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Australian Standard 1329, Part 4—1978

METHODS FOR THE ANALYSIS OF ZINC ALLOYS

PART 4—ALUMINIUM IN ZINC ALLOYS

(Spectrophotometric Method)

STANDARDS ASSOCIATION OF AUSTRALIA
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Incorporated by Royal Charter

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THE FOLLOWING INDUSTRIAL, SCIENTIFIC AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Aluminium Development Council
Australasian Institute of Mining and Metallurgy
Australian Lead Development Association
Australian Mineral Development Laboratories
Australian Tin Information Centre
Australian Zinc Development Association
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Copper Producers Association of Australia
Department of Defence
Electricity Supply Association of Australia
Metal Trades Industry Association of Australia
National Association of Testing Authorities
Railways of Australia Committee
Royal Australian Chemical Institute

This standard, prepared under the direction of Committee CH/10, Analysis of Metals, was approved on behalf of the Council of the Standards Association on 3 March 1978, and was published on 1 June 1978.

In order to keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

This standard was issued in draft form for public review as DR 76086.

PREFACE

This standard was prepared by the Association's Committee on Analysis of Metals, under the direction of the Chemical Standards Board, as a further part of AS 1329. It requires reference to the following standards:

AS	Methods for the Sampling of Zinc and Zinc Alloys*
AS CK19	Code of Recommended Practice for the Chemical Analysis of Materials by Ultraviolet/Visible Spectrophotometry
BS 3875	Optical Spectrophotometric Cells
BS 4237	Report on Reproducibility of Methods of Chemical Analysis Used in the Iron and Steel Industry

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*In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR THE ANALYSIS OF ZINC ALLOYS

PART 4—ALUMINIUM IN ZINC ALLOYS

1 SCOPE. This standard describes a spectrophotometric method for the determination of aluminium in zinc alloys, by means of alizarin red S.

2 APPLICATION.

2.1 Range of Application. The method is suitable for the determination of aluminium content in the range 0.02 to 1.0 percent.

2.2 Interfering Elements. The method is suitable for the determination of aluminium in galvanizing and other zinc alloys containing the following elements, up to the percentage concentration indicated:

lead 1.5; cadmium 0.5; tin 0.5; copper 0.5; antimony 1.0; magnesium 0.5; iron 0.05; titanium 0.01.

3 REPRODUCIBILITY. A planned trial of the method was carried out in accordance with BS 4237.*

The reproducibility index ($2s$) is obtained from the formula:

$$2s = 2\sqrt{(s_b^2 + s_w^2)}$$

where

s_b = the between-operator standard deviation

s_w = the within-operator standard deviation

95 percent of results obtained by any one analyst should be reproducible to within two standard deviations of the overall mean value derived from all laboratories (i.e. $\bar{x} \pm 2s$).

For further information see BS 4237.

The planned trial was carried out by five analysts, each from a different laboratory. Five tests were carried out by each analyst on each of three samples. From the results obtained, the 95 percent confidence limits ($2s$, Table 1), have been calculated.

*BS 4237, Report on Reproducibility of Methods of Chemical Analysis used in the Iron and Steel Industry.