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

GB/T 11848.15-2025

Replacing GB/T 11848.15-1991

**Methods for analysis of uranium ore concentrate - Part 15: Determination of iron,
calcium, magnesium, molybdenum, titanium, vanadium and zirconium -
Inductively coupled plasma optical emission spectrometry**

铀矿石浓缩物分析方法 第15部分：铁、钙、镁、钼、钛、钒、锆的测定 电感耦合等离子体发射光谱法

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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 15 of GB/T 11848, "Analytical Methods for Uranium Ore Concentrates". GB/T 11848 has published 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 Spectroscopy;
- 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 11848.15-2025 is the Chinese national standard on methods for analysis of uranium ore concentrate - part 15: determination of iron, calcium, magnesium, molybdenum, titanium, vanadium and zirconium - inductively coupled plasma optical emission 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 methods for determining iron, calcium, magnesium, molybdenum, titanium, vanadium, and zirconium in uranium ore concentrates. This document applies to the determination of iron, calcium, magnesium, molybdenum, titanium, vanadium, and zirconium in uranium ore concentrates. Determination range. Iron content 0.0002%~ 2.0%; calcium content is 0.0001%~2.0%; magnesium content is 0.0001%~1.0%; molybdenum content is 0.0002%~0.6%; titanium content is... 0.0002%~0.1%; vanadium content is 0.0001%~0.6%; zirconium content is 0.0001%~0.2%.

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 dissolved in concentrated nitric acid, and uranium was separated by CL-TBP extraction resin in a 3 mol/L nitric acid medium to obtain the test solution A. Inductively coupled... The contents of iron, calcium, magnesium and vanadium in solution A were determined by integrated plasma optical emission spectrometry (ICP-OES). The sample was dissolved in concentrated nitric acid and a small amount of hydrofluoric acid. Uranium was then separated by CL-TBP extraction resin in a 3 mol/L nitric acid medium to obtain the analyte. Solution B was analyzed by ICP-OES to determine the contents of molybdenum, titanium, and zirconium.

5.Reagents or materials Unless otherwise specified, all reagents used are of analytical grade. Water used meets the Class II standard as specified in GB/T 6682.