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INTERNATIONAL STANDARD



902

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

Aluminium oxide primarily used for the production of aluminium — Measurement of the angle of repose

Oxyde d'aluminium principalement utilisé pour la production de l'aluminium — Mesurage de l'angle du talus d'éboulement

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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 902 and found it technically suitable for transformation. International Standard ISO 902 therefore replaces ISO Recommendation R 902-1968 to which it is technically identical.

ISO Recommendation R 902 was approved by the Member Bodies of the following countries :

| | | |
|---------------------|----------------|-----------------------|
| Austria | Ireland | South Africa, Rep. of |
| Belgium | Israel | Spain |
| Bulgaria | Italy | Sweden |
| Canada | Japan | Switzerland |
| Czechoslovakia | Korea, Rep. of | Thailand |
| Egypt, Arab Rep. of | Netherlands | Turkey |
| France | New Zealand | United Kingdom |
| Germany | Norway | U.S.A. |
| Hungary | Poland | U.S.S.R. |
| India | Portugal | Yugoslavia |
| Iran | Romania | |

No Member Body expressed disapproval of the Recommendation.

The Member Body of the following country disapproved the transformation of ISO/R 902 into an International Standard :

Egypt, Arab Rep. of

Aluminium oxide primarily used for the production of aluminium – Measurement of the angle of repose

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a conventional method for the measurement of the angle of repose of aluminium oxide primarily used for the production of aluminium.

2 REFERENCES

ISO 802, *Aluminium oxide primarily used for the production of aluminium – Preparation and storage of test samples.*

ISO 2927, *Aluminium oxide primarily used for the production of aluminium – Sampling.*

3 PRINCIPLE

Measurement of the angle at the base of the cone of aluminium oxide obtained by allowing a sample to fall through a fixed distance from a defined funnel onto a horizontal base plate.

4 APPARATUS

Only the dimensions given in the text are mandatory.

The apparatus (see the figure) consists of the following items :

4.1 Funnel, of stainless steel, having a nozzle of internal diameter 6 mm, fitted with a sieve of 1 mm mesh aperture held in position between two retaining plates. The funnel is screwed into its support (4.3).

4.2 Base-plate, of minimum length 270 mm and minimum width 200 mm. It shall be perfectly rigid and made of marble, stainless steel or other corrosion-resistant metal. On the polished surface of the base-plate, four straight lines are engraved at angles of 45° to each other; at their intersection is a locating pin to which the height block (4.4) can be fixed. It is provided with three adjustable levelling feet.

4.3 Funnel support, made in stainless steel and of substantial construction. It is designed so that the axis of the funnel is vertically over the central locating pin.

4.4 Height block, consisting of a metal cylinder with polished faces of height 40,0 mm. The base has a recess to engage the central locating pin of the base-plate.

5 PROCEDURE

5.1 Sample

Use the crude sample (see 3.2 of ISO 802), at a temperature of $22 \pm 4^\circ\text{C}$.

5.2 Determination

5.2.1 Level the base-plate (4.2) by means of the adjustable feet.

5.2.2 Put the height block (4.4) in position and adjust the funnel (4.1) until the nozzle is just in contact with the block. Secure the funnel in position and remove the height block.

5.2.3 Feed the aluminium oxide to the centre of the funnel from a height of about 40 mm, taking care not to vibrate the apparatus. Adjust the powder flow to between 20 and 60 g/min.

If the sieve is clogged, use a brush to clear it, taking care not to vibrate the apparatus. When the top of the cone reaches the nozzle of the funnel, cease feeding the aluminium oxide.

Using a pencil, mark the circumference of the base of the cone on the eight radii engraved on the base-plate.

Remove the aluminium oxide and measure the four marked diameters.