

Australian Standard™

Guide to sampling of alumina

Part 2: Preparation of samples



Standards Australia

This Australian Standard was prepared by Committee MN/9, Alumina and Materials used in Aluminium Production. It was approved on behalf of the Council of Standards Australia on 15 February 2000 and published on 8 June 2000.

The following interests are represented on Committee MN/9:

Australasian Institute of Mining and Metallurgy
Australian Aluminium Council
CSIRO Minerals
Minerals Council of Australia
The Royal Australian Chemical Institute

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Australia web site at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Australian Standard*, has a full listing of revisions and amendments published each month.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.com.au, or write to the Chief Executive, Standards Australia International Ltd, PO Box 1055, Strathfield, NSW 2135.

Australian Standard™

Guide to sampling of alumina

Part 2: Preparation of samples

First published as AS 4538.2—2000.

COPYRIGHT

© Standards Australia International

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia International Ltd
PO Box 1055, Strathfield, NSW 2135, Australia

ISBN 0 7337 3314 X

PREFACE

This Guide was prepared by the Standards Australia Committee MN/9, Alumina and Materials used in Aluminium Production.

This Guide is Part 2 of the AS 4538 series for the sampling of alumina. The other Guide in the series is the following:

Part 1: Sampling procedures

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

CONTENTS

	<i>Page</i>
1 SCOPE	3
2 REFERENCED DOCUMENTS	3
3 DEFINITIONS	3
4 PRINCIPLE.....	3
5 SAFETY.....	4
6 APPARATUS.....	4
7 PROCEDURE	4
 APPENDICES	
A DIAGRAM OF ROTARY SPLITTER.....	6
B EXAMPLE CALCULATION FOR SAMPLE DIVISION.....	7
C EXAMPLE OF SAMPLE PREPARATION FLOW CHART	8

STANDARDS AUSTRALIA

Australian Standard

Guide to sampling of alumina

Part 2: Preparation of samples

1 SCOPE

This Guide gives methods for the sample preparation of smelter-grade alumina. It covers the reduction of a bulk sample between 2 kg and 20 kg to produce a sample that is suitable for chemical and physical analysis. The reduced sample produced will be representative of the initial bulk sample. The bulk sample is considered to be from one source.

The methods are suitable for dry, free-flowing aluminas.

As the moisture content will influence many physical analyses, the method aims to minimize the exposure of the sample to the atmosphere to avoid water absorption. For preparation of samples for moisture analysis on an 'as received' basis refer to AS 2879.1.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
2243	Safety in laboratories (series)
2879	Alumina
2879.1	Part 1: Determination of loss of mass at 300° Celsius and 1000° Celsius

3 DEFINITIONS

For the purpose of this Guide, the definitions below apply.

3.1 Increment

A quantity of material collected in a single operation of a sample device.

3.2 Sample preparation

The process of preparing the sample for analysis or testing. It may involve air-drying, particle size reduction, mixing and division, and may be performed in several stages.

3.3 Sample preparation stage

A stage in the sample preparation sequence of operations that may consist of sample drying, reduction in particle size, mixing, and which culminates in sample division. The completion of each operation of sample division defines the commencement of the next sample preparation stage. Thus, the number of stages in sample preparation is equal to the number of divisions made.

4 PRINCIPLE

The bulk sample is mixed using a rotary splitter and the sample reduced to the desired size and then further divided by rotary splitting into appropriate sized portions suitable for the analyses required.