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

GB/T 18996-2021

**Silver alloy jewelry Determination of silver content Sodium
chloride or potassium chloride volumetric method
(potentiometric titration method)**

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5.6 Standard silver. the content is not less than 999.9 per mille.

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 of Standardization Documents" drafted.

This document replaces GB/T 18996-2003 "Determination of silver content in silver alloy jewelry by sodium chloride or potassium chloride volumetric method (potentiometric titration)

Law)". Compared with GB/T 18996-2003, except for structural adjustment and editorial changes, the main technical changes in this document are as follows.

- Added normative reference document GB/T 9725 (see Chapter 2);
- Added provisions for sampling methods (see Chapter 7);
- Delete the dose (see 6.1 of the.2003 edition);
- Added the corresponding health and safety operating procedures warnings in the test steps (see Chapter 8);
- Modified the weighing range of the sample and standard silver (see 8.1.1 and 8.2.1, 6.2.1 and 6.3.1 of the.2003 edition);
- Added the experimental operation content "cover the watch glass above the beaker when dissolving the sample" (see 8.1.1 and 8.2.1);
- Delete the provisions for the volume of water (see 6.2.1 and 6.3.1 of the.2003 edition).

This document uses the redrafted method to modify the use of ISO 13756.2015 "Determination of silver content in jewelry silver alloy jewelry. Sodium chloride or potassium chloride volumetric method (potentiometric titration method).

Compared with ISO 13756.2015, this document has many adjustments in structure. Appendix A lists this document and ISO 13756.2015.

A comparison list of the changes in the chapter numbering.

There are technical differences between this document and ISO 13756.2015, and the clauses involved in these differences have been

The vertical single line (|) of the position is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B.

The following editorial changes have been made to this document.

--- Modify the file name to "Determination of Silver Content in Silver Alloy Jewelry Sodium Chloride or Potassium Chloride Volumetric Method (Potentiometric Titration Method)".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document describes a method for the determination of silver content in silver alloy jewellery using the sodium chloride or potassium chloride volumetric method (potentiometric titration).

This document applies to silver alloy jewelry, handicrafts and their materials with a silver content of 800 per mille~999 per mille. These alloys may contain copper, zinc,

Cadmium and palladium, except for palladium, which must be separated by precipitation before starting the titration, the presence of other elements will not interfere with this determination method.

Note. This method is a recommended alternative to GB/T 17832.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 9725 General Rules for Potentiometric Titration of Chemical Reagents (GB/T

9725-2007, ISO 6353-1.1982, NEQ)

3 Terms and Definitions

There are no terms and definitions that need to be defined in this document.

4 Principles

The sample is dissolved in dilute nitric acid. Titrate the sample solution with a pre-calibrated sodium chloride or potassium chloride solution.

The potential change determines the end point, thereby determining the silver content in the solution.

5 Reagents or materials

Unless otherwise specified, only analytically pure reagents and distilled water or water of equivalent purity were used in the analysis.

5.2 Nitric acid mixed solution. Mix 1 volume of nitric acid (5.1) and 2 volumes of water.

5.3 Sodium chloride solution, $c(\text{NaCl})=0.1\text{mol/L}$. dissolve 5.84g (dried at 105°C) sodium chloride in water, and dilute to 1000mL.

5.4 Potassium chloride solution, $c(\text{KCl})=0.1\text{mol/L}$. dissolve 7.44g (dried at 105°C) potassium chloride in water, and dilute to 1000mL.

5.5 Butanedione oxime disodium salt octahydrate solution. Dissolve 10g of butanedione oxime disodium salt octahydrate in 1000mL of water.