
**Copper, lead and zinc sulfide
concentrates — Determination of gold
and silver — Fire assay gravimetric and
flame atomic absorption spectrometric
method**

*Concentrés sulfurés de cuivre, de plomb et de zinc — Dosage de l'or et
de l'argent — Méthode gravimétrique par essai au feu et spectrométrie
d'absorption atomique dans la flamme*



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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 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10378 was prepared by Technical Committee ISO/TC 183, *Copper, lead, zinc and nickel ores and concentrates*.

This second edition cancels and replaces the first edition (ISO 10378:1994), which has been technically revised.

Introduction

This International Standard describes a method for the determination of the mass fraction of gold and silver in copper, lead and zinc sulfide concentrates. This International Standard was prepared to enable laboratories to determine the mass fraction of gold and silver in suitable samples using instrumental methods.

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Copper, lead and zinc sulfide concentrates — Determination of gold and silver — Fire assay gravimetric and flame atomic absorption spectrometric method

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 fire assay gravimetric and flame atomic absorption spectrometric method for the determination of the mass fraction of gold and silver in copper, lead and zinc sulfide concentrates as follows:

— Copper concentrates:

The method is applicable to the determination of mass fractions of gold from 0,5 g/t to 300 g/t and of mass fractions of silver from 25 g/t to 1 500 g/t in copper sulfide concentrates containing mass fractions of copper from 15 % to 60 %.

— Lead concentrates

The method is applicable to the determination of mass fractions of gold from 0,1 g/t to 25 g/t and of mass fractions of silver from 200 g/t to 3 500 g/t in lead sulfide concentrates containing mass fractions of lead from 10 % to 80 %.

— Zinc concentrates

The method is applicable to the determination of mass fractions of gold from 0,1 g/t to 12 g/t and of mass fractions of silver from 10 g/t to 800 g/t in zinc sulfide concentrates containing mass fractions of zinc up to 60 %.

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 385-1:1984, *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*