AS 2678.2—2008
ISO 12739:2006

AS 2678.2—2008

Australian Standard®

Zinc sulfide concentrates - Chemical analysis

Part 2: Determination of zinc—Ion-exchange/EDTA titrimetric method

This Australian Standard® was prepared by Committee MN-005, Copper, Lead, Zinc and Nickel Ores and Concentrates. It was approved on behalf of the Council of Standards Australia on 24 January 2008.
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The following are represented on Committee MN-005:

- CSIRO Minerals
- Minerals Council of Australia

Additional Interests:

- Minerals industry analytical laboratories

This Standard was issued in draft form for comment as DR 07056.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Zinc sulfide concentrates—Chemical analysis

Part 2: Determination of zinc—Ion-exchange/EDTA titrimetric method

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PREFACE

This Standard was prepared by the Standards Australia Committee MN-005, Copper, Lead, Zinc and Nickel Ores and Concentrates, to supersede AS 2678.2—1999.

The objective of this Standard is to provide those responsible for the analysis of zinc concentrates with a standardized method of determining zinc, supported by precision data obtained from an interlaboratory test program.

The objective of this revision is to adopt the latest edition of the corresponding International Standard.

This Standard is identical with, and has been reproduced from ISO 12739:2006, *Zinc sulfide concentrates—Determination of zinc—Ion-exchange/EDTA titrimetric method.*

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

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

(d) Substitute 'L' for 'l' as the unit for litres.

References to International Standards should be replaced by references to Australian Standards, as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
9599	Copper, lead and zinc sulfide concentrates—Determination of hygroscopic moisture in the analysis sample—Gravimetric method	2916	Copper, lead and zinc sulfide concentrates—Determination of hygroscopic moisture in the analysis sample—Gravimetric method

Only international references that have been adopted as Australian Standards have been listed.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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WARNING — This International Standard may involve hazardous materials, operations and equipment. It is the responsibility of the user of this International Standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies an ion-exchange/EDTA titrimetric method for the determination of the mass fraction of zinc in zinc concentrates. The method is applicable to zinc sulfide concentrates having a mass fraction of zinc in the range from 11 % to 62 %.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 385, *Laboratory glassware — Burettes*

ISO 648, *Laboratory glassware — One-mark pipettes*

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

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

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

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

3 Principle

The test portion of zinc concentrate is dissolved in hydrochloric, nitric and sulfuric acids. The acidity is adjusted to about 2 mol/l with respect to hydrochloric acid. Zinc is adsorbed on a strongly basic anion-exchange resin. Some interfering ions are removed by elution with 2 mol/l dilute hydrochloric acid. Zinc is eluted with an ammonia/ammonium chloride solution. Zinc is determined in the eluate by titration with EDTA at a pH of approximately 5,6 using xylenol-orange indicator.

4 Reagents

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

4.1 Zinc, 99,99 % minimum purity, free from oxide prior to use.