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**Lead sulfide concentrates — Determination  
of lead content — EDTA titration method  
after acid digestion**

*Concentrés sulfurés de plomb — Dosage du plomb — Méthode par titrage  
à l'EDTA après digestion acide*



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Printed in Switzerland

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 13545 was prepared by Technical Committee ISO/TC 183, *Copper, lead and zinc ores and concentrates*.

Annexes A and B form a normative part of this International Standard. Annex C is for information only.

# Lead sulfide concentrates — Determination of lead content — EDTA titration method after acid digestion

**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 a lead sulfate precipitation EDTA titrimetric method after acid decomposition for determination of the lead content of lead sulfide concentrates.

The method is applicable to lead sulfide concentrates having lead content in the range 50 % (m/m) to 80 % (m/m). The method is not applicable to lead concentrates containing more than 1 % (m/m) of barium.

## 2 Normative references

The following normative documents contain certain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC 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*.

ISO Guide 35:1989, *Certification of reference materials — General and statistical principles*.

## 3 Principle

Decomposition of the test portion in nitric and sulfuric acids and bromine, and removal of arsenic, antimony and tin by hydrobromic acid treatment. Separation of lead from interfering elements by precipitation of lead sulfate. Dissolution of the precipitate in an ammonium acetate solution. Titration of the solution with EDTA using xylenol orange as the indicator.