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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 1122.2-2016

**Methods for chemical analysis of(hydro) chloroplatinic acid--Part 2:
determination of palladium, rhodium, iridium, gold, silver, chromium, copper, iron,
nickel, lead, tin contents--Inductivity coupled plasma mass spectrometry**

氯铂酸化学分析方法 第2部分：钯、铑、铱、金、银、铬、铜、铁、镍、铅、锡
量的测定 电感耦合等离子体质谱法

(English Translation)

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Foreword

YS/T 1122 "Chloroplatinic acid chemical analysis method" is divided into the following two parts.

- Part 1. Determination of platinum content - Ammonium chloride weight method;

Part 2. Determination of palladium, rhodium, iridium, gold, silver, chromium, copper, iron, nickel, lead and tin - Inductively coupled plasma mass spectrometry.

This part is part 2 of YS/T 1122.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the National Nonferrous Metals Standardization Technical Committee (SAC/TC243) proposed and centralized.

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Methods for chemical analysis of chloroplatinic acid - Part 2.

Palladium, rhodium, iridium, gold, silver, chrome, copper, iron, nickel, lead, tin
Determination of inductively coupled plasma mass spectrometry

1 Scope

This part of YS/T 1122 specifies the determination of palladium, rhodium, iridium, gold, silver, chromium, copper, iron, nickel, lead and tin in chloroplatinic acid.

This part is suitable for the determination of palladium, rhodium, iridium, gold, silver, chromium, copper, iron, nickel, lead and tin in chloroplatinic acid.

Table 1 Determination of each element

Element	Measurement Range /%	Element	Measurement Range /%	Elemental
Pd	0.0001 to 0.01	Rh	0.0001 to 0.01	Ir
Au	0.0001 to 0.01	Ag	0.0001 to 0.01	Cr
Fe	0.0001 to 0.01	Ni	0.0001 to 0.01	Pb
Cu	0.0001 to 0.01	Sn	0.0001 to 0.01	

2 Principle of the method

The contents of rhodium, silver, copper, nickel, lead and tin were determined by using cesium as internal standard, palladium, iridium and gold.

The ruthenium was used as an internal standard to determine the signal intensity of its isotope in normal operating mode.

3 Reagent

Unless otherwise specified, only the primary reagent identified as the analytical reagent and the resistivity of not more than $18.2 \text{ Mohm} \cdot \text{cm}^{-1}$ is used in the analysis.

3.1

nitric acid ($\rho=1.42 \text{ g/mL}$), MOS grade.

3.2

hydrochloric acid ($\rho=1.19 \text{ g/mL}$), MOS grade.

3.3

Hydrochloric acid (1 1).

3.4

Hydrogen peroxide ($\rho=1.44 \text{ g/mL}$), MOS grade.

3.5

nitric acid (1 1), with the current distribution.

3.6

hydrochloric acid (1 4), with the current distribution.

3.7

mixed acid. 3 volumes of hydrochloric acid (3.2) and 1 volume of nitric acid (3.1) mix, with the current distribution.

3.8

silver standard storage solution. Weigh 0.5000g metal silver ($w_{\text{Ag}} \geq 99.99\%$), placed in 200mL beaker, add 30mL nitric acid (3.1), cover the surface dish, heat dissolved, cooled, into the 500mL volumetric flask, diluted with water to the mark, mix. This solution 1mL Containing 1000 μg of silver.

3.9

palladium standard storage solution. Weigh 0.1000 g of metal palladium ($w_{\text{Pd}} \geq 99.99\%$), placed in 100mL polytetrafluoroethylene beaker, add 3 mL hydrochloric acid (3.2), 1 mL nitric acid (3.1), dissolve completely at low temperature, into a 100 mL volumetric flask, add 10 mL of hydrochloric acid (3.2) Diluted with water to the mark. Mix well. 1 mL of this solution containing 1000 g of palladium.

3.10

Rhodium Standard Storage Solution. Ammonium Rhodium Dioxide [$w(\text{NH}_4)_3\text{RhCl}_6 \geq 99.99\%$] was previously dried in an oven at 105 ° C for 2 h and placed in a desiccator