Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 9: Field method for the conductometric determination of water-soluble salts

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 8502-9:2001 sisaldab Euroopa standardi EN ISO 8502-9:2000 ingliskeelset teksti. Käesolev dokument on jõustatud 15.01.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 8502-9:2001 consists of the English text of the European standard EN ISO 8502-9:2000. This document is endorsed on 15.01.2001 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This part of EN ISO 8502 describes a field method for the assessment of the total surface density of various water-soluble salts (mostly chlorides and sulfates) on steel surfaces before and/or after surface preparation.	**Scope:** This part of EN ISO 8502 describes a field method for the assessment of the total surface density of various water-soluble salts (mostly chlorides and sulfates) on steel surfaces before and/or after surface preparation.

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Preparation of steel substrates before application of paints and related products

Tests for the assessment of surface cleanliness

Part 9: Field method for the conductometric determination of water-soluble salts
(ISO 8502-9 : 1998)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés – Essais pour apprécier la propreté d'une surface – Partie 9: Méthode in situ pour la détermination des sels solubles dans l'eau par conductimétrie
(ISO 8502-9 : 1998)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen – Prüfungen zum Beurteilen der Oberflächenreinheit – Teil 9: Feldverfahren zum Bestimmen von wasserlöslichen Salzen durch Leitfähigkeitsmessung
(ISO 8502-9 : 1998)

This European Standard was approved by CEN on 2000-08-06.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist 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 Management Centre has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Ref. No. EN ISO 8502-9 : 2000 E

Foreword

International Standard

ISO 8502-9 : 2000 Preparation of steel substrates before application of paints and related products – Tests for the assessment of surface cleanliness – Part 9: Field method for the conductometric determination of water-soluble salts,

which was prepared by ISO/TC 35 'Paints and varnishes' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 139 'Paints and varnishes', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by February 2001 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 8502-9 : 2000 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative.)

Introduction

The performance of protective coatings of paint and related products applied to steel is significantly affected by the state of the steel surface immediately prior to painting. The principal factors that are known to influence this performance are:

a) the presence of rust and mill scale;

b) the presence of surface contaminants, including salts, dust, oils and greases;

c) the surface profile.

International Standards ISO 8501, ISO 8502 and ISO 8503 have been prepared to provide methods of assessing these factors, while ISO 8504 provides guidance on the preparation methods that are available for cleaning steel substrates, indicating the capabilities of each in attaining specified levels of cleanliness.

These International Standards do not contain recommendations for the protective coating system to be applied to the steel surface. Neither do they contain recommendations for the surface quality requirements for specific situations even though surface quality can have a direct influence on the choice of protective coating to be applied and on its performance. Such recommendations are found in other documents such as national standards and codes of practice. It will be necessary for the users of these International Standards to ensure that the qualities specified are:

— compatible and appropriate both for the environmental conditions to which the steel will be exposed and for the protective coating system to be used;

— within the capability of the cleaning procedure specified.

The four International Standards referred to above deal with the following aspects of preparation of steel substrates:

ISO 8501 *Visual assessment of surface cleanliness;*

ISO 8502 *Tests for the assessment of surface cleanliness;*

ISO 8503 *Surface roughness characteristics of blast-cleaned steel substrates;*

ISO 8504 *Surface preparation methods.*

Each of these International Standards is in turn divided into separate parts.

This part of ISO 8502 describes a field method for the assessment of the total amount of water-soluble salts, the salts being regarded as forming one single contaminant. The more aggressive contaminants causing corrosion and blistering (the ionic species) can easily be dissolved off and determined rapidly by this method. Consequently, the less aggressive and not so easily dissolved minor part of contaminant will remain un-assessed. For additional information on the test method, its potential and its limitations, see BRESLE, Å., Conductometric determination of salts on steel surfaces, *MP (Materials Performance)*, June 1995, Vol. 34, No. 6, pp. 35-37, NACE International, Houston TX, USA.

Rusty steel substrates, particularly those of rust grades C or D (see ISO 8501-1), even when blast-cleaned to preparation grade Sa 3 (see ISO 8501-1 and ISO 8501-2), may still be contaminated by water-soluble salts and corrosion products. These compounds are almost colourless and are localized at the lowest point of the rust pits. If they are not removed prior to painting, chemical reactions can result in blister formation and accumulations of rust that destroy the adhesion between the substrate and the applied protective coating.

1 Scope

This part of ISO 8502 describes a field method for the assessment of the total surface density of various water-soluble salts (mostly chlorides and sulfates) on steel surfaces before and/or after surface preparation.

The individual surface densities of chlorides, sulfates, etc., cannot be determined by this method.

This method assesses ionic contaminants only. These represent the greater part of the contamination.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8502. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this part of ISO 8502 are encouraged to investigate the possibility of applying the most recent editions of the standards 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.*

ISO 8502-6:1995, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 6: Extraction of soluble contaminants for analysis — The Bresle method.*

3 Principle

The salts on the given area of the steel surface are dissolved by the Bresle method (see ISO 8502-6), using water as solvent. The conductivity of the solution thus obtained is measured. Finally, the total surface density of the salts in this area is calculated by a simple but sufficiently accurate equation.