Australian Standard™

Alumina

Part 9: Determination of flow time

Standards Australia

This Australian Standard was prepared by Committee MN-009, Alumina and Materials used in Aluminium Production. It was approved on behalf of the Council of Standards Australia on 14 July 2002 and published on 18 July 2002.

The following are represented on Committee MN-009:

Australasian Institute of Mining and Metallurgy

Australian Aluminium Council

Minerals Council of Australia

Royal Australian Chemical Institute

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PREFACE

This Standard was prepared by the Standards Australia Committee, MN-009, Alumina and Materials used in Aluminium Production, to provide a method for the determination of the flow time of smelter-grade alumina.

The objective of this Standard is to provide those responsible for the testing of alumina with a standardized procedure that will deliver consistent results for flow time. This property is an indicator of the flowability and handling characteristics of aluminas.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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1 SCOPE

This 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 may create significant inter-laboratory differences. (Refer to Table A1.)

2 REFERENCE DOCUMENTS

The following document is referred to in this Standard:

AS	
2243	Safety in laboratories (series)
2850	Chemical analysis—Interlaboratory test programs—For determining precision of analytical method(s)—Guide to the planning and conduct
4538	Guide to the sampling of alumina
4538.2	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 SAFETY

For information on laboratory safety, reference should be made to the relevant parts of AS 2243.

5 APPARATUS

5.1 General

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

5.2 Funnel

Precisely constructed of a corrosion resistant metal as shown in Figure 2 with an abrasion resistant material insert with an outlet diameter of 3.95 to 4 mm; this diameter is critical.

The funnel shall be clean (no oxides) and dry prior to use; otherwise flow times will not be reproducible.

NOTE: Frequent use is the best cleaning mechanism.

5.3 Timing device

Either a stop watch or automated device capable of an accuracy of 0.1 s.

