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BSI Standards Publication

Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness

Part 6: Extraction of water soluble contaminants for analysis (Bresle method)

bsi.

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National foreword

This British Standard is the UK implementation of EN ISO 8502-6:2020. It is identical to ISO 8502-6:2020. It supersedes BS EN ISO 8502-6:2006, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee STI/21, Paint systems and surface preparation for metallic substrates.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 6: Extraction of water soluble contaminants for analysis (Bresle method)(ISO 8502-6:2020)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Essais pour apprécier la propreté d'une surface - Partie 6: Extraction des contaminants solubles en vue de l'analyse (Méthode de Bresle) (ISO 8502-6:2020)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Prüfungen zum Bewerten der Oberflächenreinheit - Teil 6: Lösen von wasserlöslichen Verunreinigungen zur Analyse - Bresle-Verfahren (ISO 8502-6:2020)

This European Standard was approved by CEN on 1 May 2020.

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European foreword

This document (EN ISO 8502-6:2020) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 “Paints and varnishes” the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.

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 8502-6:2006.

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 8502-6:2020 has been approved by CEN as EN ISO 8502-6:2020 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).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*, . in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 139, *Paints and varnishes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 8502-6:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— inclusion of the sleeve type extraction cells to be used with water extraction;

— specification that only water is used as a solvent for this method.

A list of all parts in the ISO 8502 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.

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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.

The ISO 8501 series, ISO 8502 series and ISO 8503 series have been prepared to provide methods of assessing these factors, while ISO 8504 series 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 series of International Standards do not contain recommendations for the protective coating systems 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. Users of these International Standards should 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 series of International Standards referred to above deal with the following aspects of preparation of steel substrates:

— ISO 8501 covers the visual assessment of surface cleanliness;

— ISO 8502 covers the tests for the assessment of surface cleanliness;

— ISO 8503 covers the surface roughness characteristics of blast-cleaned steel substrates;

— ISO 8504 covers the surface preparation methods.

This document is one of many parts of ISO 8502 that specify tests for the assessment of surface cleanliness. In relation to such tests, there are several methods for the extraction, for analysis, of soluble contaminants on surfaces to be painted. One of these methods is based on the swabbing of comparatively large test surfaces. This technique provides average values of the contamination present, but it might conceal localized concentrations of contaminants. Also, swabbing might not ensure sufficient penetration to dissolve all the deep-seated contamination such as ferrous salts.

There are other methods, however, which use small cells for the liquid used to remove and collect the surface contaminants. The cells are attached to test surfaces where soluble contaminants could be expected, e.g. where pitting has occurred and prevent loss of extraction solution from evaporate. This closed cell technique usually provides more accurate, point values of the contamination present.

This document describes a simple, inexpensive field test using flexible cells in the form of adhesive cells designed to be filled with water. The method was originally developed by a Swedish scientist, Dr. A. Bresle, using one of the cell types included in this document.

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Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness —

Part 6: Extraction of water soluble contaminants for analysis (Bresle method)

1 Scope

This document specifies a method of extracting, for analysis, water soluble contaminants from a surface by use of flexible cells in the form of adhesive patches or sleeves which can be attached to any surface, regardless of its shape (flat or curved) and its orientation (facing in any direction, including downwards).

The method described is suitable for use in the field to determine the presence of water soluble contaminants before painting or a similar treatment.

This document does not cover the subsequent analysis of the contaminants that have been dissolved. Methods of analysis suitable for field use are described in other parts of ISO 8502.

NOTE The extraction method might give a false negative or not take all the water-soluble material off the surface because of: a) Soluble materials hiding in the crevices or under folds of metal; b) Soluble materials under corrosion layers, passivation layers produced by corrosion inhibitors, oil, grease, or other non-visible thin films.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 8501-1, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings*

ISO 8502-9, *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 8503-2, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel — Comparator procedure*

3 Terms and definitions

No terms and definitions are listed in this document.

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