AS 1329.5—1994
Reconfirmed 2016

Australian Standard®

Methods for the analysis of zinc and zinc alloys

Part 5: Determination of copper content (0.0001% to 0.0025%)—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 28 June 1994 and published on 19 September 1994.

The following interests are represented on Committee CH/10:

Aluminium Development Council
Australasian Institute of Mining and Metallurgy
Australian Lead Development Association
Bureau of Steel Manufacturers
Copper Technical Data Centre
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

STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 1329.5—1994
Methods for the analysis of zinc and zinc alloys
Part 5: Determination of copper content (0.0001% to 0.0025%)—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.

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.

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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 1329.5—1980, *Methods for the analysis of zinc and zinc alloys*, Part 5: *Determination of copper content (0.0001 percent to 0.0025 percent)—Flame atomic absorption spectrometric method*.

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STANDARDS AUSTRALIA

Australian Standard

Methods for the analysis of zinc and zinc alloys

Part 5: Determination of copper content (0.0001% to 0.0025%)—Flame atomic absorption spectrometric method

1 SCOPE This Standard sets out a flame atomic absorption spectrometric method for the determination of the copper content of special high grade zinc and high grade zinc, and in diecast alloys containing a maximum of 4.3% aluminium and 0.06% magnesium. The method is suitable for the determination of copper content in the range 0.0001% to 0.0025%.

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

4 REAGENTS

4.1 General Requirements All reagents shall be of analytical reagent grade (>99.99% purity), 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 *Nitric acid (ρ_{20} 1.41 g/mL)*

4.2.2 *Sulfuric acid/nitric acid mixture* Add, slowly and with stirring, 150 mL of sulfuric acid (ρ_{20} 1.84 g/mL) and 30 mL nitric acid (4.2.1) to 700 mL of water. Cool, dilute to 1 L, and mix.