AS 2678.6—2002
ISO 15249:1998

Australian Standard™

Zinc sulfide concentrates—Chemical analysis

Part 6: Determination of gold content—Acid dissolution/solvent extraction/flame atomic absorption spectrometric method

[ISO title: Zinc sulfide concentrates—Determination of gold content—acid dissolution/solvent extraction/flame atomic absorption spectrometric method]

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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Australasian Institute of Mining and Metallurgy

CSIRO Minerals

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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 gold content supported by precision data obtained from an inter-laboratory test programme.

This Standard is identical with and has been reproduced from ISO 15249:1998, *Zinc sulfide concentrates—Determination of gold content—Acid dissolution/solvent extraction/flame atomic absorption spectrometric method*, 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 15249.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

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References to International Standards should be replaced by references to equivalent Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
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
385 385-1	Laboratory glassware—Burettes Part 1: General requirements		—
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1042	Laboratory glassware—One-mark volumetric flasks		—
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1 Scope

This International Standard specifies an acid decomposition, solvent extraction, flame atomic absorption spectrometric procedure for the determination of gold in zinc sulfide concentrates.

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

The method is applicable to gold contents from 0,5 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

Roasting of the concentrate at 450 °C and 600 °C to remove arsenic and sulfur, followed by decomposition in bromine-aqua regia-hydrofluoric acid. Extraction of the gold into DIBK containing Aliquat 336 from an aqua regia medium and determination by flame atomic absorption spectrometric at 242,8 nm.

4 Reagents

During the analysis, use only reagents of recognized analytical grade and water that complies with grade 2 of ISO 3696.

4.1 Gold metal, minimum 99,99 % purity.