

Australian Standard[®]

Material for soldering

Part 1: Solder alloys

This Australian Standard was prepared by Committee MT/5, Lead and Lead Alloys. It was approved on behalf of the Council of Standards Australia on 8 March 1991 and published on 13 May 1991.

The following interests are represented on Committee MT/5:

Australian Lead Development Association
Confederation of Australian Industry
Metal Trades Industry Association of Australia
Telecom Australia

Additional interests participating in preparation of Standard:

Aeronautical Research Laboratory, Salisbury
Australian Tin Information Centre
Electronics industry organizations
Solder manufacturing organizations

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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1834.1–1991

Material for soldering

Part 1: Solder alloys

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NOTES

AS 1834.1—1991

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PREFACE

This Standard was prepared by the Standards Australia Committee on Lead and Lead Alloys under the direction of the Metals Standards Board, to supersede AS 1834.1—1986, *Solder alloys*. The revised Standard is technically the same as the previous edition except that it incorporates the two amendments.

As the result of the inclusion of these amendments, a lead-free tin-copper alloy has been added for general use in plumbing applications, particularly for capillary fittings and for joining copper tube, and a lead-free tin-copper-silver alloy has been added for the joining of copper, ferrous and nickel alloys. Both alloys are for use in potable water systems.

This Standard is one of a proposed series of Standards covering materials for soldering. Currently, the only other Standard in the series is AS 1834.2—1986, *Flux-cored solders*.

CONTENTS

	<i>Page</i>
1 SCOPE	3
2 REFERENCED DOCUMENTS	3
3 DESIGNATION	3
4 CHEMICAL COMPOSITION	3
5 HEALTH AND SAFETY	4
6 MARKING	4
 APPENDICES	
A PURCHASING GUIDELINES	6
B PROPERTIES AND TYPICAL APPLICATIONS OF SOLDER ALLOYS	7

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STANDARDS AUSTRALIA

Australian Standard
Material for soldering

Part 1: Solder alloys

1 SCOPE This Standard specifies the chemical composition requirements for tin-lead and other tin-containing solder alloys supplied in the cast, wrought, paste, or powder form. It is not applicable to working solder baths which may be subject to other impurity requirements.

NOTES:

- 1 For the purpose of this Standard, 'wrought' includes ribbon, wire, rod and preforms.
- 2 Advice and recommendations on information to be supplied by the purchaser at the time of enquiry and order are contained in Appendix A.
- 3 Typical properties and uses of solders specified in this Standard are given in Appendix B.
- 4 The contaminant limits for working solder baths used for the soldering of printed board assemblies are given in AS 3508.1.

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

AS

- 1671 Lead and lead alloys
- 1671.1 Part 1: Determination of antimony content—Flame atomic absorption spectrometric method
- 1671.2 Part 2: Determination of low concentrations of antimony in lead alloys containing not more than 2.5 percent arsenic and 0.10 percent copper—Titrimetric method
- 1671.3 Part 3: Determination of high concentrations of antimony in lead alloys containing not more than 2.5 percent arsenic and 1.0 percent copper—Titrimetric method
- 1671.4 Part 4: Determination of tin in antimonial lead—Flame atomic absorption spectrometric method
- 2292 Methods for the analysis of solders
- 2292.1 Part 1: Determination of tin (volumetric method)
- 2292.2 Part 2: Determination of silver, bismuth, cadmium, copper, antimony, iron and zinc—Flame atomic absorption spectrometric method
- 2534 Lead and lead alloys—Sampling and preparation of samples for chemical analysis
- 3508 Printed board assemblies
- 3508.1 Part 1: Preparation, handling and assembly

BS

- 3338 Methods for the sampling and analysis of tin and tin alloys
- 3338.12 Part 12: Methods for the sampling of solders

ASTM

- B32 Specification for solder metal
- E46 Method for chemical analysis of lead- and tin-base solder

3 DESIGNATION The solder designation shall consist of the following components—

- (a) the number of this Australian Standard, i.e. AS 1834.1;
- (b) the nominal tin content, followed by the chemical symbol for tin; and
- (c) the nominal contents of any other alloy additions, each followed by the chemical symbol for the element.

Example 1

AS 1834.1/70Sn.

Example 2

AS 1834.1/30Sn/1.8Sb.

Example 3

AS 1834.1/95Sn/5Sb.

NOTE: The lead content is not included in the designation.

4 CHEMICAL COMPOSITION

4.1 General The chemical composition of solder alloys shall meet the requirements of Table 1.

4.2 Methods of sampling and analysis Methods used for sampling for chemical analysis shall not be less accurate than those given in AS 2534, BS 3338.12, and ASTM B32.

The methods of chemical analysis shall not be less accurate than those specified in AS 1671.1, AS 1671.2, AS 1671.3 and AS 1671.4, AS 2292.1 and AS 2292.2, BS 3338 and ASTM E46.