AS 2678.5—2002
ISO 15248:1998



Australian Standard™

# Zinc sulfide concentrates—Chemical analysis

# Part 5: Determination of silver and gold contents—Fire assay and flame atomic absorption spectrometric method using scorification or cupellation

[ISO title: Zinc sulfide concentrates—Determination of silver and gold contents—Fire assay and flame atomic absorption spectrometric method using scorification or cupellation]



Standards Australia

This Australian Standard was prepared by Committee MN-005, Copper, Lead, Zinc, Gold and Silver Ores and Concentrates. It was approved on behalf of the Council of Standards Australia on 16 November 2001 and published on 4 January 2002.

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The following interests are represented on Committee MN-005:

Australasian Institute of Mining and Metallurgy

CSIRO Minerals

Minerals Council of Australia

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# PREFACE

This Standard was prepared by the Standards Australia Committee MN-005, Copper, Lead, Zinc, Gold and Silver Ores and Concentrates as part of a programme of standardizing methods for the determination of elements of commercial interest in such materials.

The objective of this Standard is to provide those involved in the analysis of zinc sulfide concentrates with a standardized method of determining silver and gold contents supported by precision data obtained from an inter-laboratory test programme.

This Standard is identical with and has been reproduced from ISO 15248:1998, *Zinc sulfide concentrates—Determination of silver and gold contents—Fire assay and flame atomic absorption spectrometric method using scorification or cupellation*, which has been prepared by ISO/TC 183 Copper, Lead and Zinc Ores and Concentrates. Australia holds the Chairmanship and Secretariat of ISO/TC 183 and has made a significant contribution to the preparation of ISO 15248.

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| *Reference to International Standard* | | *Australian/New Zealand Standard* | |
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| ISO | | AS | |
| 9599 | Copper, lead and zinc sulfide concentrates—Determination of hygroscopic moisture in the analysis sample—Gravimetric method | 2816 | Copper, lead and zinc sulfide concentrates—Determination of hygroscopic moisture in the analysis sample—Gravimetric method |
| 385 | Laboratory glassware—Burettes | — | |
| 385-1 | Part 1: General requirements | | |
| 648 | Laboratory glassware—One-mark pipettes | — | |
| 1042 | Laboratory glassware—One-mark volumetric flasks | — | |
| 3696 | Water for analytical laboratory use—specification and test methods | — | |
| 4787 | Laboratory glassware—Volumetric glassware—Methods for use and testing of capacity | — | |

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AUSTRALIAN STANDARD

# Zinc sulfide concentrates—Chemical analysis

## Part 5: Determination of silver and gold contents—Fire assay and flame atomic absorption spectrometric method using scorification or cupellation

## 1 Scope

This International Standard specifies a fire assay and flame atomic absorption spectrometric procedure for the determination of silver and gold contents of zinc sulfide concentrates.

The method is applicable to the determination of silver and gold in zinc sulfide concentrates containing up to 60 % (*m*/*m)* zinc in the form of zinc blende and related materials.

The method is applicable to silver contents from 10 g/t to 500 g/t and gold contents from 0,1 g/t to 12 g/t.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements*.

ISO 648:1977, *Laboratory glassware — One-mark pipettes*.

ISO 1042:1998, *Laboratory glassware — One-mark volumetric flasks*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

ISO 4787:1984, *Laboratory glassware — Volumetric glassware — Methods for use and testing of capacity*.

ISO 9599:1991, *Copper, lead and zinc sulfide concentrates — Determination of hygroscopic moisture in the analysis sample — Gravimetric method*.

## 3 Principle

### 3.1 Scorification

Fire assay fusion of a test portion to produce a lead button, which is scorified to reduce it to a mass of 2 g to 5 g.

Retreatment fusion of the primary fusion and scorification slags to produce a low-silver content lead button which is scorified to approximately 2 g to 5 g.

Dissolution of both lead buttons in nitric acid and filtration of the solution. Dissolution of the filter paper plus gold and determination of silver and gold by flame atomic absorption spectrometry.