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Jewellery and precious metals — Determination of palladium — Gravimetry using dimethylglyoxime

Joaillerie, bijouterie et métaux précieux — Dosage du palladium — Méthode gravimétrique utilisant la diméthylglyoxime

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Foreword

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This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/SSM21, *Precious metals — Applications in jewellery and associated products*, in collaboration with ISO Technical Committee TC 174, *Jewellery*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 11490:2015), which has been technically revised.

The main changes are as follows:

— extension of the scope of application to all precious metal alloys beyond the jewellery sector;

— clarification of the fineness for which the test is suitable;

— addition of a specific preparation for samples containing a significant amount of silver in Clause 8;

— change of precipitation method in Clause 8;

— suppression of the use of hydrofluoric acid and sulfuric acid;

— harmonization of method with ISO 11210.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Jewellery and precious metals — Determination of palladium — Gravimetry using dimethylglyoxime

1 Scope

This document specifies a gravimetric method for the determination of palladium on a material considered homogeneous. The palladium content of the sample lies preferably between 50 and 999 parts per thousand (‰) by mass. Fineness above 999 ‰ can be determined using a spectroscopy method by difference (e.g. ISO 15093).

This method is also intended to be used as one of the recommended methods for the determination of fineness in jewellery alloys covered by ISO 9202.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
palladium sponge
palladium obtained after calcination of the palladium dimethylglyoxime precipitate

4 Principle

The sample is dissolved in aqua regia. Palladium is precipitated with dimethylglyoxime. The palladium dimethylglyoxime complex precipitate is converted by ignition to metallic palladium which is weighed.

If present, silver is separated as silver chloride.

Co-precipitated alloying elements are tested in the re-dissolved palladium sponge and measured using, for example, an inductively coupled plasma optical emission spectrometer (ICP-OES), and a correction applied.

5 Reagents

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

5.1 Hydrochloric acid (HCl), with a mass fraction of approximately 30 % to 37 % of HCl.

5.2 Diluted hydrochloric acid, consisting of a mix of one volume of hydrochloric acid (5.1) and one volume of water.

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