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

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 10309:2016 sisaldab Euroopa standardi EN ISO 10309:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 10309:2016 consists of the English text of the European standard EN ISO 10309:2016.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.04.2016.	Date of Availability of the European standard is 20.04.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

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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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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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Endorsement notice

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

Metallic coatings — Porosity tests — Ferroxyl 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 bottom 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 µS/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.