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Aluminium oxide primarily used for the production of aluminium — Method for the determination of flow time

Oxyde d'aluminium principalement utilisé pour la production d'aluminium — Méthode de détermination du temps d'écoulement

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Foreword

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The committee responsible for this document is ISO/TC 226, *Materials for the production of primary aluminium*.

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Introduction

This International Standard is based on Australian Standard, AS 2879.9, *Alumina—Determination of flow time.*

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Aluminium oxide primarily used for the production of aluminium — Method for the determination of flow time

1 Scope

This International Standard sets out a method for determining the amount of time taken for a given quantity of smelter-grade alumina to flow by gravity through a precisely constructed standard funnel.

NOTE Variations in the apparatus and other test variables can create significant inter-laboratory differences in results. (See Table A.1.)

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AS 4538.2, *Guide to the sampling of alumina — Part 2: Preparation of samples*

3 Principle

The standard funnel is loaded with a specified mass of alumina. The time for the alumina to flow out of the funnel is determined.

4 Apparatus

4.1 General

The test may be carried out using manual or automatic timing. An automatic device is shown in Figure 1.

4.2 Funnel, precisely constructed of a corrosion resistant metal, e.g. brass or aluminium, as shown in Figure 2 with an abrasion resistant material, e.g. hardened stainless steel, insert with an outlet diameter of (3,95 to 4,00) mm; this diameter is critical.

4.3 Stand, a suitable device for supporting the funnel.

4.4 Timing device, either a stop watch or automated device capable of an accuracy of 1 s.

4.5 Top-loading balance, capable of weighing 100 g to the nearest 0,1 g.

4.6 Sieve, with apertures within the range (300 to 400) µm to remove abnormal oversize material.

4.7 Container, suitable for containing the test sample.

4.8 Sealable container, suitable for containing and storing the funnel.

5 Sample preparation

The analytical sample shall be conditioned by exposure to the laboratory atmosphere for a minimum of 2 h in a layer of 5 mm maximum thickness. The sample shall then be split as per AS 4538.2 into three

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