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PEOPLE'S REPUBLIC OF CHINA**

GB/T 1819-1979

**Methods for chemical analysis of tin concentrates - Part 1:
Determination of moisture content - Heat drying method
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 1 of GB/T 1819 "Methods for Chemical Analysis of Tin Concentrates". GB/T 1819 has published the following parts.

- Part 1: Determination of moisture content Thermal drying method;
- Part 2: Determination of tin content by potassium iodate titration;
- Part 3: Determination of iron content by cerium sulfate titration;
- Part 4: Determination of lead content by flame atomic absorption spectrometry and EDTA titration;
- Part 5: Determination of arsenic content - Arsenic antimony molybdenum blue spectrophotometry and distillation separation - iodine titration;
- Part 6: Determination of antimony content by malachite green spectrophotometry and flame atomic absorption spectrometry;
- Part 7: Determination of bismuth content by flame atomic absorption spectrometry;
- Part 8: Determination of zinc content by flame atomic absorption spectrometry;
- Part 9: Determination of the amount of tungsten trioxide by thiocyanate spectrophotometry;

- Part 10: Determination of sulfur content by high-frequency induction furnace combustion infrared absorption method and potassium iodate titration method;
- Part 11: Determination of the amount of aluminum oxide Chromium azure S spectrophotometry;
- Part 12: Determination of the amount of silicon dioxide silicon molybdenum blue spectrophotometry and sodium hydroxide titration;
- Part 13: Determination of magnesium oxide and calcium oxide content by flame atomic absorption spectrometry;
- Part 14: Determination of copper content by flame atomic absorption spectrometry;
- Part 15: Determination of fluorine content by ion-selective electrode method;
- Part 16: Determination of silver content by flame atomic absorption spectrometry;
- Part 17: Determination of mercury content by atomic fluorescence spectrometry.

This document replaces GB/T 1819.1-2004 "Method for Determination and Weighing of Moisture Content in Chemical Analysis of Tin Concentrates", and GB/T 1819.1-Compared with 2004, except for structural adjustment and editorial changes, the main technical changes are as follows.

- a) Changed the measurement range, changed "measurement range. 0.10%~20.00%" to "measurement range. 0.50%~16.00%" (see Section 1 Chapter, Chapter 1 of the 2004 edition);
- b) Changed the analytical balance, and changed "maximum weighing 1000g, division value 10mg" to "scale not less than 2kg, accuracy 0.01g" (See 5.1, 3.1 of the 2004 edition);
- c) Change the weighing sample size, and change "weigh 500g sample" to "weigh 500g~1000g sample" (see 7.1, 5.1 of the 2004 edition);
- d) Changed the drying time, put "in the oven preheated to $(105 \pm 5) ^\circ\text{C}$ for 2.5 hours, take it out, put it in the desiccator and cool it to room temperature.
temperature, weighed. Put it into the $(105\pm5)^\circ\text{C}$ oven again, bake for 0.5h and take it out. Change it to "Put the sample tray containing the sample into the $(105\pm5)^\circ\text{C}$ in a drying oven, take out the sample after continuous drying for 2h~4h depending on the difficulty of drying" (see 7.3.3, 2004 edition 5.3);
- e) Added "weigh immediately while hot" (see 7.3.3 and 7.3.4);
- f) Changed the constant weight conditions, and changed "the difference between the two weighings is not greater than 0.25g" to "the difference between the two weighings is not greater than the initial moisture sample 0.05% of the mass" (see 7.3.5, 5.3 of the 2004 edition);

g) increased reproducibility (see 9.2);

h) Tolerances have been deleted (see 7.2 of the 2004 edition).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Tin concentrate is the raw material for tin smelting. In recent years, with the advancement of mining, beneficiation, and metallurgy technology, tin concentrate has a wide range of sources, many types, and increased fine-grained grades.

The requirements for the accuracy and precision of moisture measurement are also higher and higher, the operation is difficult, and the disputes between the two parties in the transaction process increase. Therefore, GB/T 1819.1-2004 "Determination of Moisture Content of Tin Concentrate Chemical Analysis Method" Amendments to the Quantitative Law.

The revision of this document unifies the determination method of tin concentrate moisture, and its revision is based on the needs of both supply and demand. For the solution of tin concentrate supply Commercial disputes between the two parties due to testing errors play an important role.

GB/T 1819 "Chemical Analysis Methods of Tin Concentrates" is divided into 21 parts.

- Part 1: Determination of moisture content Thermal drying method;
- Part 2: Determination of tin content by potassium iodate titration;
- Part 3: Determination of iron content by cerium sulfate titration;
- Part 4: Determination of lead content by flame atomic absorption spectrometry and EDTA titration;
- Part 5: Determination of arsenic content - Arsenic antimony molybdenum blue spectrophotometry and distillation separation - iodine titration;
- Part 6: Determination of antimony content by malachite green spectrophotometry and flame atomic absorption spectrometry;
- Part 7: Determination of bismuth content by flame atomic absorption spectrometry;
- Part 8: Determination of zinc content by flame atomic absorption spectrometry;
- Part 9: Determination of the amount of tungsten trioxide by thiocyanate spectrophotometry;
- Part 10: Determination of sulfur content by high-frequency induction furnace combustion infrared absorption method and potassium iodate titration method;

- Part 11: Determination of the amount of aluminum oxide Chromium azure S spectrophotometry;
- Part 12: Determination of the amount of silicon dioxide silicon molybdenum blue spectrophotometry and sodium hydroxide titration;
- Part 13: Determination of magnesium oxide and calcium oxide content by flame atomic absorption spectrometry;
- Part 14: Determination of copper content by flame atomic absorption spectrometry;
- Part 15: Determination of fluorine content by ion-selective electrode method;
- Part 16: Determination of silver content by flame atomic absorption spectrometry;
- Part 17: Determination of mercury content by atomic fluorescence spectrometry;
- Part 18: Determination of nickel content by flame atomic absorption spectrometry;
- Part 19: Determination of cobalt content by flame atomic absorption spectrometry;
- Part 20: Determination of cadmium content by flame atomic absorption spectrometry;
- Part 21: Determination of calcium, magnesium, copper, lead, zinc, arsenic, antimony, bismuth and silver by inductively coupled plasma atomic emission spectrometry.

Methods for chemical analysis of tin concentrates Part 1: Determination of moisture content thermal drying

1 Scope

This document specifies a method for the determination of moisture content in tin concentrates.

This document applies to the determination of moisture content in tin concentrates. Measurement range. 0.50%~16.00%.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references to the documents. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 14260 General rules for sampling and preparation of bulk heavy non-ferrous metal flotation concentrates