INTERNATIONAL STANDARD

ISO 8502-15

First edition
2020-09

Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness —

Part 15: Extraction of soluble contaminants for analysis by acid extraction

Reference number
ISO 8502-15:2020(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

A list of all parts in the ISO 8502 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. 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.

The ISO 8501, ISO 8502 and ISO 8503 series have been prepared to provide methods of assessing these factors, while the ISO 8504 series 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 is 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 series of international standards referred to above deal with the following aspects of preparation of steel substrates:

— visual assessment of surface cleanliness (see ISO 8501 series);

— tests for the assessment of surface cleanliness (see ISO 8502 series);

— surface roughness characteristics of blast-cleaned steel substrates (see ISO 8503 series);

— surface preparation methods (see ISO 8504 series).

Each of these series of international standards is in turn divided into separate parts.

This document, along with the other parts of the ISO 8502 series, specifies tests for the assessment of surface cleanliness. In connection with such tests, there are several methods for the extraction, for analysis, of soluble contaminants on surfaces to be painted. Some of these methods are based on the swabbing of comparatively large test surfaces. This technique provides average values of the contamination present, but it might conceal localized concentrations of contaminants. Swabbing might not ensure sufficient penetration to dissolve all of the deep-seated contamination such as ferrous salts. Furthermore, the solvent used affects the dissolution rate and what contaminants are dissolved. This document covers sampling with a weak acid as solvent.

There are other methods, however, which use small cells for the liquid to remove and collect the surface contaminants. The cells (rigid or flexible) are attached to test surfaces where soluble contaminants could be expected, for example where pitting has occurred. This technique usually provides more accurate point values of the contamination present.

Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness —

Part 15: Extraction of soluble contaminants for analysis by acid extraction

1 Scope

This document specifies a method of extracting, for analysis, acid soluble contaminants from a surface by use of flexible cells in the form of adhesive patches or sleeves which can be attached to any surface, regardless of its shape (flat or curved) and its orientation (facing in any direction, including downwards).

The described method is suitable for use in the field to determine the presence of acid soluble contaminants before painting or a similar treatment.

This document does not cover the subsequent analysis of the contaminants that have been dissolved off. Methods of analysis suitable for field use are described in other parts of ISO 8502 such as ISO 8502-5.

This document is similar in procedure to, but not equal to, ISO 8502-6. The main difference is the solvent used and the subsequent analysis that can be performed on the extraction solution.

2 Normative references

The following documents are referred to in the text in such a way that some or all of 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 554, *Standard atmospheres for conditioning and/or testing — Specifications*

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*

ISO 8503-2, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel — Comparator procedure*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/