



SLOVENSKI STANDARD
SIST EN ISO 10309:2016

01-julij-2016

Nadomešča:
SIST ISO 10309:1999

Kovinske prevleke - Preskus ugotavljanja poroznosti - Preskus ferroxyl (ISO 10309:1994)

Metallic coatings - Porosity tests - Ferroxyl test (ISO 10309:1994)

Metallische Überzüge - Prüfverfahren zur Bestimmung der Porosität - Ferroxylprüfung (ISO 10309:1994)

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Revêtements métalliques - Essais de porosité - Essai au ferroxyle (ISO 10309:1994)

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Ta slovenski standard je istoveten z: EN ISO 10309:2016

ICS:

25.220.40 Kovinske prevleke Metallic coatings

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en,fr,de

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EUROPEAN STANDARD

EN ISO 10309

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 25.220.40

English Version

Metallic coatings - Porosity tests - Ferroxyl test (ISO 10309:1994)

Revêtements métalliques - Essais de porosité - Essai au
ferroxyle (ISO 10309:1994)

Metallische Überzüge - Prüfverfahren zur Bestimmung
der Porosität - Ferroxylprüfung (ISO 10309:1994)

This European Standard was approved by CEN on 2 April 2016.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of ISO 10309:1994 has been prepared by Technical Committee ISO/TC 107 “Metallic and other inorganic coatings” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10309:2016 by Technical Committee CEN/TC 262 “Metallic and other inorganic coatings” 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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Endorsement notice
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The text of ISO 10309:1994 has been approved by CEN as EN ISO 10309:2016 without any modification.

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INTERNATIONAL
STANDARD

ISO
10309

First edition
1994-12-01

**Metallic coatings — Porosity tests —
Ferroxyl test**

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Revêtements métalliques — Essais de porosité — Essai au ferroxyle
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Reference number
ISO 10309:1994(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 10309 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 7, *Corrosion tests*.

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Metallic coatings — Porosity tests — FerroxyI test

1 Scope

This International Standard specifies a method of revealing pores or other discontinuities, when testing metallic coatings, that are not visibly affected by ferricyanide and chloride ions during the test period and that are cathodic to iron and steel. This method is especially useful for thick, hard chromium coatings used for wear resistance.

NOTE 1 With some coating materials a very thin layer is dissolved by the sodium chloride solution during a 10-minute application period (see 5.2.3). The impact of such dissolution is that potential porosity, i.e. pores that have been covered over by very thin layers, are sometimes re-exposed. Experience has shown that such potential porosity is frequently re-exposed during actual service.

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

3 Principle

Base metal ions, formed in corrosion cells at the bot-

tom of discontinuities in metallic coatings migrate to treated test paper held in contact with the coating surface. The base metal ions retained on the treated test paper form a blue-coloured marking or spot when the treated paper is subsequently immersed in a solution of a ferricyanide indicator solution.

4 Reagents and materials

4.1 Purity

All chemicals used shall be of a recognized analytical reagent grade and the water used shall be distilled or deionized having a conductivity not greater than 20 $\mu\text{S}/\text{cm}$ (see ISO 3696).

4.2 Preparation of the indicator solution

4.2.1 Sodium chloride reagent

Dissolve 50 g of sodium chloride and 1 g of a non-ionic wetting agent in 1 litre of hot (90 °C) water. Dissolve 50 g of gelatin or agar in the above mentioned hot sodium chloride solution to provide gelling properties. The solution will then gel upon cooling, but can be re-liquefied, for use, by heating it to 35 °C.

NOTE 2 A variety of non-ionic wetting agents is commercially available.

4.2.2 Ferricyanide reagent

Dissolve 10 g of potassium hexacyanoferrate(III) (potassium ferricyanide) in 1 litre of water. Measure the pH of the solution. If it is outside the range $6 \pm 0,2$ discard the solution and the reagent and obtain a purer grade of reagent.