

ICS 77.120.99

CCS H 68



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

GB/T 15072.17-2008

Replacing GB/T 15072.17-1994

**Test methods for precious metal alloys - Determination of the
tungsten content of platinum alloys - Tungstic acid gravimetry**

贵金属合金化学分析方法 铂合金中钨量的测定 三氧化钨重量法

Issued on: March 31, 2008

Implemented on: September 1, 2008

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Method summary
- 4 Reagents and materials
- 5 Sample
- 6 Analysis
- 6.4 Determination

Foreword

This standard is GB/T 15072-1994 "precious metals and their alloys -" (all parts) the integration of amendments into Part 19. Determination

--- GB/T 15072.1-2008 Methods for chemical analysis of precious metal alloys of gold, platinum, palladium, gold alloy amount of ferrous sulfate Potentiometric titration;

--- GB/T 15072.2-2008 Methods for chemical analysis of precious metal alloys silver alloys Determination of silver content of sodium chloride potential drop Titration;

--- GB/T 15072.3-2008 Methods for chemical analysis of precious metal alloys of gold, platinum, palladium, platinum alloys determining the amount of potassium permanganate Current titration;

--- GB /15072.4-2008 Methods for chemical analysis of precious metal alloys of palladium, silver-palladium alloy determining the amount of T-dimethyl glyoxal Gravimetric method;

--- GB/T 15072.5-2008 Methods for chemical analysis of precious metal alloys of gold, measuring the potential of potassium iodide palladium alloy of silver content drops Titration;

--- GB/T 15072.6-2008 precious metal alloys - Determination of platinum, palladium, iridium alloy in determining the amount of ferrous sulfate Current titration;

--- GB/T 15072.7-2008 precious metal alloys - Gold alloys chromium and iron content - Inductively coupled plasma Plasma atomic emission spectrometry;

--- GB/T 15072.8-2008 precious metal alloys - gold, palladium, silver and copper alloys - Determination of the amount of precipitation thiourea EDTA complexometric back titration;

--- GB/T 15072.9-2008 precious metal alloys - Gold alloys - Determination of the amount of indium by EDTA back drop Titration;

- GB/T 15072.10-2008 precious metal alloys - Gold alloys - Determination of nickel by EDTA back drop Titration;
- GB/T 15072.11-2008 precious metal alloys - gold alloy of gadolinium and beryllium content - Inductively coupled plasma Plasma atomic emission spectrometry;
- GB T 15072.12-2008 precious metal alloys - Silver alloys - Determination of vanadium content/hydrogen peroxide spectrophotometer Law degree;
- GB/T 15072.13-2008 precious metal alloys - Tin in silver, cerium and lanthanum content - Inductively coupled Plasma atomic emission spectrometry;

1 Scope

China's national method for determining tungsten in platinum alloys, by precipitation and weighing as tungsten trioxide. It is Part 17 of GB/T 15072 and specifies the determination of the tungsten content of platinum alloys, applying to platinum-tungsten alloys over a mass fraction range of 7 to 10 per cent. Platinum-tungsten is a specialised alloy with a specialised job. Platinum is chosen for chemical inertness and for stability at high temperature, and tungsten is added to it in these proportions to raise the strength and the elastic modulus considerably while keeping the corrosion resistance - which is what a fine wire needs when it has to be stiff, drawn very thin, and biologically or chemically inert. The alloy is used for electrode and lead wire in implantable devices, for spark and ignition electrodes, for radiopaque markers, and for guidewire and stent applications where the material must be visible under X-ray and must not corrode in the body. At those proportions the tungsten is a major alloying element, not a trace, and that is why a gravimetric method remains the reference. Gravimetry is slow, but it is absolute: the element is separated, converted to a compound of known composition and weighed, with no calibration standard between the sample and the result. For an alloy where a per cent of tungsten changes the mechanical properties and the material may go into a human body, that traceability is worth the time. The standard fixes the dissolution of a very unreactive alloy, the separation of tungsten from the platinum, the precipitation and ignition to the trioxide, the weighing and the calculation. Issued on 31 March 2008 and in force since 1 September 2008, it replaces GB/T 15072.17-1994.

This section provides the determination of platinum alloy of tungsten content. This section applies to the determination PtW alloy of tungsten content. Measurement range (mass fraction). 7% to 10%.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this section, however, encourage the parties to this

part of the research agreement Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this section. 371 precious metal alloys - General rules and regulations YS/T

3 Method summary

Sample was dissolved with a mixed acid, tungsten trioxide yellow precipitate, gravimetric method for determination of tungsten content.

4 Reagents and materials

Unless otherwise noted, reagents and vessels shall comply with YS/T 371 standard.

4.1 hydrochloride (rho1.19g/L). Nitrate 4.2 (rho1.42g/L).

4.3 mixed acid. 3 unit volume per unit volume of hydrochloric acid and nitric acid 1 (4.2) is mixed with a time of existing service.

4.4 nitric acid (1 + 9).

4.5 silver nitrate solution (10g/L). Ammonia 4.6 (1 + 1).

5 Sample

Samples processed into chips, with acetone to remove oil, washed with water, dried, and mix. Step

6 Analysis

6.1 Sample Weigh 0.5g sample accurate to 0.00001g.

6.2 Determination of the number of Two independent measurement averaged.

6.3 blank test Along with sample blank test.

6.4 Determination

6.4.1 The sample was placed in 250mL beaker, add 20mL ~ 30mL mixed acid, cover with a watch glass, in the low-temperature heating furnace dissolved. When dissolved, add the mixed acid can be repeated until the observed black particles is completely dissolved. Evaporated to about 10mL, removed, cooled to