



**International
Standard**

ISO 8501-3

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

Part 3:

**Preparation grades of welds,
edges and other areas with surface
imperfections**

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

*Partie 3: Degrés de préparation des soudures, arêtes et autres
zones représentant des imperfections du subjectile*

**Third edition
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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 document 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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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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 139, *Paints and varnishes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 8501-3:2006), which has been technically revised. The main changes compared to the previous edition are as follows:

- the illustrations of types of imperfections in [Table 1](#) have been revised;
- [Clause 2](#) and the Bibliography have been updated.;
- the introduction has been expanded.

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.

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. This document provides requirements for steel building organizations to avoid unnecessary production costs for steel structures that will be painted.

The principal factors that are known to influence the performance of protective coatings of paints and related products applied to steel 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.

ISO 8501, ISO 8502 and ISO 8503 series have been prepared to provide methods of assessing these factors, while ISO 8504 series provide methods that are available for cleaning steel substrates, indicating the capabilities of each in attaining specified levels of cleanliness.

The ISO 8501, ISO 8502, ISO 8503, and ISO 8504 series do not cover the protective coating system to be applied to the steel surface. Nor do they cover 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 its performance. This subject matter is covered in other documents such as national standards and codes of practice.

Imperfections at welds, edges and other areas of steel substrates are generally starting points for corrosion. Such areas are also difficult to protect by application of paints and related products. To assist in achieving efficient corrosion protection, this document describes certain imperfections and defines preparation grades for such areas.

Steel imperfections can be generated in the manufacturing process or during handling, shipping, building and erection of a steel structure and can affect the durability of a protective coating system if they are not remedied.

The required preparation grade (P1 to P3) for a specific steel structure should be based on the required longevity of the coating system and the corrosivity of the environment that the coated steel structure will be exposed to.

The specified surface preparation grade should be compatible with other steel structures requirements, e.g. those specified in the ISO 8501 series, ISO 5817, the EN 10025 series and the EN 10163 series.

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

Part 3: Preparation grades of welds, edges and other areas with surface imperfections

1 Scope

This document provides requirements to identify visible imperfections and defines three preparation grades for welds, edges and surfaces of steel to assist in achieving efficient corrosion protection. Such imperfections can be visible before or can become visible after an abrasive blast cleaning process.

NOTE Although this document has been developed specifically for preparation of steel, the defined preparation grades will generally be appropriate for use when preparing other metal surfaces e.g. aluminium, castings, if agreed.

2 Normative references

The following documents are referred to in the text in such a way that some or all 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 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*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

as welded

condition of a weld, with or without imperfections, without any *dressing* (3.2)

3.2

dressing

grinding the surface of a weld to remove either *visible* (3.3) pores, lumps, welding spatter, excess metal and sharp edges, or correcting undercut or weld toe imperfections

3.3

visible

capable of being seen without tools in normal environmental conditions