 *Funnel*, of 10 cm diameter and 60° angle, with a stem 8 mm long and aperture diameter of 6 mm.
- 3.2 *Cylindrical container*, approximately 200 ml capacity, with a ratio of internal diameter to internal length 1/6 approximately.
- 3.3 *Suitable stand and ring support*, to allow the funnel to be set to a predetermined height above the top level of the cylindrical container (3.2).

4. PROCEDURE

4.1 **Sample**

Crude sample.*

4.2 **Determination**

Set the cylindrical container (3.2) on a flat base. Adjust the funnel to a position approximately central with the cylinder axis, with the tip of the funnel at a height of 10 cm above the cylindrical container top.

Feed the aluminium oxide into the centre of the funnel at about 40 mm above the funnel so as not to communicate any vibration to the apparatus, at about 20 to 60 g/min. If blocking occurs at the stem, facilitate the passage of the aluminium oxide with a piece of wire, taking care not to vibrate the cylindrical container (3.2).

Stop the feed when the aluminium oxide has formed a cone above the top level of the cylindrical container (3.2) and is spilling over.

Remove the cone of surplus aluminium oxide by gently drawing a straight edge across the top rim of the cylindrical container (3.2), without communicating any vibration to the cylindrical container.

Weigh the cylindrical container (3.2) and its content.

* See ISO Recommendation R 802, *Aluminium oxide primarily used for the production of aluminium — Preparation and storage of test samples*, clause 2.2.