
Priprava jeklenih podlag pred nanašanjem barv in sorodnih premazov - Vizualno ocenjevanje čistosti površine - 1. del: Stopnje korodiranosti in stopnje priprave nezaščitenih jeklenih podlag ter jeklenih podlag po popolni odstranitvi starih premazov (ISO/DIS 8501-1:2025)

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/DIS 8501-1:2025)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Visuelle Beurteilung der Oberflächenreinheit - Teil 1: Rostgrade und Oberflächenvorbereitungsgrade von unbeschichteten Stahloberflächen und Stahloberflächen nach ganzflächigem Entfernen vorhandener Beschichtungen (ISO/DIS 8501-1:2025)

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Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Évaluation visuelle de la propreté de surface Partie 1: Grades de rouille et grades de préparation des subjectiles d'acier non revêtus et des subjectiles d'acier après décapage sur toute la surface des précédents revêtements (ISO/DIS 8501-1:2025)

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ISO/DIS 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

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

*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*

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Contents

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 Rust grades.....	3
5 Preparation grades.....	3
5.1 General	3
5.2 Abrasive blast-cleaning, Sa.....	4
5.3 Hand tool cleaning, St.....	5
5.4 Power tool cleaning, Ma	5
5.5 Acid pickling, Be	7
6 Procedure for visual assessment of steel substrates	7
Annex A (informative) Photographs	8
Annex B (informative) Representative photographic examples of the change of appearance imparted to steel when blast-cleaned with different abrasives	10
Bibliography	14

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Foreword

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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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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 8501-1:2007), which has been technically revised.

The main changes are as follows:

- Hand tool cleaning and Power tool cleaning have been separated because modern power tools can achieve a higher standard of cleanliness than the St grades.
- Introduction of the surface preparation grades Ma for power tool cleaning and Be for acid pickling.
- Revision of the tables for the description of the preparation levels.
- The photographs have been moved to Annex A.
- Photographs have been added for the new surface preparation grades Ma and Be.
- A comparison of surface cleanliness achieved with various power tools has been added as Annex C.

A list of all parts in the ISO 8501 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.

ISO/DIS 8501-1:2025(en)

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 (all parts), ISO 8502(all parts) and ISO 8503(all parts) have been prepared to provide methods of assessing these factors, while ISO 8504(all parts) 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 given 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 8501 specifies four levels (designated as “rust grades”) of mill scale and rust that are commonly found on surfaces of uncoated erected steel and steel held in stock. It also specifies certain degrees of visual cleanliness after surface preparation of uncoated steel surfaces and of steel surfaces after overall removal of any previous coating. These levels of visual cleanliness are related to the common methods of surface preparation that are used prior to painting.

In many instances, the visual cleanliness is sufficient for the purpose of assessing if the steel is clean enough for coating application. However, for coatings likely to be exposed to severe environments, such as water immersion, marine exposure 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 [2]. The roughness characteristics of the surface should also be considered by reference to the various parts of ISO 8503 [3].

Preparation by blasting or power tool cleaning requires sufficient thickness of the substrate to withstand warping or loss of flatness caused by the impact of abrasive.

Blasting, power tool cleaning and hand tool cleaning are not cleaning methods intended to remove oil or soluble salts.

This part of ISO 8501 defines rust grades and preparation grades.

The informative Annex A includes 55 representative photographic examples to aid in the assessment.