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

GB/T 8152.6-2025

Replacing GB/T 8152.6-1987

**Methods for chemical analysis of lead concentrates - Part 6:
Determination of bismuth content**

铅精矿化学分析方法 第6部分：铋含量的测定

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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 for standardization documents" Drafting.

This document is part 6 of GB/T 8152 "Chemical analysis methods for lead concentrates". GB/T 8152 has been published in the following parts.

- Part 1: Determination of lead content - Acid dissolution-EDTA titration method;
- Part 2: Determination of lead content - Lead sulfate precipitation-EDTA back titration method;
- Part 3: Determination of aluminum oxide content - Chrome azurol S spectrophotometric method;
- Part 4: Determination of zinc content. EDTA titration method;
- Part 5: Determination of arsenic content - Atomic fluorescence spectrometry;
- Part 6: Determination of bismuth content;
- Part 7: Determination of copper content - Flame atomic absorption spectrometry;
- Part 9: Determination of magnesium oxide by flame atomic absorption spectrometry;
- Part 10. Determination of silver and gold content by lead precipitation or ash blowing fire assay and flame atomic absorption spectrometry;
- Part 11. Determination of mercury content by atomic fluorescence spectrometry and solid injection direct method;

- Part 12.Determination of cadmium content - Flame atomic absorption spectrometry;
- Part 13.Determination of thallium content - Inductively coupled plasma mass spectrometry and inductively coupled plasma atomic emission spectrometry;
- Part 14.Determination of silicon dioxide content-Molybdenum blue spectrophotometric method;
- Part 15.Determination of soluble lead content by flame atomic absorption spectrometry;
- Part 16.Determination of calcium oxide content by flame atomic absorption spectrometry;
- Part 17.Determination of aluminum, magnesium, iron, copper, zinc, cadmium, arsenic, antimony, bismuth and calcium content by inductively coupled plasma atomic emission spectrometry Spectrum method.

This document replaces GB/T 8152.6-1987 "Chemical analysis of lead concentrates - Polarographic determination of bismuth content" and GB/T 8152.8-1987 "Chemical analysis method for lead concentrate - diantipyryl methane disulfide spectrophotometric method for the determination of bismuth content", consistent with GB/T 8152.6-1987 and Compared with GB/T 8152.8-1987, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) Changed the scope to "This document describes hydride generation-atomic fluorescence spectrometry, flame atomic absorption spectrometry (method

2) and Na₂EDTA titration method (method 3) for determining the bismuth content in lead concentrate. This document applies to the bismuth content in lead concentrate Method 1 measurement range. 0.010%~0.50%; Method 2 measurement range. 0.010%~2.50%; Method 3 measurement range. 0.010%~2.50% Range. >2.00%~9.50%. "(See Chapter 1, GB/T 8152.8-1987 and Section 1 of GB/T 8152.6-1987) chapter).

b) The test method for bismuth content has been changed from "diantipyryl methane disulfide spectrophotometry" to "hydride generation-atomic Fluorescence spectrometry"; changed from "polarography" to "flame atomic absorption spectrometry" (see Chapter 4, Chapter 5, GB/T 8152.8- 1987 and Chapter 5 of GB/T 8152.6-1987).

c) The Na₂EDTA titration method for determining the bismuth content in lead concentrate has been added (see Chapter 6).

d) The content on allowable difference has been deleted (see Chapter 6 of GB/T 8152.8-1987 and Chapter 6 of GB/T 8152.6-1987).

e) Added precision content (see 4.6, 5.6 and 6.6).

f) Added the content of the test report (see Chapter 7).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by China Nonferrous Metals Industry Association.

This document is under the jurisdiction of the National Technical Committee on Standardization of Nonferrous Metals (SAC/TC243).

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The previous versions of this document and the documents it replaces are as follows.

- First published in 1987 as GB/T 8152.6-1987;
- This is the first revision, integrating the technical content of GB/T 8152.8-1987.

Introduction

Lead concentrate is the main raw material for producing metallic lead, lead alloys, lead compounds, etc. Lead ranks second only to copper, aluminum and zinc in China's non-ferrous metal consumption.

GB/T 8152 "Chemical analysis methods for lead concentrates" describes the chemical analysis methods for the content of each element in lead concentrates, aiming to meet the quality requirements of lead concentrates.

The need for arbitration and inspection.

GB/T 8152 consists of 16 parts.

- Part 1: Determination of lead content - Acid dissolution-EDTA titration method;
- Part 2: Determination of lead content - Lead sulfate precipitation-EDTA back titration method;
- Part 3: Determination of aluminum oxide content - Chrome azurol S spectrophotometric method;
- Part 4: Determination of zinc content. EDTA titration method;
- Part 5: Determination of arsenic content - Atomic fluorescence spectrometry;
- Part 6: Determination of bismuth content;
- Part 7: Determination of copper content - Flame atomic absorption spectrometry;
- Part 9: Determination of magnesium oxide by flame atomic absorption spectrometry;
- Part 10: Determination of silver and gold content by lead precipitation or ash blowing fire assay and flame atomic absorption spectrometry;
- Part 11: Determination of mercury content by atomic fluorescence spectrometry and solid injection direct method;
- Part 12: Determination of cadmium content - Flame atomic absorption spectrometry;
- Part 13: Determination of thallium content - Inductively coupled plasma mass spectrometry and inductively coupled plasma atomic emission spectrometry;
- Part 14: Determination of silicon dioxide content-Molybdenum blue spectrophotometric method;
- Part 15: Determination of soluble lead content by flame atomic absorption spectrometry;
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- Part 17: Determination of aluminum, magnesium, iron, copper, zinc, cadmium, arsenic, antimony, bismuth and calcium content by inductively coupled plasma atomic emission spectrometry Spectrum method.

In the original series of national standard methods, bismuth was determined by diantipyryl methane disulfide spectrophotometry and polarography. Bismuth content in lead concentrate The upper limit of the determination range of the original series of methods has been exceeded, and the original standard operation is cumbersome, so the hydride generation-atomic fluorescence spectrometry, The determination of bismuth content in lead concentrate by flame atomic absorption spectrometry and Na₂EDTA titration has important practical significance and is necessary. Important.

Chemical analysis methods for lead concentrates Part 6: Determination of bismuth content