

SLOVENSKI STANDARD
oSIST prEN ISO 12944-2:2016
01-april-2016

Barve in laki - Korozijska zaščita jeklenih konstrukcij z zaščitnimi premaznimi sistemi - 2. del: Klasifikacija okolij (ISO/DIS 12944-2:2016)

Paints and varnishes - Corrosion protection of steel structures by protective coating systems - Part 2: Classification of environments (ISO/DIS 12944-2:2016)

Beschichtungsstoffe - Korrosionsschutz von Stahlbauten durch Beschichtungssysteme - Teil 2: Einteilung der Umgebungsbedingungen (ISO/DIS 12944-2:2016)

Peintures et vernis - Anticorrosion des structures en acier par systèmes de revêtement - Partie 2: Classification des environnements (ISO/DIS 12944-2:2016)

Ta slovenski standard je istoveten z: prEN ISO 12944-2

ICS:

25.220.20	Površinska obdelava	Surface treatment
87.020	Postopki za nanašanje barvnih premazov	Paint coating processes
91.080.10	Kovinske konstrukcije	Metal structures

oSIST prEN ISO 12944-2:2016

en,fr,de

DRAFT INTERNATIONAL STANDARD

ISO/DIS 12944-2

ISO/TC 35/SC 14

Secretariat: DIN

Voting begins on:
2016-01-28Voting terminates on:
2016-04-28

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

Part 2: Classification of environments

*Peintures et vernis — Anticorrosion des structures en acier par systèmes de revêtement —
Partie 2: Classification des environnements*

ICS: 87.020

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



Reference number
ISO/DIS 12944-2:2015(E)

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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.

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.

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.

ISO 12944-2 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 14, *Protective paint systems for steel structures*.

This second edition cancels and replaces the first edition (ISO 12944-2:1998), which has been technically revised.

ISO 12944 consists of the following parts, under the general title *Paints and varnishes — Corrosion protection of steel structures by protective coating 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*
- *Part 9: Protective paint systems and laboratory performance test methods for offshore and related structures*

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.

This part of ISO 12944 describes the environmental impact on steel structures. It covers structures exposed to the atmosphere as well as those immersed in water or buried in soil. For different atmospheric environments, a classification system based on corrosivity categories is presented. Different environments for immersed and buried structures are also described. All these environments are relevant to the choice of protective paint systems.

Paints and varnishes — Corrosion protection of steel structures by protective coating systems — Part 2: Classification of environments

1 Scope

This part of ISO 12944 deals with the classification of the principal environments to which steel structures are exposed, and the corrosivity of these environments. It

- defines atmospheric-corrosivity categories, based on mass loss (or thickness loss) by standard specimens, and describes typical natural atmospheric environments to which steel structures are exposed, giving advice on the estimation of the corrosivity;
- describes different categories of environment for structures immersed in water or buried in soil;
- gives information on some special corrosion stresses that may cause a significant increase in corrosion rate or place higher demands on the performance of the protective paint system.

The corrosion stresses associated with a particular environment or corrosivity category represent one essential parameter governing the selection of protective paint systems.

2 Normative references

The following referenced documents are indispensable for the application 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 9223, *Corrosion of metals and alloys — Corrosivity of atmospheres — Classification, determination and estimation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the other parts of ISO 12944 and the following apply.

NOTE Some of the definitions have been taken from ISO 8044:1989, Corrosion of metals and alloys — Vocabulary, as indicated.

3.1

corrosivity

ability of an environment to cause corrosion in a given corrosion system

[ISO 8044]

3.2

corrosion stresses

environmental factors which promote corrosion

ISO/DIS 12944-2

3.3

corrosion system

system consisting of one or more metals and all parts of the environment which influence corrosion

[ISO 8044]

3.4

climate

weather prevailing at a given location or in a given area, as established statistically by meteorological parameters recorded over a prolonged period

3.5

atmosphere

mixture of gases, and normally also aerosols and particles, that surrounds a given object

3.6

atmospheric corrosion

corrosion with the Earth's atmosphere at ambient temperature as the corrosive environment

[ISO 8044]

3.7

type of atmosphere

characterization of the atmosphere on the basis of the corrosive agents present and their concentration

Note 1 to entry: The main corrosive agents are gases (especially sulfur dioxide) and salts (especially chlorides and/or sulfates).

3.7.1

rural atmosphere

atmosphere prevailing in rural areas and small towns, without significant contamination by corrosive agents such as sulfur dioxide and/or chlorides

3.7.2

urban atmosphere

contaminated atmosphere prevailing in densely populated areas without significant industry. It has moderate concentrations of pollutants such as sulfur dioxide and/or chlorides

3.7.3

industrial atmosphere

atmosphere contaminated by corrosive pollutants from local and regional industry (mainly sulfur dioxide)

3.7.4

marine atmosphere

atmosphere over and near the sea

Note 1 to entry: A marine atmosphere will extend a certain distance inland, depending on topography and prevailing wind direction. It is heavily polluted with sea-salt aerosols (mainly chlorides).

3.8

local environment

atmospheric conditions prevailing around a constituent element of a structure

Note 1 to entry: These conditions determine the corrosivity category and include both meteorological and pollution parameters.

3.9

micro-environment

environment at the interface between a constituent element of a structure and its surroundings. The micro-environment is one of the decisive factors in the assessment of corrosion stresses