

Jewellery and precious metals - Determination of
palladium - Gravimetry using dimethylglyoxime (ISO
11490:2023)

EESTI STANDARDI EESSÕNA

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English Version

**Jewellery and precious metals - Determination of
palladium - Gravimetry using dimethylglyoxime (ISO
11490:2023)**

Joaillerie, bijouterie et métaux précieux - Dosage du
palladium - Méthode gravimétrique utilisant la
diméthylglyoxime (ISO 11490:2023)

Schmuck und Edelmetalle - Bestimmung von Palladium
- Gravimetrie mittels Dimethylglyoxim (ISO
11490:2023)

This European Standard was approved by CEN on 19 February 2023.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 11490:2023) has been prepared by Technical Committee ISO/TC 174 "Jewellery and precious metals" in collaboration with CCMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 11490:2016.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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Endorsement notice

The text of ISO 11490:2023 has been approved by CEN as EN ISO 11490:2023 without any modification.

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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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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.

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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.