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

GB/T 43589-2023

**Gold alloys adornment-Determination of multi-element
contents-Laser ablation-inductively coupled plasma mass
spectrometry**

金合金饰品 多元素含量测定 激光剥蚀-电感耦合等离子体质谱法

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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:

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This document was drafted by: Chongqing Institute of Metrology and Quality Inspection, Shandong Yifu Gold Jewelry Co., Ltd., Beijing Guoshou Jewelry Capital Jewelry Testing Co., Ltd., Guoshou (Shenzhen) Jewelry Testing Co., Ltd., Shandong Institute of Metrology, Shanghai Metrology Testing Technology Research Institute, Chengdu Product Quality Inspection Institute Co., Ltd., National Jewelry and Jade Jewelry Inspection Group Co., Ltd., Tianjin Products Quality Supervision and Inspection Technology Research

Institute, Xinjiang Uygur Autonomous Region Product Quality Supervision and Inspection Research Institute, Henan Provincial Product Quality Inspection Technology Research Institute, Shenzhen Gold and Silver Jewelry Inspection and Research Center Co., Ltd., Shaanxi Provincial Product Quality Supervision and Inspection Institute, China University of Geosciences (Wuhan Han), China Merchants Testing and Certification (Chongqing) Co., Ltd., Zhongbao Zhengxin Gold and Silver Jewelry Testing Co., Ltd., Guangzhou Panyu Vocational and Technical College, Shandong Mengjinyuan Jewelry Co., Ltd., Shenzhen Jiuwu Zhizun Jewelry Co., Ltd., Shandong Zhaojin Gold and Silver Refining Co., Ltd., Chongqing Ji Disease Prevention and Control Center (Chongqing Disaster Relief and Disease Prevention Emergency Response Center), Chongqing Gold and Silver Jewelry Industry Association, Shanghai Kailai Instrument Co., Ltd:

Company, Wuhan Shangpu Analysis Technology Co., Ltd:

The main drafters of this document: Zhu Yong, Li Li, Wang Xuan, Li Suqing, Zhang Lixin, Huang Boling, Yang Tingting, Wang Zhongshan, Yang Pei, Wang Chunsheng, Liu Haibin, Chen Dapeng, Cao Weiyu, Chen Dingying, Li Xinling, Li Huihuang, Cao Xiaoyong, Zhang Zhi, Liu Huafeng, Xi Bo, Wang Jianjun, Song Yang, Chen Hongxia, Hu Zhaochu, Wang Chao, Sun Fang, Shao Wenying, Li Kun, Hu Xiaoyan, Dai Ruirui, Li Lansan, Shen Jiani, Wang Chunqing, Liu Jiao, Zhang Hailong, Hu Yonggang, Gao Wei, Shi Guangyu:

Determination of multi-element content of gold alloy jewelry Laser ablation-inductively coupled plasma mass spectrometry

1 Scope

This document describes the use of laser ablation-inductively coupled plasma mass spectrometry for the determination of magnesium, titanium, chromium, manganese, iron, nickel, copper, Methods for zinc, arsenic, ruthenium, rhodium, palladium, silver, platinum, tin, antimony, iridium, cadmium, lead, and bismuth content:

This document is applicable to the determination of multi-element content in gold alloy jewelry with a gold content of not less than 990.00 per mille: The elements and measurement ranges are shown in Table 1:

Table 1 Elements and measurement range element Quality fraction a element Quality fractiona Magnesium 0:0016~0:0560 Titanium 0:0004~0:0340 Chromium 0:0002~0:0100 Manganese 0:0004~0:0110 Iron 0:0006~0:0430 Nickel 0:0002~0:0130 Copper 0:0003~4:0000 Zinc 0:0002~0:0440 Arsenic 0:0010~0:0630 Ruthenium 0:0002~0:0090 Rhodium 0:0002~0:0670 Palladium 0:0002~0:1000 Silver 0:0004~6:0000 Platinum 0:0002~0:0710 Tin 0:0006~0:0390 Antimony 0:0002~0:0430 Iridium 0:0002~0:0110 Cadmium 0:0002~0:0170 Lead 0:0006~0:0480 Bismuth 0:0002~0:0630 a Beyond the scope of this determination may also be applicable, but the laboratory needs to verify the testing beyond the scope:

2 Normative reference documents

GB/T 43569

3 Terms and definitions

There are no terms or definitions to be defined in this document:

4 Principles

Gold alloy jewelry is ablated by laser, and the fine particles produced are brought into the inductively coupled plasma mass spectrometry system by high-purity inert gas, and various components are measured: