SLOVENSKI STANDARD
oSIST prEN ISO 8502-6:2019

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Priprava jeklenih podlag pred nanašanjem barvnih in sorodnih premazov - Preskusi za ocenjevanje čistosti površine - 6. del: Ekstrakcija v vodi topnih nečistoč za analizo - Breslova metoda (ISO/DIS 8502-6:2019)

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 - The Bresle method (ISO/DIS 8502-6:2019)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Prüfungen zum Bewerten der Oberflächenreinheit - Teil 6: Lösen von wasserlöslichen Verunreinigungen zur Analyse; Bresle-Verfahren (ISO/DIS 8502-6:2019)

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/DIS 8502-6:2019)

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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 — The Bresle method

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

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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*.

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

— Only water is excepted as a solvent for this test. Other acidic solvents are covered in a new work item.

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.

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 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. 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 is one of many parts of ISO 8502 that specify tests for the assessment of surface cleanliness. Relating 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 part of ISO 8502 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 standard.

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 — The Bresle method

1 Scope

This part of ISO 8502 describes 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 part of ISO 8502 does not cover the subsequent analysis of the contaminants that have been dissolved off. 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: (1) Soluble materials hiding in the crevices or under folds of metal; (2) 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 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*

ISO/IEC Guide 2, *Standardization and related activities — General vocabulary*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

This standard covers two types cells, adhesive patch and flexible sleeve. With the first type, an adhesive patch with a central compartment designed to hold a solvent (in this case water) is attached to the surface from which water-soluble contaminants are to be removed. The water is injected into the compartment by means of a syringe, and then sucked back into the syringe. This operation is repeated and the water left to dissolve salts on the surface. With the second type of cell, a sleeve containing water is attached to the surface and the water is left, under some agitation, to dissolve the salts. The water (now containing contaminants dissolved off the test surface) is then transferred to a suitable vessel for analysis.

5 Apparatus and materials

5.1 Adhesive cell

Adhesive cell, the body of which is made of ageing-resistant, flexible material with closed pores, e.g. polyethylene foam, and with a hole punched in the center. For the adhesive patch, the punched-out material is kept in the hole as reinforcement until the patch is used. With the adhesive sleeve, there is no punched-out material in the hole. The flexibility of the cell shall be sufficient to attach to rough surfaces and to areas with some angularity. For the flexible sleeve, it is essential that the foam adhesive ring maintains an exposed area of known size, 1000 mm^2 for the standard S-1000 sleeve. One side of the cell is coated with a thin elastomer film or an extraction sleeve. The other side is coated with adhesive and covered by a removable protective sheet.

NOTE The hole and the outer edge of the patch may be any shape, e.g. circular, rectangular, elliptical, etc.

The thickness of the adhesive rim of shall be 1,5 mm ± 0,3 mm and the width of the adhesive rim between the hole and the outer edge of the patch shall be at least 5 mm. The thickness of the adhesive rim of adhesive sleeves of size S-1000 (see Table 1) shall be 3 mm ± 0,3 mm and the width at least 7 mm.

Cells with one of the standard compartment sizes specified in Table 1 are called standard cells.

It is essential that the adhesive cell is leak tight. An easily performed leak test has therefore been developed for type testing (see Annex A). Twelve cells of the same size shall be tested, and at least eight of them shall pass the test. The leak test shall be carried out by an accredited laboratory and the result stated in a test report. For terms and definitions in this context, see ISO/IEC Guide 2.

Table 1 — Standard Cells

Patch size	**Compartment area** (mm^2)
A-0155	1155 ± 2
A-0310	1310 ± 3
A-0625	1625 ± 6
A-1250	1 250 ± 13
A-2500	2 500 ± 25
Sleeve size	**Compartment area** (mm^2)
S-1000	1 000 ± 10