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Jewellery and precious metals — Determination of platinum — Gravimetry using ammonium chloride

Joaillerie, bijouterie et métaux précieux — Dosage du platine — Méthode gravimétrique utilisant le chlorure d'ammonium

Reference number
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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 and precious metals*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 11210:2014), 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;

— addition of an alternative method for the filtration in Clause 8;

— harmonization of method with ISO 11490.

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Jewellery and precious metals — Determination of platinum — Gravimetry using ammonium chloride

1 Scope

This document specifies a gravimetric method for the determination of platinum on a material considered homogeneous. The platinum 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
platinum sponge
platinum obtained after calcination of the diammonium hexachloroplatinate precipitate

4 Principle

The sample is dissolved in aqua regia. Platinum is precipitated with ammonium chloride. The diammonium hexachloroplatinate precipitate is converted by ignition to metallic platinum which is weighed.

If present, silver is separated as silver chloride.

Co-precipitated alloying elements are tested in the re-dissolved platinum 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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