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

GB/T 17362-2008

Replacing GB/T 17362-1998

Analysis method for gold products with X-ray EDS in SEM

黄金制品的扫描电镜X射线能谱分析方法

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Foreword

This standard replaces GB/T 17362-1998 "gold jewelry SEM X-ray spectroscopy methods" and GB/T 17723-1999 "X-ray spectroscopy measurements coating composition of gold products," two standards. This standard and GB/T 17362-1998 and GB/T 17723-1999 standard compared to the two main changes are as follows:

- The scope of merged, so that it can be applied to different respective gold content of K gold articles made of gold and gold-bearing surface Determination of coating gold-plated products coating composition in both cases;
- The two relevant sections of the original standard, by deleting duplicate part, different parts finishing formation of a new text;
- Deletion of GB/T 17723 in the "Terminology" section;
- Original standard "jewelry" be replaced by "products";
- Provisions of this standard no longer optional calibration procedure, the operator can be based on the actual analysis of samples, use their own choice;
- Emphasis on the determination of the coating products, the operating voltage of choice, which is the key component of the coating can measure accurate. Appendix A of this standard is a normative appendix. This standard by the National Standardization Technical Committee microbeam analysis made. This standard by the National Standardization Technical Committee microbeam analysis. This standard was drafted. Beijing Nonferrous Metal Research Institute, Beijing Institute of Geology for Nuclear Industry Corporation, Beijing Iron and Steel Research Institute. The main drafters of this standard. Liu Ansheng, Zhang Yi, Mao Yunjing. This standard replaces the standards previously issued as follows:
 - GB/T 17362-1998;
 - GB/T 17723-1999. Gold products SEM X-ray EDS analysis

1 Scope

GB/T 17362-2008 is the Chinese national standard on analysis method for gold products with x-ray eds in sem, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 18 September 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 May 2009. Classification: ICS 71.040.99, CCS N53. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

1.1 standard specifies the configuration used in the scanning electron microscope X-ray spectrometer for gold products nondestructive quantitative analysis of the chemical composition of the party Law and technical requirements.

1.2 This standard applies to the determination of various gold products and gold products K chemical composition, but also for a variety of gold, gold, gold forging system Product surface gold layer thickness of more than 0.2 μ m, 3 μ m below the surface layer of the chemical composition of non-destructive measurement.

1.3 This standard applies to gold products in the mass fraction of 0.1% to 100% of the quantitative elemental analysis. This standard also applies to the electrical configuration X-ray analyzer sub-probe spectroscopy analysis on gold products.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 4930 electron probe microanalysis standard specimen General technical requirements

3 Analysis Method Principle

In the scanning electron microscope, when the electron beam has a certain energy and focused bombardment sample, the characteristics of each element are emitted irradiation zone X-rays, using semiconductor detectors for different energy dispersive X-rays characteristic of the received signal is amplified, processed and divided Analysis of

obtained energy distribution characteristics of each element X-ray peak intensity of its value, and then with the corresponding X-ray spectrum of a standard sample of Ratio measurement, calculation and correction process, the final test sample can be obtained by the chemical composition of the quantitative analysis. The coating sample, by changing the scanning electron microscope operating voltage, thereby changing the incident electrons in a sample of the penetration depth to obtain not Elements are present within the same depth information. Under the same experimental conditions, the elements and the corresponding elements in the standard sample with the presence of measuring coating Characteristic X-rays, by contrast, is obtained after the correction corresponding to the electronic elements within the depth of penetration of the coating composition of the quantitative analysis.

4 Instruments and materials

4.1 Scanning electron microscope.

4.2 X-ray spectrometer.

4.3 ultrasonic cleaner.

4.4 ethanol, acetone.

4.6 K gold standard set.

5 Standard samples

5.1 gold products generally contain only gold, silver, copper three elements, in some cases, may also contain zinc, nickel, cadmium and other elements. Selection principle

5.2 standard sample. Recommended standard sample GB/T 4930 electron probe microanalysis standard specimen General technical conditions Goods, gold and silver using the following standard.

a) gold standard;