

**SLOVENSKI
PREDSTANDARD**

oSIST prEN ISO 12944-5:2005

november 2005

Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 5: Protective paint systems (ISO/DIS 12944-5:2005)

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Will supersede EN ISO 12944-5:1998

English Version

**Paints and varnishes - Corrosion protection of steel structures
by protective paint systems - Part 5: Protective paint systems
(ISO/DIS 12944-5:2005)**

Peintures et vernis - Anticorrosion des structures en acier
par systèmes de peinture - Partie 5: Systèmes de peinture
(ISO/DIS 12944-5:2005)

Beschichtungsstoffe - Korrosionsschutz von Stahlbauten
durch Beschichtungssysteme - Teil 5:
Beschichtungssysteme (ISO/DIS 12944-5:2005)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 139.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (prEN ISO 12944-5:2005) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 12944-5:1998.

Endorsement notice

The text of ISO 12944-5:2005 has been approved by CEN as prEN ISO 12944-5:2005 without any modifications.

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Paints and varnishes — Corrosion protection of steel structures by protective paint systems —

Part 5: Protective paint systems

Peintures et vernis — Anticorrosion des structures en acier par systèmes de peinture —

Partie 5: Systèmes de peinture

[Revision of first edition (ISO 12944-5:1998)]

ICS 87.020

ISO/CEN PARALLEL ENQUIRY

The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

In accordance with the provisions of Council Resolution 15/1993 this document is circulated in the English language only.

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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 whom 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 Electro technical Commission (IEC) on all matters of electro technical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

ISO 12944-5 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 14, *Corrosion protection of steel structures by protective paint systems*.

This second edition cancels and replaces the first edition (ISO 12944-5:1998), which has been technically revised.

The revision includes a reduction in the number of paint systems and in the number of tables. These changes have also brought about some changes in the numbering of the systems in the tables.

ISO 12944 consists of the following parts, under the general title *Paints and varnishes — Corrosion protection of steel structures by protective paint systems*:

- Part 1: General introduction
- Part 2: Classification of environments
- Part 3: Design considerations
- Part 4: Types of surface and surface preparation
- Part 5: Protective paint systems
- Part 6: Laboratory performance test methods
- Part 7: Execution and supervision of paint work
- Part 8: Development of specifications for new work and maintenance

Introduction

Unprotected steel in the atmosphere, in water and in soil is subjected to corrosion that may lead to damage. Therefore, to avoid corrosion damage, steel structures are normally protected to withstand the corrosion stresses during the required service life of the structure.

There are different ways of protecting steel structures from corrosion. ISO 12944 deals with protection by paint systems and covers, in the various parts, all features that are important in achieving adequate corrosion protection. Additional or other measures are possible but require particular agreement between the interested parties.

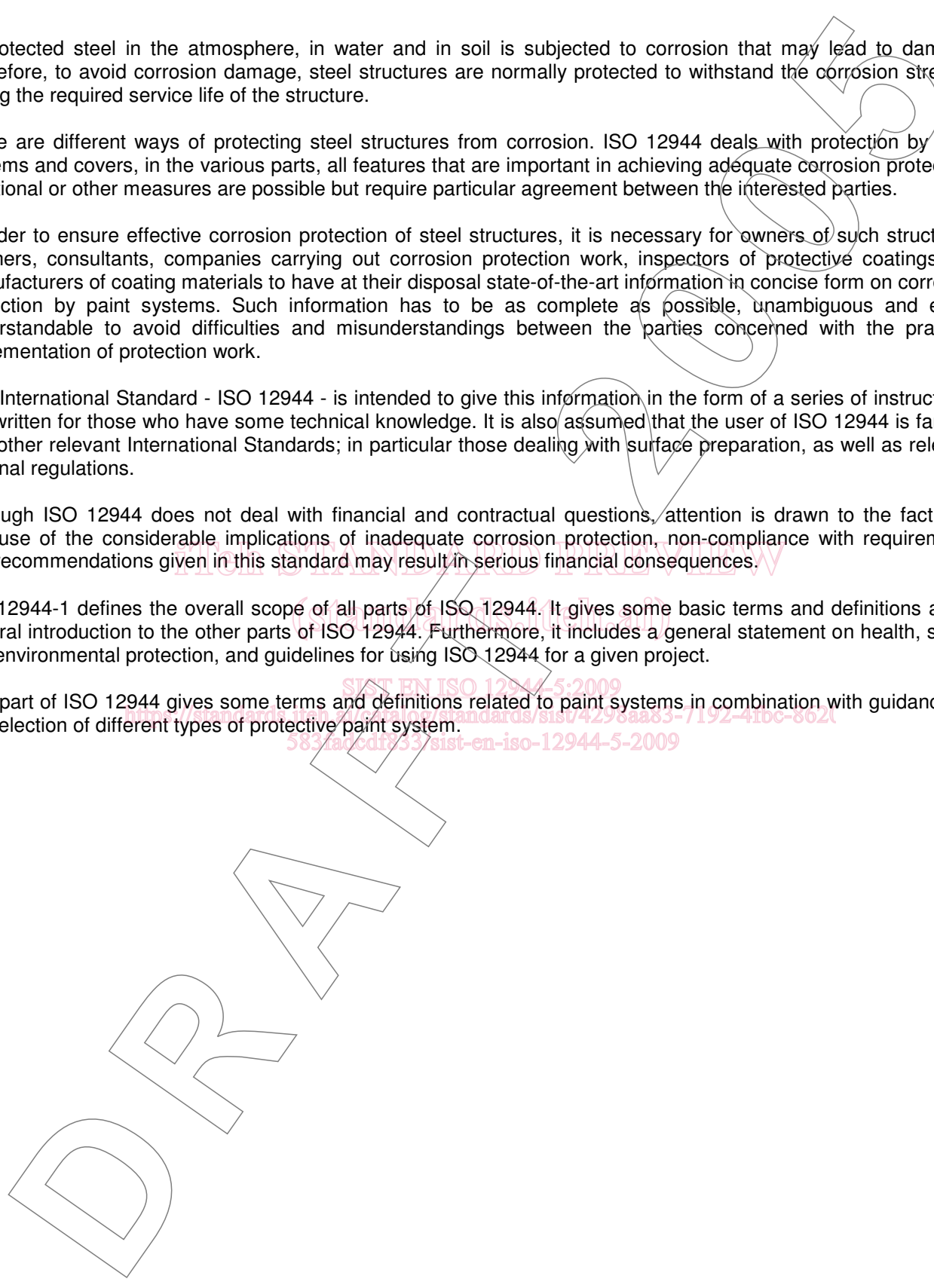
In order to ensure effective corrosion protection of steel structures, it is necessary for owners of such structures, planners, consultants, companies carrying out corrosion protection work, inspectors of protective coatings and manufacturers of coating materials to have at their disposal state-of-the-art information in concise form on corrosion protection by paint systems. Such information has to be as complete as possible, unambiguous and easily understandable to avoid difficulties and misunderstandings between the parties concerned with the practical implementation of protection work.

This International Standard - ISO 12944 - is intended to give this information in the form of a series of instructions. It is written for those who have some technical knowledge. It is also assumed that the user of ISO 12944 is familiar with other relevant International Standards; in particular those dealing with surface preparation, as well as relevant national regulations.

Although ISO 12944 does not deal with financial and contractual questions, attention is drawn to the fact that, because of the considerable implications of inadequate corrosion protection, non-compliance with requirements and recommendations given in this standard may result in serious financial consequences.

ISO 12944-1 defines the overall scope of all parts of ISO 12944. It gives some basic terms and definitions and a general introduction to the other parts of ISO 12944. Furthermore, it includes a general statement on health, safety and environmental protection, and guidelines for using ISO 12944 for a given project.

This part of ISO 12944 gives some terms and definitions related to paint systems in combination with guidance for the selection of different types of protective paint system.



Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 5: Protective paint systems

1 Scope

This part of ISO 12944 describes the types of paint and paint system commonly used for corrosion protection of steel structures. It also provides guidance for the selection of paint systems available for different environments (see ISO 12944-2), surface preparation grades (see ISO 12944-4) and durability grade to be expected (see ISO 12944-1). The durability of paint systems is classified in terms of low, medium and high.

2 Normative references

The following standards contain provisions, which, through reference in this text, constitute provisions of this part of ISO 12944. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 12944 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

- ISO 2808:1997 *Paints and varnishes - Determination of film thickness.*
- ISO 3549:1995 *Zinc dust pigments for paints - Specifications and test methods.*
- ISO 4628-1:2003 *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 1: General introduction and designation system.*
- ISO 4628-2:2003 *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering.*
- ISO 4628-3:2003 *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting.*
- ISO 4628-4:2003 *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking.*
- ISO 4628-5:2003 *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 5: Assessment of degree of flaking.*
- ISO 4628-6:1990 *Paints and varnishes -- Evaluation of degradation of paint coatings -- Designation of quantity and size of defects, and of intensity of uniform changes in appearance -- Part 6: Assessment of degree of chalking by tape method.*
- 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 8501-3:2001 *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 12944-1:1998 *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 1: General introduction.*
- ISO 12944-2:1998 *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments.*
- ISO 12944-4:1998 *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 4: Types of surface and surface preparation.*
- ISO 12944-6:1998 *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 6: Laboratory performance test methods.*
- ISO 19840:2004 *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Measurement of, and acceptance criteria for, the dry film thickness on rough surfaces*

3 Terms and definitions

For the purposes of this part of ISO 12944, the terms and definitions given in ISO 12944-1 and the following apply.

3.1 high-build

property of a coating material, which permits the application of a coat of greater thickness than usually considered as normal for that type of coating.

NOTE For the purposes of this part of ISO 12944, this means $\geq 80 \mu\text{m}$ dry film thickness.

3.2 high-solids

paint materials with volume solids greater than normal.

3.3 compatibility

(I) of products in a paint system:
ability of two or more products to be used together successfully as a paint system without causing undesirable effects

(II) of a product with the substrate:
ability of a product to be applied to a substrate without causing undesirable effects.

3.4 priming coat(s)

first coat(s) of a paint system obtained by application of primers.

NOTE Priming coats provide good adhesion to sufficiently roughened, cleaned metal and/or cleaned old coating, ensuring a sound base for and offering adhesion to the subsequent coats. They normally also provide corrosion protection during the over coating interval and the whole service life of the paint system.

3.5 intermediate coat(s)

coat(s) between priming and topcoat(s).

NOTE In the English language, the term "undercoat" is sometimes used synonymously, normally for a coat applied directly before the topcoat(s).