AS 2534—1997

Australian Standard®

# Lead and lead alloys—Sampling for chemical and spectrochemical analysis

This Australian Standard was prepared by Committee CH/10, Analysis of Metals. It was approved on behalf of the Council of Standards Australia on 4 July 1997 and published on 5 October 1997.

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The following interests are represented on Committee CH/10:

AMDEL

Australasian Institute of Mining and Metallurgy

Australasian Railway Association

Australian Aluminium Council

Australian Chamber of Commerce and Industry

Australian Chamber of Manufacturers

Bureau of Steel Manufacturers

Copper Technical Data Centre

Metal Trades Industry Association of Australia

National Association of Testing Authorities, Australia

The Royal Australian Chemical Institute

University of New South Wales

Additional interests participating in preparation of Standard:

Superintendent Companies and Aluminium Smelters

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# PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH/10, Analysis of Metals to supersede AS 2534—1982, *Lead and lead alloys—Sampling and preparation of samples for chemical analysis* and AS 2611—1983, *Lead and lead alloys—Sampling and preparation of solid samples for optical emission spectrometry*.

This Standard is the result of a consensus among representatives of the Joint Committee to produce it as an Australian Standard.

The objective of the Standard is to combine AS 2534 and AS 2611 and update procedures in accordance with technological developments.

Sampling is the major source of variation in the determination of metals content of an alloy or the pure metal. Sampling personnel are required under this Standard to follow prescribed sampling procedures. These procedures may be varied provided that the analytical laboratory has demonstrated that the analyte concentrations determined in the product of the alternative sampling procedure are comparable with that of the bulk.

Numbers of samples and sampling frequency are considered outside the scope of this Standard.

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STANDARDS AUSTRALIA

# Australian Standard

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## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard specifies methods for the sampling of lead and lead alloys and procedures for the preparation of laboratory samples required for the determination of their chemical composition by both chemical and spectrochemical analysis. The samples are taken either from molten metal or from cast forms.

Samples may be taken from cast forms only for refined lead (99.9+%), copperized lead up to 0.06% copper and sheathing alloys up to 0.25% antimony and 0.45% tin.

**1.2 REFERENCED DOCUMENT** The following document is referred to in this Standard:

ASTM
E401 Recommended practice for bonding thin spectrochemical samples and standards to a greater mass of material

**1.3 DEFINITIONS** For the purpose of this Standard, the definitions below apply.

**1.3.1 Batch**—products of uniform chemical and physical composition derived as one of the following:

(a) The product from any discrete production period in which casting conditions remain substantially constant.

(b) A single furnace charge.

**1.3.2 Cast forms**—item of lead or lead alloy which has not been subject to deformation. Examples include an ingot, a semi-finished product obtained by continuous casting and a shaped casting.

**1.3.3 Chemical method of analysis**—method for the determination of chemical composition in which the sample is subjected to chemical reaction.

**1.3.4 Laboratory sample**—part or all of the preliminary sample brought to a required condition for analysis.

**1.3.5 Preliminary sample**—the sample ladled from the molten metal or that taken from the ingot from which the laboratory sample is prepared, which is representative of the batch.

**1.3.6 Spectrochemical method of analysis**—method for the determination of chemical composition in which the determination of composition is carried out without subjecting the sample to chemical reaction, e.g. an atomic emission spectrometric method or an X-ray fluorescence spectrometric method.

**1.3.7 Test portion**—that part of the laboratory sample which is actually analysed.

**1.3.8 Wrought product**—item of lead or lead alloy which has been subject to deformation by extrusion, rolling, drawing, forging or some other method. Examples include a bar, a billet, a plate, a strip, a tube and a wire.