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

GB/T 38130-2019

**Platinum jewellery alloys - Determination of platinum -
Inductively coupled plasma (ICP) spectrometric method using
yttrium as internal standard element**

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4.4 Barium chloride hexahydrate (YCl₃·6H₂O).

4.5 Yttrium oxide (Y₂O₃).

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4.7 Phosphoric acid (H₃PO₄). mass fraction of 85%.

4.8 Wangshui. The volume ratio of hydrochloric acid (4.1) to nitric acid (4.2) is 3.1.

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 21198.1-2007 "Precious metal alloy jewellery - Determination of precious metal content - Part 1

Points. The platinum content of platinum alloy jewelry was determined by using ? as the internal standard.

Compared with GB/T 21198.1-2007, the main technical changes of this standard are as follows.

--- Added "platinum alloy with platinum content of 500 per mille~990 per mille" (see Chapter 1);

--- GB 11887 has been removed from the normative reference file, and ISO 11596 has been added (see Chapter 2, Chapter 2 of the.2007 edition);

--- Addition of cerium oxide, phosphoric acid and aqua regia to the reagent material (see 4.5, 4.7 and 4.8);

--- Increased sampling requirements (see Chapter 6);

--- Removed alloys containing bismuth, antimony, bismuth or chromium (see version 6.2.2 of.2007);

--- Added the content of the direct preparation of the calibration test solution and the sample test solution and the calculation method of the results (see 7.3.3, 7.4.2 and 7.7.4).

This standard uses the redrafting method to modify the use of ISO 11494.2014 "jewelry platinum alloy jewelry in the determination of platinum content using Internal standard ICP spectrometry.

This standard has more structural adjustments than ISO 11494.2014. Appendix A lists this standard and ISO 11494.2014.

The chapter number is compared to the list.

There are technical differences between this standard and ISO 11494.2014. The terms involved in these differences have passed through the blank space on the outside.

The vertical single line (|) is marked, and Appendix B gives a list of the corresponding technical differences and their causes.

This standard also made the following editorial changes.

--- Change the standard name to "Measurement of Platinum Alloy Jewelry Platinum Content ? Internal Standard ICP Spectroscopy".

This standard was proposed by the China Light Industry Association.

This standard is under the jurisdiction of the National Jewelry Standardization Technical Committee (SAC/TC256).

This standard was drafted. Beijing Guoshou Jewelry Testing Co., Ltd./National Jewelry Quality Supervision and Inspection Center, Beijing Guoshou Jewelry Standardization Research Center.

1 Scope

This standard specifies the determination of platinum content in platinum alloy jewellery by inductively coupled plasma optical emission spectroscopy (ICP-OES) with ? as the internal standard.

method.

This standard applies to platinum alloy jewelry and other platinum alloy products with a platinum content of 500 per mille~990 per mille.

2 Normative references

The following documents are indispensable for the application of this document. For dated

references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 11596 Sampling of precious metal alloy jewellery and related products
(Jewellery-Sampling of precious metal alloy
for and in jewellery and associated products)

3 Principle of the method

Accurately weigh at least two samples, dissolved in aqua regia, and formulated into a sample solution of the exact mass. Accurately weigh a certain amount of sample solution, and

The internal standard solution is mixed and calibrated to the standard measurement volume.

Application of inductively coupled plasma optical emission spectroscopy (ICP-OES) to test sample solutions and calibration solutions (containing known masses of platinum and rhodium

Platinum (recommended wavelength 265.95nm, 214.42nm, 299.80nm or 306.47nm) and yttrium (recommended wavelength 371.03nm)

degree. Comparing the ratio of the intensity of platinum and rhodium in the sample solution to the ratio of the intensity of platinum and rhodium in the standard solution, using the insertion method to calculate the platinum mass, platinum content.

When the platinum alloy contains ruthenium, osmium, iridium or tungsten, the preparation method of the sample solution is slightly different.

Note. Platinum alloy jewelry may contain antimony, palladium, gold, bismuth, copper, cobalt, antimony, gallium, chromium, indium and tungsten. These elements generally do not interfere during the measurement process.

4.2 Nitric acid (HNO₃). The mass fraction is 65%~68%.

4.3 Platinum. The platinum content is not less than 999.9 per mille. Correction should be made when using 999.5 Å platinum.

4.8 Wangshui. The volume ratio of hydrochloric acid (4.1) to nitric acid (4.2) is 3.1.

4.9 Unless otherwise stated, only analytically pure reagents and secondary water or equivalent purity water are used in the analysis.