

**Värvid ja lakid. Teraskonstruksioonide
korrosioonitõrje värvkattesüsteemidega.
Osa 1: Üldtutvustus**

Paints and varnishes - Corrosion protection of steel
structures by protective paint systems - Part 1:
General introduction

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 12944-1:2000 sisaldab Euroopa standardi EN ISO 12944-1:1998 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 12944-1:2000 consists of the English text of the European standard EN ISO 12944-1:1998.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala:</p> <p>Standardi see osa käsitleb teraskonstruktsioonide korrosioonitõrjet kaitsvate värvkattesüsteemidega. Standardi osa hõlmab ainult värvkattesüsteemide korrosioonitõrje funktsioone. Teisi kaitsefunktsioone, nagu kaitset mikroorganismide (meresaaste, bakterid, seened jne), kemikaalide (happed, leelised, orgaanilised lahustid, gaasid jne), mehaanilise toime (abrasioon jne) ja tule vastu ei ole selles standardis käsitletud.</p>	<p>Scope:</p>
---	----------------------

ICS 87.020

Võtmesõnad: kaitsekatted, korrosioon, korrosioonitõrje, lakid, teraskonstruktsioon, värvid, üldpõhimõtted

ICS 87.020

Descriptors: Paint coatings, corrosion protection, structural steelwork.

English version

Paints and varnishes

**Corrosion protection of steel structures by
protective paint systems**

Part 1: General introduction
(ISO 12944-1 : 1998)

Peintures et vernis – Anticorrosion
des structures en acier par systèmes
de peinture – Partie 1: Introduction
générale (ISO 12944-1 : 1998)

Beschichtungsstoffe – Korrosions-
schutz von Stahlbauten durch
Beschichtungssysteme – Teil 1:
Allgemeine Einleitung
(ISO 12944-1 : 1998)

This European Standard was approved by CEN on 1997-06-16.

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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 12944-1 : 1998 Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 1: General introduction,

which was prepared by ISO/TC 35 'Paints and varnishes' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 139 'Paints and varnishes', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 1998 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 12944-1 : 1998 was approved by CEN as a European Standard without any modification.

Contents

Page

1	Scope	4
2	Normative references	6
3	Definitions	6
4	General considerations and requirements	7
5	Health and safety and environmental protection	7
6	Information on the other parts of ISO 12944	8

Annex

A	Guidelines for using ISO 12944 for a given project	9
---	--	---

Introduction

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

1 Scope

1.1 ISO 12944 deals with the corrosion protection of steel structures by protective paint systems.

1.2 ISO 12944 covers only the corrosion-protective function of paint systems. Other protective functions, like the protection against:

- microorganisms (marine fouling, bacteria, fungi, etc.),
- chemicals (acids, alkalis, organic solvents, gases, etc.),
- mechanical action (abrasion, etc.) and
- fire

are not covered by ISO 12944.

1.3 The field of application is characterized by:

- the type of structure,
- the type of surface and surface preparation,
- the type of environment,
- the type of protective paint system,
- the type of work and
- the durability of the protective paint system.

Although ISO 12944 does not cover all types of structure, surface and surface preparation, it may, by agreement, also be applied to those cases which are not covered by the standard.

The various aspects of the field of application are described in more detail in 1.3.1 to 1.3.6.

1.3.1 Type of structure

ISO 12944 concerns structures made of carbon or low-alloy steel (e.g. in accordance with EN 10025) of not less than 3 mm thickness, which are designed using an approved strength calculation.

Not covered by ISO 12944 are concrete structures reinforced with steel.

1.3.2 Type of surface and surface preparation

ISO 12944 deals with the following types of surface consisting of carbon or low-alloy steel, and their preparation:

- uncoated surfaces;
- surfaces thermally sprayed with zinc, aluminium or their alloys;
- hot-dip-galvanized surfaces;
- zinc-electroplated surfaces;
- sherardized surfaces;
- surfaces painted with prefabrication primer;
- other painted surfaces.

1.3.3 Type of environment

ISO 12944 deals with:

- six corrosivity categories for atmospheric environments,
- three categories for structures immersed in water or buried in soil.

1.3.4 Type of protective paint system

ISO 12944 covers a range of paint products which dry or cure at ambient conditions.

Not covered by ISO 12944 are:

- powder coating materials,
- stoving enamels,
- heat-cured paints,
- coatings of more than 2 mm dry-film thickness,
- linings of tanks,
- products for the chemical treatment of surfaces (e.g. phosphating solutions).

1.3.5 Type of work

ISO 12944 covers both new work and maintenance.

1.3.6 Durability of the protective paint system

ISO 12944 considers three different durability ranges (low, medium and high). See 3.5 and clause 4.

The durability range is not a “guarantee time”.

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 4628-1:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 1: General principles and rating schemes.*

ISO 4628-2:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 2: Designation of degree of blistering.*

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 4628-4:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 4: Designation of degree of cracking.*

ISO 4628-5:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 5: Designation of degree of flaking.*

EN 10025:1990, *Hot-rolled products of non-alloy structural steels — Technical delivery conditions.*

3 Definitions

For the purposes of ISO 12944, the following definitions apply. Additional definitions are given in the other parts of ISO 12944.

NOTE — Some of the definitions have been taken from ISO 8044:1989, *Corrosion of metals and alloys — Vocabulary*, and EN 971-1:1996, *Paints and varnishes — Terms and definitions for coating materials — Part 1: General terms*, as indicated.

3.1 coat: A continuous layer of metal material or a continuous film of paint (3.7), resulting from a single application.

3.2 corrosion: Physicochemical interaction between a metal and its environment which results in changes in the properties of the metal and which may often lead to impairment of the function of the metal, the environment or the technical system of which these form a part. [ISO 8044]

3.3 corrosion damage: Corrosion effect which is considered detrimental to the function of the metal, the environment or the technical system of which these form a part. [ISO 8044]

3.4 corrosion stresses: The environmental factors which promote corrosion.

3.5 durability: The expected life of a protective paint system to the first major maintenance painting. See also 4.4.

3.6 lining: A protective coating on the inner surface of a tank.