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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3884.13-2012

**Methods for chemical analysis of copper concentrates -- Part
13: Determination of copper -- Electrogravimetric method**

铜精矿化学分析方法 第13部分：铜量测定 电解法

(English Translation)

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Foreword

GB/T 3884 "chemical analysis of copper concentrate" is divided into 14 parts.

--- Part 1. Determination of copper content iodometry;

--- Part 2. Determination of the amount of gold and silver by flame atomic absorption spectroscopy and fire assay;

--- Part 3. Determination of sulfur content - Gravimetric and combustion - titration;

--- Part 4. Determination of magnesium oxide content - Flame atomic absorption spectrometry;

--- Part 5. Determination of the amount of fluorine ion selective electrode method;

--- Part 6. Determination by flame atomic lead, zinc, cadmium and nickel absorption spectrometry;

--- Part 7. Determination of lead content Na₂EDTA titration;

--- Part 8. Determination of zinc contents Na₂EDTA titration;

--- Part 9. Determination of the amount of arsenic and bismuth hydride generation - atomic fluorescence spectrometry, potassium bromate titration and diethyl ammonia Silver group acid spectrophotometry;

--- Part 10. Determination of antimony content hydride generation - atomic fluorescence spectrometry;

--- Part 11. Determination of mercury content - Cold atomic absorption spectrometry;

--- Part 12. Determination of the amount of fluorine and chlorine ion chromatography;

--- Part 13. Determination of the amount of copper electrolysis;

--- Part 14. Determination of the amount of gold and silver fire assay gravimetric method and atomic absorption spectrometry.

This section GB/T 3884 Part 13.

Rules in this section in accordance with GB/T 1.1-2009 given draft.

This section uses the translation method identical with ISO 10469:2006 "Determination of copper sulphide concentrate electrolysis." this part of ISO 10469:2006 main differences are as follows.

- English name made the change;
- With a decimal point instead of a comma as the decimal point in the international standard ",", ".", " ";
- With a period instead of a full stop in the international standard. """, """;
- With "this Part" instead of "this International Standard";
- According to Chinese customary change the standard name;
- Remove the cover of the international standards, directory, foreword and introduction.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

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1 Scope

This section GB/T 3884 provides for determination of copper sulphide concentrate copper content --- electrolysis.

This section applies to the determination of copper content of copper sulphide concentrate. Determination of the range of 15.00% ~ 50.00%.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated edition applies to this article Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 27674-2011 copper sulfide, lead and zinc concentrate sample hygroscopic moisture - Gravimetric method (ISO 9599:1991, IDT) ISO 385 Laboratory Glassware Buret (Laboratoryglassware-Burettes) ISO 648 single laboratory glassware graduated pipettes (Laboratoryglassware-One-markpipettes) ISO 1042 single scale laboratory glassware

volumetric flask (Laboratoryglassware-One-markvolumetric flasks) ISO 4787 laboratory glassware containers capacity use and capacity correction method
(Laboratoryglassware-Volumetricglassware-Methodsforuseandtestingofcapacity)

3 Method summary

With sulfuric acid and nitric acid to dissolve the sample, and then separated from interfering elements copper and silver by precipitation with silver chloride;. Hydrobromic acid was added and arsenic, Antimony, selenium and tin form volatile substances are separated; with sodium thiosulfate copper sulfide and iron separation, or by generating ferric hydroxide precipitate points from iron, bismuth and tellurium. When nitric acid, sulfuric acid and a small amount of chlorine ions, electrolytic deposition of copper, and molybdenum in this case does not precipitate. Electrolysis residue sulfide Copper precipitation and precipitation filtrate and all traces of residue are copper by flame atomic absorption spectroscopy or inductively coupled plasma atomic emission Spectrometry.

When mercury is greater than or equal to 0.005% of copper needs to be determined in the mercury content of correction, but no steps in this section Provisions.

4 Reagents

Analysis, the reagents were of analytical grade, the water used for the same purity distilled water or water.

4.1

nitric acid ($\rho_{20} = 1.42\text{g/mL}$).

4.2

nitric acid (11). was added slowly with stirring 500mL of nitric acid (4.1) to 500mL of water.

4.3

sulfate ($\rho_{20} = 1.84\text{g/mL}$).

4.4

sulfate (11). was added slowly with stirring 500mL of sulfuric acid (4.3) to 500mL water cooling.

GB/T 3884.13-2012/ISO 10469:2006