

**Plaatinasisalduse määramine juveeltoodete
plaatinasulamites. Kaalanalüüsimeetod pärast
elavhõbe(I)kloriidiga taandamist**

Determination of platinum in platinum jewellery alloys -
Gravimetric method after reduction with mercury(I)
chloride

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11489:2004 sisaldab Euroopa standardi EN ISO 11489:1995 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 11.01.2000 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.05.1995.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11489:2004 consists of the English text of the European standard EN ISO 11489:1995.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 11.01.2000 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 01.05.1995.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 39.060

Võtmesõnad: juveeltooted, kaalanalüüs, keemiline analüüs, plaatina, platinasulamid, sisalduse määramine

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Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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ICS 39.060

Descriptors: Jewellery, platinum content, platinum alloys, testing.

English version

Determination of platinum in platinum jewellery alloys

Gravimetric determination by reduction with mercury(I) chloride

(ISO 11 489:1995)

Dosage du platine dans les alliages de platine pour la bijouterie-joaillerie; dosage gravimétrique par réduction au chlorure de mercure(I) (ISO 11 489:1995)

Bestimmung von Platin in Platin-Schmucklegierungen; gravimetrische Bestimmung durch Reduktion mit Quecksilber(I)-chlorid (ISO 11 489:1995)

This European Standard was approved by CEN on 1995-04-27 and is identical to the ISO Standard referred to.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 11489:1995 Determination of platinum in platinum jewellery alloys; gravimetric determination by reduction with mercury(II) chloride,

which was prepared by ISO/TC 174 'Jewellery' of the International Organization for Standardization, has been adopted by CEN/BT as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 1995 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 11489:1995 was approved by CEN as a European Standard without any modification.

1 Scope

This International Standard specifies a gravimetric method for the determination of platinum in platinum jewellery alloys, preferably within the range of fineness stated in ISO 9202.

The procedure applies specifically to platinum alloys incorporating palladium, iridium, rhodium, copper, cobalt, gold, ruthenium, gallium, chromium, indium and less than 5 % tungsten. Some modifications are indicated where palladium, iridium, rhodium, gold or ruthenium are present.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 9202:1991, *Jewellery — Fineness of precious metal alloys*.

3 Principle

The sample is dissolved in *aqua regia*. After elimination of all nitrates by evaporation, the residue is dissolved in hydrochloric acid. The platinum is then precipitated from this solution by reduction with mercury(II) chloride. The mercury is eliminated by ignition and the platinum is weighed. If present, gold

and palladium will also be precipitated by this reduction procedure. Their content shall be determined separately by, for example, atomic absorption or inductively coupled plasma (ICP) emission spectrometry, and a correction applied.

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 Hydrochloric acid, 36 % (m/m) to 38 % (m/m), $\rho_{20} = 1,19 \text{ g/cm}^3$.

4.2 Dilute hydrochloric acid, 18 % (m/m), $\rho_{20} = 1,09 \text{ g/cm}^3$.

4.3 Dilute hydrochloric acid, 8,5 % (m/m), $\rho_{20} = 1,04 \text{ g/cm}^3$.

4.4 Nitric acid, 69 % (m/m), $\rho_{20} = 1,41 \text{ g/cm}^3$.

4.5 Mercury(II) chloride (Hg_2Cl_2), in suspension.

Dissolve 200 g of mercury(II) nitrate dihydrate [$\text{Hg}_2(\text{NO}_3)_2 \cdot 2\text{H}_2\text{O}$] in 300 ml of water in a beaker and add approximately 50 ml of nitric acid; just sufficient to ensure that the basic mercury(II) nitrate is redissolved. Dilute the solution with water to 4 litres and add 400 ml of cold saturated ammonium chloride solution. Allow the precipitate of mercury(II) chloride to settle, decant and wash about 20 times to ensure that it is nitrate free. Add 2 litres of water and store in a closed flask.

NOTE 1 This suspension is stable and can be used even after storage for a few months.