

2612

~~REFERENCE COPY
INFORMATION CENTRE
STANDARDS AUSTRALIA~~

SUPERSEDED BY AS 2612—1983
UDC 669.71.001.4:543.42
AS 2612-1997

Australian Standard 2612—1983

ALUMINIUM AND ALUMINIUM ALLOYS SAMPLING AND PREPARATION OF SOLID SAMPLES FOR OPTICAL EMISSION SPECTROMETRY



**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.**

Incorporated by Royal Charter



This Australian standard was prepared by Committee CH/10, Analysis of Metals. It was approved on behalf of the Council of the Standards Association of Australia on 12 January 1983 and published on 9 May 1983.

The following interests are represented on Committee CH/10:

Aluminium Development Council
Australasian Institute of Mining and Metallurgy
Australian Lead Development Association
Australian Mineral Development Laboratories
Australian Tin Information Centre
Australian Zinc Development Association
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Copper Development Association of Australia Ltd
Electricity Supply Association of Australia
Metal Trades Industry Association of Australia
National Association of Testing Authorities
Railways of Australia Committee
Royal Australian Chemical Institute

To keep abreast of progress in industry, Australian standards are subject to continuous review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that their standards are up-to-date. Full details of all SAA publications will be found in the Annual List of Australian Standards; these details are supplemented by listings in the SAA monthly journal 'The Australian Standard'. Information on the Annual List and 'The Australian Standard' may be obtained from any sales office of the Association, where details are also available of the current status of individual standards. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

PREFACE

This standard was prepared by a subcommittee of the Association's Committee for the Analysis of Metals under the direction of the Chemical Standards Board. The method of taking the sample and preparing it for analysis is an important preliminary to the analytical procedure.

| |
|----------------------------|
| First published 1983 |
|----------------------------|

This standard was issued in draft form for comment as DR 81142.

| |
|--|
| ©Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1983 |
|--|

| |
|---|
| Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia. |
|---|

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

ALUMINIUM AND ALUMINIUM ALLOYS—SAMPLING AND PREPARATION OF SOLID SAMPLES FOR OPTICAL EMISSION SPECTROMETRY

1 SCOPE. This standard sets out methods for the sampling of aluminium and aluminium alloys and procedures for the preparation of test samples required for the determination of composition by optical emission spectrometry.

NOTES:

1. Samples taken from cast forms or fabricated products and remelted are not suitable for the determination of magnesium, sodium, strontium or calcium. Iron and zinc may also require certification using standards prepared by remelting under the same conditions.
2. These procedures are suitable for alloys specified in AS 1734, AS 1865, AS 1866, AS 1867 and AS 1874.

2 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

| | |
|-----------|---|
| AS 1734 | Wrought Aluminium and Aluminium Alloy Flat Sheet, Coiled Sheet and Plate for General Engineering Purposes |
| AS 1865 | Wrought Aluminium and Aluminium Alloy Drawn Wire, Rod, Bar and Strip for General Engineering Purposes |
| AS 1866 | Wrought Aluminium and Aluminium Alloy Extruded Rod, Bar, Solid and Hollow Shapes for General Engineering Purposes |
| AS 1867 | Wrought Aluminium and Aluminium Alloy Drawn Tubes for General Engineering Purposes |
| AS 1874 | Aluminium Ingots and Aluminium Alloy Ingots and Castings |
| ASTM E401 | Recommended Practice for Bonding Thin Spectrochemical Samples and Standards to a Greater Mass of Materials. |

3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

3.1 Primary sample—the molten metal ladled from the molten metal bath or the ingot, sheet, extrusion, forging or casting from which the laboratory sample is prepared.

3.2 Laboratory sample—the final form of the material submitted for analysis, i.e. a cast disc or pin.

3.3 Test sample—a suitable part of the laboratory sample containing the same components in the same proportions as they occur in the relatively large mass of the original batch or batches of material.

4 SELECTION OF PRIMARY SAMPLE(S).

4.1 General. Samples shall be taken from the molten metal where possible.

4.2 Selection of Primary Sample from Molten Metal. A primary sample or number of primary samples (see Note 1) shall be taken and prepared from the molten metal bath or during pouring and casting in accordance with Clause 7. The laboratory sample (and test sample) shall be prepared in accordance with Clause 8.

NOTES:

1. For large quantities of metal, e.g. in excess of 5 t, it is often appropriate to take two or three separate primary samples for analysis to assess segregation or loss of elements during casting.
2. If referee samples are required by a purchaser, arrangements should be made for the supplier to take appropriate samples from the molten metal or to specify the same on the purchase order for the material.

4.3 Selection of Primary Sample from Cast Forms or Fabricated Shapes. The selection of the primary sample from these forms should be avoided where possible by the selection of molten metal primary samples. However, if it is necessary to take a primary sample from cast forms or fabricated shapes, select, from each batch, a suitable number of forms from which to take the sample.

5 PREPARATION OF LABORATORY SAMPLES.

5.1 From Ingots for Remelting. The laboratory sample shall be prepared from ingots as follows:

- (a) *For small ingots (< 25 kg).* Cut a section from small ingots the thickness calculated to make an appropriate melting sample mass.

