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**SANS 11490:1995**

Edition 1 and nat. amdt 1

**ISO 11490:1995**

Edition 1

Any reference to SABS ISO 11490 is  
deemed to be a reference to this standard  
(Government Notice No. 1373 of 8 November 2002)

## **SOUTH AFRICAN NATIONAL STANDARD**

### **Determination of palladium in palladium jewellery alloys — Gravimetric determination with dimethylglyoxime**

This national standard is the identical implementation of ISO 11490:1995 and is adopted with the permission of the International Organization for Standardization.

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**Table of changes**

| <b>Change No.</b> | <b>Date</b> | <b>Scope</b>   |
|-------------------|-------------|--|
| Nat. amdt 1       | 2005        | Amended to change the designation of SABS standards to SANS standards with no technical changes. |

**National foreword**

This South African standard was approved by National Committee SABS TC 164, *Engineering materials – Mechanical testing of metals*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This SANS edition is technically identical to SABS ISO 11490:1995.

**Reaffirmed and reprinted in April 2010.  
This standard will be reviewed every 5 years and  
either be reaffirmed, amended, revised or withdrawn.**

SANS 11490:1995

INTERNATIONAL  
STANDARD

**ISO**  
**11490**

First edition  
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**Determination of palladium in palladium  
jewellery alloys — Gravimetric  
determination with dimethylglyoxime**

*Dosage du palladium dans les alliages de palladium pour la  
bijouterie-joaillerie — Dosage gravimétrique par la diméthylglyoxime*



Reference number  
ISO 11490:1995(E)

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11490 was prepared by Technical Committee ISO/TC 174, *Jewellery*.

Annex A of this International Standard is for information only.

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# Determination of palladium in palladium jewellery alloys — Gravimetric determination with dimethylglyoxime

## 1 Scope

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

These alloys which may contain silver, indium, gallium, copper, cobalt, nickel, tin and ruthenium. Coprecipitated elements have to be determined by a suitable method and a correction applied.

## 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*. Palladium is precipitated with dimethylglyoxime. If present, silver is separated as silver chloride. The palladium dimethylglyoxime compound is converted to metallic palladium by ignition and the latter is then determined gravimetrically.

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

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

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

**4.4 Dimethylglyoxime solution.**

Dissolve 10 g of dimethylglyoxime in 1 litre of ethanol.

**4.5 Ammonium chloride.**

**4.6 Dilute nitric acid**, 1,39 % (*m/m*),  $\rho_{20} = 1,00 \text{ g/cm}^3$ .

Cautiously add 10 ml of nitric acid (4.1) to 1 000 ml of water and mix.

**4.7 Hydrofluoric acid**, 40 % (*m/m*),  $\rho_{20} = 1,13 \text{ g/cm}^3$ .

**4.8 Dilute sulfuric acid**, 49 % (*m/m*),  $\rho_{20} = 1,4 \text{ g/cm}^3$ .

Cautiously add 100 ml of sulfuric acid [98 % (*m/m*),  $\rho_{20} = 1,86 \text{ g/cm}^3$ ] to 100 ml of water and mix.

**4.9 Reducing gas**, such as hydrogen or a hydrogen/nitrogen mixture.