

Australian Standard[®]

**Methods for the analysis of zinc
and zinc alloys**

**Part 3: Determination of aluminium
content—Flame atomic absorption
spectrometric method**

This Australian Standard was prepared by Committee CH/10, Analysis of Metals. It was approved on behalf of the Council of Standards Australia on 9 May 1994 and published on 19 September 1994.

The following interests are represented on Committee CH/10:

Aluminium Development Council, Australia
Australasian Institute of Mining and Metallurgy
Australian Lead Development Association
Bureau of Steel Manufacturers, Australia
Copper Technical Data Centre, Australia
National Association of Testing Authorities, Australia
Railways of Australia Committee

Additional interests participating in preparation of Standard:

Analytical laboratories
Department of Defence, Materials Research Laboratory
Steel manufacturers

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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1329.3—1994

Methods for the analysis of zinc and zinc alloys

**Part 3: Determination of aluminium content—Flame atomic absorption
spectrometric method**

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Australian Aluminium Council
Bureau of Steel Manufacturers of Australia
International Copper Association Australia
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NOTES

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PREFACE

This Standard was prepared by the Standards Australia Committee CH/10 on the Analysis of Metals to supersede AS 1329.3—1973, *Methods for the analysis of zinc and zinc alloys*, Part 3: *Aluminium in zinc alloys (atomic absorption spectrometric method)*.

A titrimetric method for the determination of aluminium content within the range of 3%–13% is published as AS 1329.1.

CONTENTS

	<i>Page</i>
1 SCOPE	3
2 REFERENCED DOCUMENTS	3
3 PRINCIPLE	3
4 REAGENTS	3
5 APPARATUS	4
6 SAMPLING	4
7 PROCEDURE	4
8 CALIBRATION AND MEASUREMENTS	5
9 PRECISION	5
10 ACCEPTANCE OF RESULTS	6
11 TEST REPORT	7

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STANDARDS AUSTRALIA

Australian Standard

Methods for the analysis of zinc and zinc alloys

Part 3: Determination of aluminium content— Flame atomic absorption spectrometric method

1 SCOPE This Standard sets out the flame atomic absorption spectrometric method for the determination of aluminium in zinc alloys. It is applicable to the range of 0.01% to 1.0% aluminium. The method has been found satisfactory for galvanizing metal or other alloys containing the following elements up to the concentration indicated:

Antimony	0.5%
Cadmium	0.5%
Copper	0.1%
Iron	0.1%
Lead	1.5%
Tin	1.0%

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

AS

- 2134 Recommended practice for chemical analysis by atomic absorption spectrometry
- 2134.1 Part 1: Flame atomic absorption spectrometry
- 2162 Code of practice for the use of volumetric glassware
- 2164 One-mark volumetric flasks
- 2166 One-mark pipettes
- 2167 Straight pipettes
- 2347 Method for the sampling of zinc metal and zinc alloys for chemical analysis
- 2850 Chemical analysis—Interlaboratory test programs—For determining precision of analytical method(s)—Guide to the planning and conduct

BS

- 4237 Report on reproducibility of methods of chemical analysis used in the iron and steel industry

3 PRINCIPLE The test sample is dissolved in hydrochloric acid and the aluminium content is determined by flame atomic absorption spectrometry.

4 REAGENTS

4.1 General requirements All reagents shall be of analytical grade, and distilled water or equivalent shall be used. Solutions shall be freshly prepared and, where necessary, filtered.

4.2 Solutions

4.2.1 Hydrochloric acid (1 + 1) Add 500 mL of hydrochloric acid (ρ_{20} 1.16 g/mL) to 500 mL of water.