

Australian Standard[®]

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

**Part 2: Determination of
magnesium 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
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Analytical laboratories
Department of Defence, Materials Research Laboratory
Steel manufacturers

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RECONFIRMATION

OF

AS 1329.2—1994

Methods for the analysis of zinc and zinc alloys

**Part 2: Determination of magnesium 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 1329.2—1973, *Methods for the analysis of zinc and zinc alloys*, Part 2: *Magnesium in zinc alloys (atomic absorption spectrometric method)*.

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 GRAPH	5
9 PRECISION	5
10 ACCEPTANCE OF ANALYTICAL VALUES	6
11 TEST REPORT	6

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STANDARDS AUSTRALIA

Australian Standard

Methods for the analysis of zinc and zinc alloys

Part 2: Determination of magnesium content—
Flame atomic absorption spectrometric method

1 SCOPE This Standard describes a flame atomic absorption spectrometric method for the determination of magnesium in zinc and zinc alloys. The method is applicable to the estimation in the range 0.002% to 0.10% of magnesium and has been found satisfactory in the presence of up to 5.0% of aluminium.

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 sample is dissolved in hydrochloric acid, and the magnesium content determined by flame atomic absorption spectroscopy.

4 REAGENTS

4.1 General Requirements All reagents shall be of analytical reagent grade, and distilled water or water of equivalent purity shall be used. Solutions shall be freshly prepared each day 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.

4.2.2 Hydrogen peroxide (1 + 9) Add 10 mL of hydrogen peroxide (ρ_{20} 1.10 g/mL) to 90 mL with water.

4.3 Standard solutions

4.3.1 Standard magnesium solution (1 mL \equiv 1 mg Mg) Dissolve 1.000 g of pure magnesium in 30 mL of hydrochloric acid (4.2.1), and dilute to 1 L.