AS 1329.8—1994
Reconfirmed 2016

Australian Standard®

Methods for the analysis of zinc and zinc alloys

Part 8: Determination of cadmium 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 1329.8—1994

Methods for the analysis of zinc and zinc alloys

Part 8: Determination of cadmium content—Flame atomic absorption spectrometric 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.

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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

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PREFACE

This Standard was prepared by the Standards Australia Committee CH/10 on the Analysis of Metals to supersede AS 1329.8—1980, *Methods for the analysis of zinc and zinc alloys*, Part 8: *Determination of cadmium content—Flame atomic absorption spectrometric method*.

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STANDARDS AUSTRALIA

Australian Standard

Methods for the analysis of zinc and zinc alloys

Part 8: Determination of cadmium content— Flame atomic absorption spectrometric method

1 SCOPE This Standard sets out a flame atomic absorption spectrometric method for the determination of the cadmium content in the range 0.0001% to 0.02% special high grade zinc and high grade zinc, and in diecast alloys containing a maximum of 4.3% aluminium, 0.06% magnesium and 1.3% copper.

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

2165 Burettes and bulb burettes

2166 One-mark 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 sulfuric acid/nitric acid mixture. Sodium iodide is added and the cadmium iodide complex is extracted into n-butyl acetate containing 1% of tri-n-octylamine. The cadmium is determined in the organic phase by flame atomic absorption spectrometry.

4 REAGENTS

4.1 General requirements During the analysis, only reagents of recognized analytical reagent grade, and only distilled water or water of equivalent purity shall be used.

4.2 Solutions

4.2.1 *Sulfuric acid/nitric acid mixture* Add 150 mL of sulfuric acid (ρ_{20} 1.84 g/mL) and 20 mL of nitric acid (ρ_{20} 1.41 g/mL) to 700 mL of water, with constant stirring. Cool, dilute to 1 L, and mix.

4.2.2 *Sodium iodide solution (750 g/L)* Dissolve 75 g of sodium iodide and 4 g of ascorbic acid in water. Dilute to 100 mL and mix.

NOTE: Potassium iodide solution (830 g/L) may be used in lieu of sodium iodide solution.

4.2.3 *Urea solution (10 g/L)* Dissolve 10 g urea in water. Dilute to 1 L and mix.