
**Preparation of steel substrates before
application of paints and related
products — Surface roughness
characteristics of blast-cleaned steel
substrates —**

**Part 5:
Replica tape method for the
determination of the surface profile**

*Préparation des subjectiles d'acier avant application de peintures et
de produits assimilés — Caractéristiques de rugosité des subjectiles
d'acier décapés —*

*Partie 5: Méthode de l'empreinte sur ruban adhésif pour la
détermination du profil de surface*



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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 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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For an explanation on 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 the following URL: 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*.

This second edition cancels and replaces the first edition (ISO 8503-5:2003), which has been technically revised.

A list of all parts in the ISO 8503 series can be found on the ISO website.

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.

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 found in other documents, such as national standards and codes of practice. It will be necessary for 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 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.

It is important to note that numerical characterization of a surface profile is meaningful only when accompanied by an understanding of the errors of measurement and by the realization that different techniques may yield somewhat different numerical values for the profile. Estimates of measurement error associated with different techniques can be obtained from national or international standards or from the equipment manufacturers. As shown in [Annex B](#), values given by the replica tape method align well with those obtained using other parts of ISO 8503.

Information regarding the magnitude of errors associated with use of replica tape is given in [Annex A](#).

Advantages of the replica tape method include the fact that it affords numerical characterization, yields a permanent record, works well on curved surfaces and benefits from a geographically broad base of user experience over a period of several decades.

