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

GB/T 11848.14-2025

Replacing GB/T 11848.14-1991

**Methods for analysis of uranium ore concentrate - Part 14:
Determination of potassium and sodium - Atomic absorption
spectrometry**

铀矿石浓缩物分析方法 第14部分：钾、钠的测定 原子吸收光谱法

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 14 Determination of Potassium and Sodium by Atomic Absorption Spectrometry Warning

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 14 of GB/T 11848, "Analytical Methods for Uranium Ore Concentrates". GB/T 11848 has been published with the following... part.

- 1. Determination of Uranium by Ferrous Sulfate Reduction-Potassium Dichromate Titration;
- 2. Determination of Nitric Acid-Insoluble Uranium by Spectrophotometry;
- 3. Gravimetric determination of extractable organic compounds;
- 4. Determination of Arsenic and Mercury by Hydride Generation-Atomic Fluorescence Spectrometry;
- 5. Determination of Carbonate by Infrared Absorption Method;
- 6. Determination of Fluorine by Ion-Selective Electrode Method;
- 7. Determination of Halogens - Volhard Method;
- 8. Determination of Moisture Content by Gravimetric Method;
- 9. Determination of Silicon by Spectrophotometry;
- 10. Determination of Sulfur by Infrared Absorption Spectroscopy;
- 11. Determination of Thorium by Inductively Coupled Plasma Mass Spectrometry;
- 12. Determination of Boron by Inductively Coupled Plasma Mass Spectrometry;

1 Scope

GB/T 11848.14-2025 is the Chinese national standard on methods for analysis of uranium ore concentrate - part 14: determination of potassium and sodium - atomic absorption spectrometry, in the field of energy and heat transfer engineering. The /T suffix marks it as a

recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 5 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026. Classification: ICS 27.120.30, CCS F46. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document describes the method for determining potassium and sodium in uranium ore concentrates. This document applies to the determination of potassium and sodium in uranium ore concentrates. Determination range. 0.0005%~0.5%. This document does not apply to the determination of sodium in sodium diuranate.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 10268 Uranium Ore Concentrates

3 Terms and Definitions

The terms and definitions defined in GB/T 10268 apply to this document.

4.Principles The sample was digested by heating with nitric acid and hydrogen peroxide. Uranium was then separated from potassium and sodium using CL-TBP extraction resin in a 3 mol/L nitric acid medium. In the test solution, potassium and sodium are atomized in an air-acetylene flame. Their ground-state atoms selectively absorb the characteristic spectral lines of potassium and sodium, respectively. The absorption intensity is directly proportional to the concentration of potassium and sodium within a certain range. The potassium and sodium content can be calculated based on the absorption intensity.

5.Reagents or materials Unless otherwise specified, only reagents of analytical grade were used in the analysis. The water used in the tests met the requirements of Grade II water as specified in GB/T 6682.

5.1 Hydrofluoric acid, $\rho=1.14\text{g/mL}$.

5.2 Hydrogen peroxide solution, $\rho=30\%$.

5.3 Nitric acid, $\rho=1.42\text{g/mL}$, MOS grade.

5.4 Nitric acid solution, $c=3\text{mol/L}$. Measure 700mL of water into a 1000mL volumetric flask, add 200mL of nitric acid (5.3), and dilute with water. Fill to the mark and shake well.

14 Determination of Potassium and Sodium by Atomic Absorption Spectrometry Warning

---Personnel using this document should have practical experience in formal laboratory work. This standard does not address all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations. This article discusses toxic substances. Hazardous waste should be collected and stored centrally, and the collection of all types of waste should be strictly carried out in accordance with the relevant regulations and technical standards of the national environmental protection administration. Processing in the middle.