

INTERNATIONAL STANDARD

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Preparation of steel substrates before application of paint 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)*



Reference number
ISO 8502-3:1992(E)

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.

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.

International Standard ISO 8502-3 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Sub-Committee SC 12, *Preparation of steel substrates before application of paints and related products*.

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

- *Part 1: Field test for soluble iron corrosion products*
[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 detector tube method*
- *Part 6: Sampling of soluble impurities on surfaces to be painted — Bresle method*
- *Part 7: Analysis of soluble impurities on surfaces to be painted — Analysis methods for field use for oil and grease*

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- *Part 8: Analysis of soluble impurities on surfaces to be painted —
Analysis methods for field use for moisture*

Users should note that the titles to future parts 5 to 8 are working titles only and that, while it is at present planned to publish all the parts listed above, one or more may nevertheless be deleted from the work programme before publication, which may, in turn, lead to renumbering of the remaining parts.

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

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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 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 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 may reduce the adhesion of subsequently applied organic coatings and, by absorbing moisture, may 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.

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 may 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 paint 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)

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 4628-1:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 1: General principles and rating schemes*.

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 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 agreements 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 8501-1:1988, *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*.

IEC 454-2:1974, *Specifications for pressure-sensitive adhesive tapes for electrical purposes — Part 2: Methods of test*.