BS ISO 11427:2014

BSI Standards Publication

Jewellery — Determination of silver in silver jewellery alloys — Volumetric (potentiometric) method using potassium bromide

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National foreword

This British Standard is the UK implementation of ISO 11427:2014. It supersedes BS EN 31427:1994 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee STI/53, Specifications and test methods for jewellery and horology.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Date	Text affected

INTERNATIONAL STANDARD

ISO 11427

Second edition
2014-11-01

Jewellery — Determination of silver in silver jewellery alloys — Volumetric (potentiometric) method using potassium bromide

Joaillerie, bijouterie — Dosage de l'argent dans les alliages d'argent pour la bijouterie-joaillerie — Méthode volumétrique (potentiométrique) utilisant le bromure de potassium

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 174, *Jewellery*.

This second edition cancels and replaces the first edition (ISO 11427:1993) which has been technically revised with the following changes:

a) change of requirement for sampling in Clause 6;

b) addition of a warning in Clause 7 that suitable health and safety procedures should be followed;

c) addition of the possibility to use watch glasses in 7.1.1 to cover the beaker;

d) deletion of the specified volume of water in 7.1.1;

e) addition in 7.1.3 that a potassium bromide standard solution is used;

f) change in 8.1 from potassium chloride to potassium bromide;

g) standard editorially revised.

Introduction

The following definitions apply in understanding how to implement an ISO International Standard and other normative ISO deliverables (TS, PAS, IWA).

— "shall" indicates a requirement

— "should" indicates a recommendation

— "may" is used to indicate that something is permitted

— "can" is used to indicate that something is possible, for example, that an organization or individual is able to do something

3.3.1 of the ISO/IEC Directives, Part 2 (sixth edition, 2011) defines a requirement as an "expression in the content of a document conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted."

3.3.2 of the ISO/IEC Directives, Part 2 (sixth edition, 2011) defines a recommendation as an "expression in the content of a document conveying that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited."

INTERNATIONAL STANDARD ISO 11427:2014(E)

Jewellery — Determination of silver in silver jewellery alloys — Volumetric (potentiometric) method using potassium bromide

1 Scope

This International Standard method describes a volumetric method for the determination of silver in jewellery alloys, preferably within the range of fineness stated in ISO 9202.

These alloys may contain copper, zinc, cadmium, and palladium. Apart from palladium, which must be precipitated before commencing titration, these elements do not interfere with this method of determination.

This method is intended to be used as the referee method for the determination of fineness in alloys covered by ISO 9202.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11596, *Jewellery — Sampling of precious metal alloys for and in jewellery and associated products*

3 Principle

The sample is dissolved in dilute nitric acid. The silver content of the resulting solution is determined by titration with standard potassium bromide solution using a potentiometric indication of the equivalence point.

4 Reagents

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

4.1 Nitric acid; 33 % HNO_3 (mass fraction), with sufficiently low content of halides (check with silver nitrate test).

4.2 Potassium bromide, solution, *c* (KBr) = 0,1 mol/l.

Dissolve 11,901 g of potassium bromide (dried at 105 °C) in water and dilute to 1 000 ml.

4.3 Disodium dimethylglyoxime octahydrate solution.

Dissolve 10 g of disodium dimethylglyoxime octahydrate in 1 000 ml of water.

4.4 Pure silver, minimum purity 999,9 parts by mass per thousand (‰).