

Metallic coatings - Test methods for electrodeposited gold and gold alloy coatings - Part 3: Electrographic tests for porosity (ISO 4524-3:2021)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 4524-3:2021 sisaldab Euroopa standardi EN ISO 4524-3:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 4524-3:2021 consists of the English text of the European standard EN ISO 4524-3:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.11.2021.	Date of Availability of the European standard is 03.11.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

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English Version

**Metallic coatings - Test methods for electrodeposited gold  
and gold alloy coatings - Part 3: Electrographic tests for  
porosity (ISO 4524-3:2021)**

Revêtements métalliques - Méthodes d'essai des  
dépôts électrolytiques d'or et d'alliages d'or - Partie 3:  
Détermination électrographique de la porosité (ISO  
4524-3:2021)

Metallische Überzüge - Prüfverfahren für elektrolytisch  
abgeschiedene Überzüge aus Gold und  
Goldlegierungen - Teil 3: Elektrografische Prüfungen  
(ISO 4524-3:2021)

This European Standard was approved by CEN on 22 September 2021.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## European foreword

This document (EN ISO 4524-3:2021) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 "Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys" the secretariat of which is held by BSI.

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 May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

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 4524-3:1995.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 4524-3:2021 has been approved by CEN as EN ISO 4524-3:2021 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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 3, *Electrodeposited coatings and related finishes*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 4524-3:1985), which has been technically revised.

The main change compared to the previous edition is as follows: due to currently strong restrictions on the use of cadmium, the cadmium sulphide paper test prescribed by the last edition of this document has been deleted.

A list of all parts in the ISO 4524 series can be found on the ISO website.

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](http://www.iso.org/members.html).

# Metallic coatings — Test methods for electrodeposited gold and gold alloy coatings —

## Part 3: Electrographic tests for porosity

### 1 Scope

This document specifies four electrographic tests for assessing the porosity of electrodeposited gold and gold alloy coatings for engineering, and decorative and protective purposes.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological 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/>

### 4 Nioxime paper test

#### 4.1 Applicability

This method is suitable for the examination of gold coatings on undercoats of nickel or tin-nickel alloy.

#### 4.2 Materials

##### 4.2.1 General

During the test, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

##### 4.2.2 Nioxime paper

Soak filter or duplicating paper for 10 min in an 8 g/l solution of nioxime (cyclohexan-1,2-dione dioxime).

Remove the excess solution by blotting and hang the paper up to dry.

##### 4.2.3 Moistened blotting paper

Soak a good quality white blotting paper in water and dry it to a degree that consistently produces sharply defined electrograms.