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GB/T 15072.1-2025

Replacing GB/T 15072.1-2008

Methods for chemical analysis of precious metal alloys - Part 1: Determination of gold content

贵金属合金化学分析方法 第1部分：金含量的测定

Issued on: August 29, 2025 **Implemented on: March 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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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 1 of GB/T 15072 "Chemical Analysis Methods for Precious Metal Alloys". GB/T 15072 has been published as follows. part.

- Part 1: Determination of Gold Content;

- Part 2: Determination of Silver Content;

- Part 3: Determination of Platinum Content;

- Part 4: Determination of Palladium Content;

- Part 6: Determination of Iridium Content;

- Part 7: Determination of Chromium and Iron Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 8: Determination of Copper Content in Gold, Palladium, and Silver Alloys. Thiourea Precipitation EDTA Complexometric Back Titration;

- Part 9: Determination of Indium Content in Gold Alloys by EDTA Complexometric Back Titration;

- Part 10.Determination of Nickel Content in Gold Alloys by EDTA Complexometric Back Titration;

- Part 11.Determination of Gadolinium and Beryllium Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 12.Determination of Vanadium Content in Silver Alloys by Hydrogen Peroxide Spectrophotometry;

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

- Part 14.Determination of Aluminum and Nickel Contents in Silver Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

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- Part 15.Determination of Nickel, Zinc and Manganese Contents in Gold, Silver and Palladium Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 16.Determination of Copper and Manganese Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 17.Determination of Tungsten Content in Platinum Alloys by Tungsten Trioxide Gravimetric Method;

- Part 18.Determination of Zirconium and Gallium Contents in Gold Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 19.Determination of Vanadium and Magnesium Contents in Silver Alloys by Inductively Coupled Plasma Atomic Emission Spectrometry;

- Part 20.Determination of Rhodium Content This document replaces GB/T 15072.1-2008 "Chemical Analysis Methods for Precious Metal Alloys. Determination of Gold Content in Gold, Platinum and Palladium Alloys" (sulfuric acid).

The main technical changes in "Polyferrous Potentiometric Titration Method" compared to GB/T 15072.1-2008, apart from structural adjustments and editorial modifications, are as follows.

a) The upper limit of the measurement range has been changed from "99.5%" to "99.60%" (see Chapter 1, Chapter 1 of the 2008 edition);

b) The titration equipment was changed; "potentiometer" was changed to "automatic potentiometric titrator" (see 4.3.2, 5.1 of the 2008 edition);

c) The sample handling method has been changed, replacing "sample" with "test specimen" (see 4.4, Chapter 6 of the 2008 edition);

d) A "reproducibility" requirement has been added (see 4.7.2);

e) The "allowable difference" requirement has been removed (see 9.2 in the 2008 version);

f) The "fire assay gravimetric method" has been added (see Chapter 5).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the 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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Company, Beikuang Testing Technology Co., Ltd., Guangdong Academy of Sciences Industrial Analysis and Testing Center, Shandong Hengbang Smelting Co., Ltd., Jiangxi Province Junxin Precious Metals Technology Materials Co., Ltd., Shandong Zhongjin Lingnan Copper Industry Co., Ltd., Zijin Mining Group Co., Ltd., Chenzhou City Product Quality Supervision and Inspection Institute, Nanjing Municipal Institute of Product Quality Supervision and Inspection (Nanjing Institute of Quality Development and Advanced Technology Application), Chang Le Cheng Xin Gold Co., Ltd. and Jinchuan Group Co., Ltd.

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The release history of this document and the document it replaces is as follows.

This document was first published in 1994 and first revised in 2008;

- This is the second revision.

Introduction

Precious metal alloys are alloys composed of one or more precious metals (such as gold, silver, platinum, palladium, etc.) with other metallic or non-metallic elements.

Materials. These alloys not only retain the excellent properties of precious metals, such as corrosion resistance, electrical conductivity, and ductility, but also allow for the addition of other metals.

Precious metal alloys are used to modify or enhance certain physical, chemical, or mechanical properties of alloys. This allows precious metal alloys to improve material usability and reduce costs.

It is of great significance and is widely used in the automotive industry, electronic communications, new energy, petrochemical industry, weaponry industry, aerospace and other fields.

GB/T 15072 aims to establish a set of standard methods for chemical composition analysis to meet the needs of the production and trade of precious metal alloy products.

GB/T 15072 is proposed to consist of 20 parts.

- Part 1: Determination of Gold Content. The aim is to establish potentiometric titration and

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fire assay methods for determining the gold content in precious metal alloys. Methods of measurement.

- Part 2: Determination of Silver Content. The aim is to establish potentiometric titration and fire assay methods for determining the silver content in precious metal alloys. Methods of measurement.

- Part 3: Determination of Platinum Content. The aim is to establish a potentiometric titration method for determining the platinum content in noble metal alloys.

- Part 4: Determination of Palladium Content. The aim is to establish gravimetric and titration methods for determining palladium content in noble metal alloys.

- Part 6: Determination of Iridium Content. The aim is to establish a potentiometric titration method for determining the iridium content in noble metal alloys.

- Part 7: Platinum, Palladium, Rhodium, Iridium, Ruthenium, Cobalt, Chromium, Iron, Nickel, Zinc, Copper, Manganese, Gadolinium, Yttrium, Tin, Cerium, Lanthanum, Aluminum, Vanadium, Magnesium, Gallium, Beryllium, Antimony Determination of zirconium, molybdenum, and titanium content. The aim is to establish an inductively coupled plasma atomic emission spectrometry (ICP-AES) method for determining the content of zirconium, molybdenum, and titanium in noble metal alloys.

Methods for determining elemental content.

- Part 8: Determination of Copper Content. The aim is to establish a titration method for determining the copper content in noble metal alloys.

- Part 9: Determination of Indium and Zirconium Content. The aim is to establish a titration method for determining the indium and zirconium content in noble metal alloys.

- Part 10.Determination of Nickel Content. The aim is to establish methods for determining the nickel content in noble metal alloys using titration and gravimetric methods.

- Part 12.Determination of Vanadium, Rhenium, Gadolinium, and Yttrium Content by Spectrophotometry. The aim is to establish a spectrophotometric method for the determination of precious metal content.

Methods for determining the content of vanadium, rhenium, gadolinium, and yttrium in gold.

- Part 17.Determination of Tungsten Content. The aim is to establish a gravimetric method for determining the tungsten content in noble metal alloys.

- Part 20.Determination of Rhodium Content. The aim is to establish spectrophotometric and gravimetric methods for determining the rhodium content in noble metal alloys. method.

- Part 21.Determination of Ruthenium Content. The aim is to establish a spectrophotometric method for determining the ruthenium content in noble metal alloys.

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