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

GB/T 43603.2-2024

Methods for chemical analysis of nickel-platinum target alloys-Part 2: Determination of magnesium,aluminium,titanium, vanadium,chromium,manganese,iron,cobalt,coppe,zinc,zirconium,silver,palladium,tin,samarium,lead,silicon contents-Inductively coupled plasma mass spectrometry

镍铂靶材合金化学分析方法 第2部分：镁、铝、钛、钒、铬、锰、铁、钴、铜、锌、锆、银、钯、锡、钇、铅、硅含量的测定 电感耦合等离子体质谱法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 2 of GB/T 43603 "Chemical analysis methods for nickel-platinum target alloys". GB/T 43603 has been published for the following part.

- Part 1: Determination of platinum content by inductively coupled plasma atomic emission spectrometry;
- Part 2: Determination of magnesium, aluminium, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, zirconium, silver, palladium, tin, samarium, lead and silicon content by inductive coupling In-Plasma Mass Spectrometry;
- Part 3: Determination of carbon content-High frequency infrared detection method.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by 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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Introduction

Nickel-platinum target alloy is widely used in the semiconductor industry. It is a key material to ensure the performance of semiconductor devices and develop semiconductor technology.

The nickel-platinum target alloy with platinum content has special structure and properties, which plays an important role in the semiconductor manufacturing process.

The impurity composition of the nickel-platinum target alloy is directly related to the sputtering performance. Therefore, the chemical composition analysis of the nickel-platinum target alloy is particularly important;

GB/T 43603 is planned to consist of three parts according to the different test objects and test methods.

- Part 1: Determination of platinum content by inductively coupled plasma atomic emission spectrometry. The purpose is to specify nickel-platinum target alloy Inductively coupled plasma atomic emission spectrometry for determination of platinum content in water and its applicable determination range;

- Part 2: Determination of magnesium, aluminium, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, zirconium, silver, palladium, tin, samarium, lead and silicon content by inductive coupling Plasma mass spectrometry. The purpose is to determine the content of magnesium, aluminum, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, zirconium, silver, Inductively coupled plasma mass spectrometry for the determination of palladium, tin, samarium, lead and silicon content and its applicable determination range;

- Part 3: Determination of carbon content by high frequency infrared detection method. The purpose is to specify the high frequency infrared detection method for the determination of carbon content in nickel platinum target alloys.

Frequency infrared detection method and applicable measurement range.

The above documents clarify the scope of application, standardize reagents, materials, test equipment and procedures, and have been repeatedly tested by multiple laboratories.

The precision data is given through verification and validation, which enhances the consistency and comparability of data between different laboratories and provides a basis

for testing the quality of nickel-platinum target alloys.

Establish a rigorous and standardized standardization foundation.

Chemical analysis method of nickel-platinum target alloy Part 2: Magnesium, aluminum, titanium, vanadium, chromium, manganese, iron, Cobalt, copper, zinc, zirconium, silver, palladium, tin, samarium, lead, silicon Determination of content Inductively Coupled Plasma Mass Spectrometry Warning---People who use this document should have practical experience in formal laboratory work. This document does not address all possible safety issues.

The user is responsible for taking appropriate safety and health measures and ensuring compliance with the conditions stipulated in relevant national laws and regulations.

1 Scope

This document describes the determination of magnesium, aluminum, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, zirconium, silver, palladium, tin, samarium, lead and silicon in nickel-platinum target alloys. Determine the method.

This document is applicable to the determination of magnesium, aluminum, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, zirconium, silver, palladium, tin, samarium, lead and silicon content in nickel-platinum target alloys.

The measurement range is shown in Table 1.

Measurement range (mass fraction)	element	Measurement range (mass fraction)	element
0.000010~0.010	Pd	0.000050~0.010	Ag
0.000010~0.010	Mg	0.000010~0.010	Pb
0.000050~0.010	Fe	0.000050~0.010	Sn
0.00010~0.010	Sm	0.00010~0.010	Cu
0.000050~0.010	Al	0.00010~0.010	Zn
0.00010~0.010	Mn	0.000050~0.010	Co
0.000050~0.010	Si	0.00010~0.010	Cr
0.000050~0.010	-	0.00050~0.010	V
0.000050~0.010	-	-	-

2 Normative references

GB/T 8170

GB/T 17684