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

GB/T 15072.20-2025

**Methods for chemical analysis of precious metal alloys - Part
20: Determination of rhodium content**

贵金属合金化学分析方法 第20部分：铑含量的测定

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Foreword

This document is in accordance with GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. This document is Part 20 of GB/T 15072 "Chemical Analysis Methods for Noble Metal Alloys". GB/T 15072 has been published in the following parts. Parts.

- 1. Determination of Gold Content;
- 2. Determination of Silver Content;
- 3. Determination of Platinum Content;
- 4. Determination of Palladium Content;
- 6. Determination of Iridium Content;
- 7. Determination of Chromium and Iron Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;
- 8. Determination of Copper Content in Gold, Palladium, and Silver Alloys. Thiourea Precipitation EDTA Complexometric Back Titration;
- 9. Determination of Indium Content in Gold Alloys by EDTA Complexometric Back Titration;
- 10. Determination of Nickel Content in Gold Alloys by EDTA Complexometric Back Titration;
- 11. Determination of Manganese and Beryllium Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;
- 12. Determination of Vanadium Content in Silver Alloys by Hydrogen Peroxide Spectrophotometry;

13. Determination of Tin, Cerium and Lanthanum in Silver Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

1 Scope

GB/T 15072.20-2025 is the Chinese national standard on methods for chemical analysis of precious metal alloys - part 20: determination of rhodium content, in the field of metallurgy. 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 29 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2026. Classification: ICS 77.120.99, CCS H15. 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.

4.1 Principle The sample was digested in a polytetrafluoroethylene digestion vessel or a hard glass sealed tube under high temperature and high pressure with hydrochloric acid and hydrogen peroxide, in a slightly acidic environment containing rhodium chloride complexes. In a solution, rhodium is precipitated as a double salt by cobalt hexaammine nitrate, and the amount of rhodium is determined by gravimetric method.

4.2 Reagents and Materials Unless otherwise specified, only reagents confirmed to be of analytical grade and distilled or deionized water or water of equivalent purity shall be used in the analysis.

4.2.1 Sodium nitrite.

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 8170 Rules for rounding off numerical values and the representation and determination of limiting values

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.2.4 Anhydrous ethanol. $\rho =$

0.79 g/mL.

4.2.5 Diethyl ether. $\rho =$

4.2.6 Hydrogen peroxide. $w=30\%$.

4.2.7 Crystallization of cobalt hexaammine nitrate. Dissolve 73g of cobalt nitrate in 100mL of water, add 80g of ammonium nitrate, 2g of activated carbon, and 180mL of concentrated... Ammonia solution. Aerate the solution for 3-4 hours. Add 1300 mL of nitric acid to acidify the water, and heat to approximately 70°C. Filter to remove activated carbon, and then... Add 200 mL of nitric acid (4.2.2) to the solution, and filter through a No. 3 glass frosted funnel to precipitate an orange crystalline precipitate. Wash the precipitate once with water and ethanol.

20 Determination of Rhodium Content Warning

---Personnel using this document should have practical experience working in a formal laboratory. This document does not address all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.