AS 1329.1—1994
Reconfirmed 2016

Australian Standard®

Methods for the analysis of zinc and zinc alloys

Part 1: Determination of aluminium content– Titrimetric 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

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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 1329.1—1994
Methods for the analysis of zinc and zinc alloys
Part 1: Determination of aluminium content—Titrimetric 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 1 November 2016.

The following are represented on Technical Committee CH-010:

Bureau of Steel Manufacturers of Australia
International Copper Association Australia
International Precious Metals Institute
National Association of Testing Authorities Australia

NOTES

Australian Standard®

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Part 1: Determination of aluminium content—Titrimetric method

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PREFACE

This Standard was prepared by the Standards Australia Committee CH/10 on the Analysis of Metals to supersede AS 1329.1—1986, *Methods for the analysis of zinc and zinc alloys*, Part 1: *Determination of aluminium content (titrimetric method)*.

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STANDARDS AUSTRALIA

Australian Standard

Methods for the analysis of zinc and zinc alloys

Part 1: Determination of aluminium content—Titrimetric method

1 SCOPE This Standard sets out a titrimetric method for the determination of aluminium in zinc and zinc alloys in the range 3% to 13%. This method is not applicable to zinc alloys containing titanium as titanium will report as aluminium.

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

AS
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 hydrochloric acid and complexed with the disodium salt of ethylenediamine N,N,N',N' tetra-acetic acid (EDTA). Excess EDTA is titrated with standard zinc solution. Aluminium is then complexed with sodium fluoride and the liberated EDTA titrated with standard zinc solution.

4 REAGENTS

4.1 General requirements Except where specified otherwise, only reagents of recognized analytical grade and distilled water or water of an equivalent purity shall be used.

4.2 Solutions

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

4.2.2 *Ammonia solution (ρ_{20} 0.88 g/mL)*

4.2.3 *Ethylenediaminetetra-acetic acid disodium salt (EDTA) (approximately 0.2 mol/L)* Dissolve 150 g of EDTA in 1500 mL of hot water, cool and dilute to 2 L in a volumetric flask. Store in a polyethylene bottle.

4.2.4 *Sodium acetate solution (300 g/L)* Dissolve 150 g of sodium acetate trihydrate ($CH_3COONa.3H_2O$) in water, dilute to 500 mL and mix.

4.2.5 *Sodium fluoride solution (saturated)* Dissolve 60 g of sodium fluoride (NaF) in 1 L of boiling water, cool and filter. Store in a polyethylene bottle.