

Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 12: Field method for the titrimetric determination of water-soluble ferrous ions

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 8502-12:2005 sisaldab Euroopa standardi EN ISO 8502-12:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 8502-12:2005 consists of the English text of the European standard EN ISO 8502-12:2004.</p> <p>This document is endorsed on 22.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This part of ISO 8502 describes a field method for the determination, by drop titration, of soluble ferrous ions on steel surfaces before and/or after surface preparation. The method is intended mainly for use in the assessment of contaminants on a surface. It is easy for unskilled personnel to carry out and it is sufficiently accurate for most practical purposes.</p>	<p>Scope:</p> <p>This part of ISO 8502 describes a field method for the determination, by drop titration, of soluble ferrous ions on steel surfaces before and/or after surface preparation. The method is intended mainly for use in the assessment of contaminants on a surface. It is easy for unskilled personnel to carry out and it is sufficiently accurate for most practical purposes.</p>
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Võtmesõnad:

English version

Preparation of steel substrates before application of paints and related products

Tests for the assessment of surface cleanliness

Part 12: Field method for the titrimetric determination of
water-soluble ferrous ions

(ISO 8502-12:2003)

Préparation des substrats d'acier avant
application de peintures et de produits
assimilés – Essais pour apprécier la
propreté d'une surface – Partie 12: Mé-
thode in situ pour la détermination titri-
métrique des ions ferreux hydrosolu-
bles (ISO 8502-12:2003)

Vorbereitung von Stahloberflächen vor
dem Auftragen von Beschichtungsstof-
fen – Prüfungen zur Beurteilung der
Oberflächenreinheit – Teil 12: Feldprü-
fung zur titrimetrischen Bestimmung
von wasserlöslichen Eisenionen
(ISO 8502-12:2003)

This European Standard was approved by CEN on 2004-12-21.

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.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

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

Management Centre: 36, rue de Stassart, B-1050 Brussels

Foreword

International Standard

ISO 8502-12:2003 Preparation of steel substrates before application of paints and related products – Tests for the assessment of surface cleanliness – Part 12: Field method for the titrimetric determination of water-soluble ferrous ions,

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 June 2005 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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 8502-12:2003 was approved by CEN as a European Standard without any modification.

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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 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 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.

There are a number of methods for the analysis of ferrous ions in solution. However, most of these are for laboratory use and very few are suitable for field use, i.e. in conjunction with sampling in workshops, at building sites, on board ships, etc., often under severe environmental conditions.

The proposed field method for ferrous ions and the corresponding methods of analysis that have been developed for other contaminants (such as sulfate, chlorides, and oil and grease) are intended to be used in conjunction with the Bresle method for the removal of contaminants from a surface, ISO 8502-6. These methods of analysis provide results which, after application of a simple conversion factor, indicate directly the amount of contaminants per unit surface area, usually expressed in mg/m². The same method of analysis can also be used in conjunction with other contaminant extraction methods.

WARNING — The method described in this part of ISO 8502 involves drop titration with a solution of potassium dichromate. The small quantity of titrant solution and its low concentration are not likely to make it a hazard (e.g. by ingestion). Attention is drawn, however, to national and/or local legislation regarding possible environmental pollution hazards.

1 Scope

This part of ISO 8502 describes a field method for the determination, by drop titration, of soluble ferrous ions on steel surfaces before and/or after surface preparation.

The method is intended mainly for use in the assessment of contaminants on a surface. It is easy for unskilled personnel to carry out and it is sufficiently accurate for most practical purposes.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8502. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8502 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3696, *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 surface contaminants to be assessed are removed by the Bresle method (ISO 8502-6), or any other convenient method, using water as the solvent. After removal of contaminants and acidifying the solvent with phosphoric acid, the ferrous ion concentration of the solvent is determined by drop titration with a dichromate solution as titrant, using diphenylamine sulfonate as indicator.