INTERNATIONAL STANDARD

ISO 8504-2

Second edition
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Preparation of steel substrates before application of paints and related products — Surface preparation methods —

Part 2: Abrasive blast-cleaning

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Méthodes de préparation des subjectiles —

Partie 2: Décapage par projection d'abrasif

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO 8504 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8504-2 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*.

This second edition cancels and replaces the first edition (ISO 8504-2:1992), which has been updated and editorially revised.

ISO 8504 consists of the following parts, under the general title *Preparation of steel substrates before application of paints and related products — Surface preparation methods*:

— *Part 1: General principles*

— *Part 2: Abrasive blast-cleaning*

— *Part 3: Hand- and power-tool cleaning*

Further parts are planned.

Annex A of this part of ISO 8504 is for information only.

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 system 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 the users of these International Standards to ensure 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 below 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.

The primary objective of surface preparation is to ensure the removal of deleterious matter and to obtain a surface that permits satisfactory adhesion of the priming paint to steel. It should also assist in reducing the amounts of contaminants that initiate corrosion.

This part of ISO 8504 describes abrasive blast-cleaning methods. It should be read in conjunction with ISO 8504-1.

Abrasive blast-cleaning is a most effective method for mechanical surface preparation. It is widely applicable because this method of surface preparation has a number of versatile features listed below.

a) The method allows a high production rate.

b) The equipment can be stationary or mobile and is adaptable to the objects to be cleaned.

c) The method is applicable to most types and forms of steel surface.

d) Many different surface states can be produced, for example different preparation grades and surface profiles.

e) Effects such as cleaning, peening, roughening, levelling and lapping can be produced.

f) It is possible to remove selectively partly failed coatings, leaving sound coatings intact.

Preparation of steel substrates before application of paints and related products — Surface preparation methods —

Part 2:
Abrasive blast-cleaning

WARNING — The procedures described in this part of ISO 8504 are intended to be carried out by suitably trained and/or supervised personnel. The substances and procedures used in these methods may be injurious to health if adequate precautions are not taken. Attention is drawn in the text to certain specific hazards. This part of ISO 8504 refers only to the technical suitability of the methods and does not absolve the user from statutory obligations relating to health and safety.

1 Scope

This part of ISO 8504 describes abrasive blast-cleaning methods for the preparation of steel surfaces before coating with paints and related products. It also contains information on the effectiveness of the individual methods and their fields of application.

ISO 8504 is applicable to new and corroded steel surfaces and to steel surfaces that are uncoated or have been previously coated with paints and related products. For limitations, see note 2.

NOTE 1 These methods are essentially intended for hot-rolled steel to remove mill scale, rust, etc., but could also be used for cold-rolled steel of sufficient thickness to withstand the deformation caused by the impact of abrasive.

NOTE 2 There are several items that should be included in the purchaser's procurement documents to supplement this part of ISO 8504. Items that should be considered as a part of surface preparation before coating are edge grinding, removal of grease and oil, porosity of welds, removal of weld spatter, removal of burrs and other sharp edges, grinding of welds, filling of pits and other surface imperfections that may cause premature failure of the coating system (see ISO 8501-3 for more information) and the removal of water-soluble contaminants.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8504. For dated references, subsequent amendments to, or revisions of any of these publications do not apply. However, parties to agreements based on this part of ISO 8504 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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 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*.

ISO 8501-1:1988/Suppl:1994, *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: Representative photographic examples of the change of appearance imparted to steel when blast-cleaned with different abrasives.

ISO 8501-2:1994, *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 8501-3:—[1)], *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 3: Preparation grades of welds, cut edges and other areas with surface imperfections*.

ISO/TR 8502-1:1991, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 1: Field test for soluble iron corrosion products*.

ISO 8502-2:1992, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 2: Laboratory determination of chloride on cleaned surfaces*.

ISO 8502-3:1992, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)*.

ISO 8502-9:1998, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 9: Field method for the conductometric determination of water-soluble salts*.

ISO 8502-10:1999, *Preparation of steel substrates before the application of paints and related products — Tests for the assessment of surface cleanliness — Part 10: Field method for the titrimetric determination of water-soluble chloride*.

ISO 8503-1:1988, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces*.

ISO 8503-2:1988, *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 8504-1:2000, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 1: General principles*.

ISO 8504-3:1993, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 3: Hand- and power-tool cleaning*.

ISO 11124 (all parts), *Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives.*

ISO 11126 (all parts), *Preparation of steel substrates before application of paints and related products — Specifications for non-metallic blast-cleaning abrasives*.

NOTE The titles of all parts of ISO 11124 and of ISO 11126 are listed in annex A for information.

1) To be published.