

Australian Standard[®]

**METHODS FOR THE ANALYSIS
OF SOLDERS**

**PART 1—
DETERMINATION OF TIN
(Volumetric Method)**

The following industrial, scientific and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

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 Producers Association of Australia
 Department of Defence
 Electricity Supply Association of Australia
 Metal Trades Industry Association of Australia
 National Association of Testing Authorities
 Railways of Australia Committee
 Royal Australian Chemical Institute

This standard, prepared under the direction of Committee CH/10, Analysis of Metals, was approved by the Chemical Standards Board on behalf of the Council of the Standards Association of Australia on 17 July 1979, and was published on 1 October 1979.

First published 1979

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic 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 they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for public review as DR 78078.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 2292.1—1979

Methods for the analysis of solders

Part 1: Determination of tin (volumetric method)

RECONFIRMATION NOTICE

Technical Committee CH-010 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 31 July 2016.

The following are represented on Technical Committee CH-010:

Australian Aluminium Council
Bureau of Steel Manufacturers of Australia
International Copper Association Australia
International Precious Metals Institute
National Association of Testing Authorities Australia

NOTES

PREFACE

This standard method for the determination of the tin content of solders was prepared by the Association's Committee on the Sampling and Analysis of Metals. It requires reference to the following standards:

- AS 2164 One-mark Volumetric Flasks
- AS 2165 Burettes and Bulb Burettes
- BS 3338 Methods for the Sampling and Analysis of Tin and Tin Alloys
 - Part 12— Sampling of Solders
 - Part 14— Sampling of White Metal Bearing Alloy Ingots
- BS 3908 Methods for the Sampling and Analysis of Lead and Lead Alloys
 - Part 1— Sampling of Ingot Lead, Lead Alloy Ingots, Sheet Pipe and Cable Sheathing Alloys
- BS 4237 Report on Reproducibility of Methods of Chemical Analysis Used in the Iron and Steel Industry

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR THE ANALYSIS OF SOLDERS

**PART 1—DETERMINATION OF TIN
(VOLUMETRIC METHOD)**

1 SCOPE. This standard sets out a volumetric method for the determination of the tin content of solders.

2 APPLICATION.

2.1 Range of Application. The method is suitable for solders with tin content in the range 5 percent to 70 percent.

2.2 Interfering Elements. The method has been found satisfactory for solders containing a maximum of 0.20 percent arsenic, 3.0 percent antimony and 1.5 percent copper.

3 REPRODUCIBILITY. A planned trial of this method was carried out in accordance with BS 4237.

The reproducibility index ($2s$) is obtained from the formula—

$$2s = 2\sqrt{(s_b^2 + s_w^2)}$$

where

s_b = between-operator standard deviation

s_w = within-operator standard deviation

95 percent of the results obtained by any one analyst should be reproducible to within two standard deviations of the overall mean value derived from all laboratories (i.e. $\bar{x} \pm 2s$).

For further information, see BS 4237.

The planned trial of the method was carried out by five analysts, each from a different laboratory, five determinations being carried out by each analyst on each of seven samples. From the results obtained, the 95 percent confidence limits ($2s$, Table 1) have been obtained.

4 PRINCIPLE. Tin is reduced to the divalent state with nickel and the tin content determined volumetrically using potassium iodate solution.