

**Preparation of steel substrates before  
application of paints and related products -  
Visual assessment of surface cleanliness - Part  
2: Preparation grades of previously coated steel  
substrates after localized removal of previous  
coatings**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 8501-2:2002 sisaldab Euroopa standardi EN ISO 8501-2:2001 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 14.02.2002 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 8501-2:2002 consists of the English text of the European standard EN ISO 8501-2:2001.

This standard is ratified with the order of Estonian Centre for Standardisation dated 14.02.2002 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

ICS 25.220.10

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ICS 87.020

English version

Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 2: preparation grades of previously coated steel substrates after localized removal of previous coatings (ISO 8501-2:1994)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Evaluation visuelle de la propreté d'un subjectile - Partie 2: Degrés de préparation des subjectiles d'acier précédemment revêtus après décapage localisé des couches (ISO 8501-2:1994)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Visuelle Betrachtung der Oberflächenreinheit - Teil 2: Oberflächenvorbereitungsgrade von beschichteten Oberflächen nach örtlichem Entfernen der vorhandenen Beschichtung (ISO 8501-2:1994)

This European Standard was approved by CEN on 8 July 2001.

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.

This European Standard exists 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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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CORRECTED 2001-12-12

## Foreword

The text of the International Standard from Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) has been taken over as an European Standard by 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 February 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 8501-2:1994 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

**Annex ZA (normative)**  
**Normative references to international publications**  
**with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 2409	1992	Paints and varnishes - Cross-cut test	EN ISO 2409	1994
ISO 4624	1978	Paints and varnishes - Pull-off test	EN 24624	1992
ISO 4628-6	1990	Paints and varnishes - Evaluation of degradation of paint coatings - Designation of intensity, quantity and size of common types of defect - Part 6: Rating of degree of chalking by tape method	EN ISO 4628-6	2001
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	EN ISO 8501-1	2001

INTERNATIONAL  
STANDARD

ISO  
8501-2

NORME  
INTERNATIONALE

First edition  
Première édition  
Первое издание  
1994-12-15

МЕЖДУНАРОДНЫЙ  
СТАНДАРТ

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**Preparation of steel substrates before application of paints  
and related products — Visual assessment of surface  
cleanliness —**

**Part 2:**

Preparation grades of previously coated steel substrates after  
localized removal of previous coatings

**Préparation des subjectiles d'acier avant application de  
peintures et de produits assimilés — Évaluation visuelle de la  
propreté d'un subjectile —**

**Partie 2:**

Degrés de préparation des subjectiles d'acier précédemment  
revêtus après décapage localisé des couches

**Подготовка стальной основы перед нанесением красок  
и подобных покрытий — Визуальная оценка чистоты  
поверхности —**

**Часть 2:**

Степени подготовки ранее покрытой стальной основы  
после локального удаления прежних покрытий



Reference number  
Numéro de référence  
Номер ссылки  
ISO 8501-2:1994(E/F/R)

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# ISO 8501-2:1994

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International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Sweden/Imprimé en Suède. ☒ Wezäta 1995

ISO 8501-2:1994(E/F/R)

## 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 8501-2 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*.

ISO 8501 consists at present of the following parts, under the general title *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.*
- *Informative Supplement to part 1: Representative photographic examples of the change of appearance imparted to steel when blast-cleaned with different abrasives.*
- *Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings.*
- *Part 3: Preparation grades of welds, cut edges and surface imperfections.*

Annexes A to J form an integral part of this part of ISO 8501.

## Avant-propos

L'ISO (Organisation internationale de normalisation) est une fédération mondiale d'organismes nationaux de normalisation (comités membres de l'ISO). L'élaboration des Normes internationales est en général confiée aux comités techniques de l'ISO. Chaque comité membre intéressé par une étude a le droit de faire partie du comité technique créé à cet effet. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'ISO participent également aux travaux. L'ISO collabore étroitement avec la Commission électrotechnique internationale (CEI) en ce qui concerne la normalisation électrotechnique.

Les projets de Normes internationales adoptés par les comités techniques sont soumis aux comités membres pour vote. Leur publication comme Normes internationales requiert l'approbation de 75 % au moins des comités membres votants.

La Norme internationale ISO 8501-2 a été élaborée par le comité technique ISO/TC 35, *Peintures et vernis*, sous-comité SC 12, *Préparation de subjectiles d'acier avant application de peintures et de produits assimilés*.

L'ISO 8501 comprend les parties suivantes, présentées sous le titre général *Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Évaluation visuelle de la propreté d'un subjectile* :

- *Partie 1: Degrés de rouille et degrés de préparation des subjectiles d'acier non recouverts et des subjectiles d'acier après décapage sur toute la surface des revêtements précédents.*
- *Supplément informatif à la partie 1: Exemples de clichés représentatifs du changement d'aspect communiqué à l'acier décapé avec des abrasifs différents.*
- *Partie 2: Degrés de préparation des subjectiles d'acier précédemment revêtus après décapage localisé des couches.*
- *Partie 3: Degrés de préparation des soudures, arêtes de coupe et imperfections de surface.*

Les annexes A à J font partie intégrante de la présente partie de l'ISO 8501.

ISO 8501-2:1994(E/F/R)

## Предисловие

ИСО (Международная Организация по Стандартизации) является всемирной федерацией национальных организаций по стандартизации (комитетов-членов ИСО). Разработка Международных Стандартов осуществляется техническими комитетами ИСО. Каждый комитет-член, заинтересованный в деятельности, для которой был создан технический комитет, имеет право быть представленным в этом комитете. Международные правительственные и неправительственные организации, имеющие связи с ИСО, также принимают участие в работах. Что касается стандартизации в области электротехники, ИСО работает в тесном сотрудничестве с Международной Электротехнической Комиссией (МЭК).

Проекты Международных Стандартов, принятые техническими комитетами, рассылаются комитетам-членам на голосование. Их опубликование в качестве Международных Стандартов требует одобрения по меньшей мере 75 % комитетов членов, принимающих участие в голосовании.

Международный Стандарт ИСО 8501-2 был разработан техническим комитетом ИСО/ТК 35, *Краски и лаки*, подкомитет ПК 12, *Подготовка стальной поверхности перед применением красок и других подобных веществ*.

ИСО 8501 состоит из следующих частей, под общим заглавием *Подготовка стальной основы перед нанесением красок и подобных покрытий — Визуальная оценка чистоты поверхности* :

- *Часть 1: Степени ржавости и степени подготовки непокрытой стальной основы и стальной основы после полного удаления прежних покрытий*
- *Информационное Дополнение к части 1: Фотографии типичных примеров внешних изменений, происходящих в стали в результате струйной очистки с помощью различных абразивных материалов*
- *Часть 2: Степени подготовки ранее покрытой стальной основы после локального удаления прежних покрытий*
- *Часть 3: Степени подготовки сварных соединений, кромок стали и дефектов поверхности*

Приложения А-Ј составляют неотъемлемую часть настоящей части ИСО 8501.

**Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness —**

**Part 2:**

Preparation grades of previously coated steel substrates after localized removal of previous coatings

**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

## ISO 8501-2:1994(E)

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 8501 supplements ISO 8501-1. It identifies certain degrees of visual cleanliness (designated as "preparation grades") following surface preparation of steel surfaces after localized removal of previous paint coatings. These levels of visual cleanliness are related to the common methods of surface cleaning that are used prior to painting.

The photographic examples for preparation grades P Sa 2½ and P Ma have been taken from DIN 55 928, Part 4, Supplement 1 (August 1978) and Supplement 2 (January 1986), respectively.

The basis of this part of ISO 8501 is the experience that complete removal of all previous paint coatings is not always necessary. This is especially true where maintenance work is carried out at regular intervals. For localized removal to be preferred, the following conditions should be fulfilled:

- the remaining intact coating should make a useful and durable contribution to the new corrosion protection system and be compatible with it;
- during cleaning of locally corroded areas down to the substrate, the coatings on the surrounding areas should not be irreparably or significantly damaged;

— real savings in costs for the maintenance work should be made possible.

NOTE 1 This part of ISO 8501 contains the text in the three official languages of ISO, namely English, French and Russian. It also contains the following annexes giving the equivalent text in other languages, published under the responsibility of the respective body indicated:

Annex A: Swedish (SIS)

Annex B: German (DIN)

Annex C: Dutch (NNI)

Annex D: Italian (UNI)

Annex E: Spanish (AENOR)

Annex F: Portuguese (IPQ)

Annex G: Arabic (SASO)

Annex H: Japanese (JISC)

Annex J: Chinese (CSBTS)

## ISO 8501-2:1994(E)

### 1 Scope

This part of ISO 8501 specifies a series of preparation grades for steel surfaces after localized removal of previous paint coatings. The various preparation grades are defined by written descriptions (see clause 4) together with the representative photographic examples given in ISO 8501-1. In addition, photographs showing examples of preparation grades P Sa 2½ and P Ma are given.

This part of ISO 8501 is applicable to surfaces prepared for painting by methods such as blast-cleaning, hand- and power-tool cleaning, and machine abrading.

This part of ISO 8501 relates the cleanliness of a surface to its visual appearance. In many instances this is sufficient, but for coatings likely to be exposed to severe environments, such as water immersion and continuous condensation conditions, consideration should be given to testing for soluble salts and other invisible contaminants on the visually clean surface by the physical and chemical methods which form the subjects of the various parts of ISO 8502. The roughness characteristics of the surface should also be considered by reference to ISO 8503.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8501. 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 8501 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 2409:1992, *Paints and varnishes — Cross-cut test.*

ISO 4624:1978, *Paints and varnishes — Pull-off test for adhesion.*

ISO 4627:1981, *Paints and varnishes — Evaluation of the compatibility of a product with a surface to be painted — Methods of test.*

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.*

ISO 4628-2:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 2: Designation of degree of blistering.*

ISO 4628-3:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 3: Designation of degree of rusting.*

ISO 4628-4:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 4: Designation of degree of cracking.*

ISO 4628-5:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 5: Designation of degree of flaking.*

ISO 4628-6:1990, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 6: Rating of degree of chalking by tape method.*

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 steel substrates after overall removal of previous coatings.*

### **3 Condition of the painted surface to be cleaned**

The degrees of degradation which may be found on previously coated surfaces shall be assessed in accordance with ISO 4628, parts 1 to 6.

If possible, supplementary information about the previous coating, concerning the generic type, number of coats applied, manufacturer's name, corrosive contaminants, adhesion and film thickness, shall be given.

## **4 Preparation grades**

### **4.1 General**

A number of preparation grades, indicating the method of surface preparation and the degree of cleaning, are specified. The preparation grades are defined (see 4.2, 4.3 and 4.4) by written descriptions of the surface appearance after the cleaning operation.