

SLOVENSKI STANDARD
oSIST prEN ISO 8502-3:2014
01-junij-2014

Priprava jeklenih podlag pred nanašanjem barv in sorodnih premazov - Preskusi za ocenjevanje čistosti površine - 3. del: Ocena prašnosti jeklene površine, pripravljene za barvanje (metoda z lepilnim trakom) (ISO/DIS 8502-3:2014)

Preparation of steel substrates before application of paints and related products - Tests for the assessment of surface cleanliness - Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method) (ISO/DIS 8502-3:2014)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Prüfungen zum Beurteilen der Oberflächenreinheit - Teil 3: Beurteilung von Staub auf für das Beschichten vorbereiteten Stahloberflächen (Klebeband-Verfahren) (ISO/DIS 8502-3:2014) <https://standards.iteh.ai/catalog/standards/sist/9b090643-aaf7-4d80-af78-45db561c479c/sist-en-iso-8502-3-2017>

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Essais pour apprécier la propreté d'un subjectile - Partie 3: Évaluation de la poussière sur les surfaces d'acier préparées pour la mise en peinture (méthode du ruban adhésif sensible à la pression) (ISO/DIS 8502-3:2014)

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ICS:

25.220.10	Priprava površine	Surface preparation
87.020	Postopki za nanašanje barvnih premazov	Paint coating processes

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DRAFT INTERNATIONAL STANDARD

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

Part 3:

Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Essais pour apprécier la propreté d'une surface —

Partie 3: Évaluation de la poussière sur les surfaces d'acier préparées pour la mise en peinture (méthode du ruban adhésif sensible à la pression)

[Revision of first edition (ISO 8502-3:1992)]

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 8502-3 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 second edition cancels and replaces the first edition (ISO 8502-3:1992), which has been editorially revised, i.e. in clause 2 and 5.1 has IEC 454-2 been substituted of IEC 60454-2, in table 1 has decimal sign been changed to a decimal comma.

ISO 8502 consists of the following parts, under the general title *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness*:

- *Part 1: Field test for soluble iron corrosion products (withdrawn)* [Technical Report]
- *Part 2: Laboratory determination of chloride on cleaned surfaces*
- *Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)*
- *Part 4: Guidance on the estimation of the probability of condensation prior to paint application*
- *Part 5: Measurement of chloride on steel surfaces prepared for painting (ion detection tube method)*
- *Part 6: Extraction of soluble contaminants for analysis — The Bresle method*
- *Part 8: Field method for the refractometric determination of moisture (withdrawn)*
- *Part 9: Field method for the conductometric determination of water-soluble salts*
- *Part 10: Field method for the titrimetric determination of water-soluble chloride (withdrawn)*
- *Part 11: Field method for the turbidimetric determination of water-soluble sulfate*
- *Part 12: Field method for the titrimetric determination of water-soluble ferrous ions*

Annex A of this part of ISO 8502 is for information only.

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, and
- c) the surface profile.

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, and
- 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 before application of paints and related products:

- ISO 8501 on visual assessment of surface cleanliness;
- ISO 8502 on tests for the assessment of surface cleanliness;
- ISO 8503 on surface roughness characteristics of blast-cleaned steel substrates;
- ISO 8504 on surface preparation methods.

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

This part of ISO 8502 describes a procedure for the assessment, using a pressure-sensitive tape method, of the quantity and the particle size of dust on steel surfaces prepared for painting.

In the painting schedule requirements of contractual documents giving details of surface preparation by blast-cleaning, it is normally specified that all surfaces shall be free from surface contamination including oil, grease, dirt, dust and water-soluble salts.

Dust on blast-cleaned steel surfaces can reduce the adhesion of subsequently applied organic coatings and, by absorbing moisture, might promote the corrosion of the blast-cleaned steel surfaces. Accumulation of dust more naturally occurs on horizontal surfaces, the interior of pipes, and in structural cavities. Special inspection should be carried out to ensure that such areas are adequately cleaned and adequately free from dust before painting.

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Because of subjective factors involved in the test procedure, the test does not allow the precise determination of dust retained on blast cleaned steel surfaces. Nevertheless, when carried out by experienced operators, and especially when used to compare the performance of surfaces under test with agreed standard specimens, it gives very useful information.

There are many possible variables in the conditions at sites where tests might be required to be carried out. Agreements made between interested parties where appropriate should include the number or frequency of tests, the test locations, and the dates and times when the tests are to be carried out.

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

Part 3:

Assessment of dust on steel surfaces prepared of painting (pressure-sensitive tape method)

1 Scope

1.1 This part of ISO 8502 describes a method for the assessment of dust remaining on cleaned steel surfaces prepared for painting. It provides pictorial ratings for the assessment of the average quantity of dust. It also provides descriptive classes for the assessment of the average size of the dust particles.

NOTE 1 The quantity ratings and size classes referred to in this part of ISO 8502 are derived from *ISO 4628-1, Paints and varnishes -- Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 1: General introduction and designation system.*

1.2 The method may be carried out

either

a) as a “pass/fail” test by assessing the quantity of dust present on a test surface, and the average dust particle size, in comparison with specific limits;

or

b) to provide a permanent record of the dust present on a surface by mounting the tapes used to carry out the tests on tiles, cards or paper, of an appropriate contrasting colour.

1.3 This method is suitable for the assessment of dust retained, after cleaning, on a steel surface which corresponded before cleaning to rust grade A, B or C as defined in ISO 8501-1. Because of the limited elasticity of adhesive tape, it is not possible for the tape to penetrate into the deep pits present in cleaned steel that originally corresponded to rust grade D.

1.4 While a test procedure in which pressure is applied to a tape using the thumb is subjective, it is usually adequate, especially for use in situations where surfaces free from dust are required. In cases of dispute, except when rust grade C or D is involved, pressure may be applied to the back of the adhesive tape using a spring-loaded roller.

2 Normative references

The following referenced documents are indispensable for the application 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 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.*

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IEC 60454-2, *Pressure-sensitive adhesive tapes for electrical purposes - Part 2: Methods of test.*

3 Definition

For the purposes of this part of ISO 8502, the following definition applies.

3.1 dust

loose particulate matter present on a steel surface prepared for painting, arising from blast-cleaning or other surface preparation processes, or resulting from the action of the environment

4 Principle

A pressure-sensitive adhesive tape is pressed on to the steel surface prepared for painting. The tape, with the dust adhering to it, is then removed and placed on a display board of a colour which contrasts to that of the dust, and is examined visually. The quantity of dust adhering to the tape and the dust particle size are then estimated.

5 Apparatus and materials

5.1 Adhesive tape, consisting of rolls of virtually colourless, transparent, self-adhesive, pressure-sensitive tape of width 25 mm, having an adhesion peel strength of at least 190 N per metre width when measured in accordance with the 180° peel test in IEC 60454-2.

NOTE 2 This peel test calls for a 180° peel from steel backing at a peel rate of (300 ± 30) mm/min.

5.2 Display board, of colour contrasting to that of the dust, for use as a background, e.g. of glass or black or white glazed tiles, cards or paper.

5.3 Spring-loaded roller, so designed that it is capable of applying a load of 39,2 N or 49,0 N or an intermediate load. (See annex A.)

NOTE 3 The roller is calibrated using weight pieces of mass 4 kg and 5 kg. At the 4 kg calibration point, the force exerted by the roller is 39,2 N, and at the 5 kg calibration point it is 49,0 N.

5.4 Hand lens, capable of magnification x 10.

6 Procedure

6.1 At the beginning of each series of tests, remove and discard the first three turns of tape from the roll and then remove a piece about 200 mm long.

6.2 Touching the adhesive side of the tape only at the ends, press about 150 mm of the freshly exposed tape firmly on to the surface under test. With due regard to subclause 1.4, adopt one of the following alternative methods given in a) and b).

a) Place the thumb across one end of the tape and move the thumb, while maintaining a firm pressure, at a constant speed along the tape three times in each direction, so that each stroke takes between 5 and 6 seconds. Remove the tape from the test surface, place it on an appropriate display board (5.2) and cause it to adhere to the board by rubbing with the thumb.

b) Apply the calibrated spring-loaded roller (5.3) centrally across one end of the tape and move the roller, while maintaining a downward load between 39,2 N and 49,0 N (see note 3), at a constant speed along the tape three times in each direction, so that each stroke takes between 5 and 6 seconds. Remove the tape from the test surface, place it on an appropriate display board (5.2) and cause it to adhere to the board by rubbing with the thumb.