

Zinc coatings - Guidelines and recommendations for the protection against corrosion of iron and steel in structures - Part 3: Sherardizing (ISO 14713-3:2017)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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| See Eesti standard EVS-EN ISO 14713-3:2017 sisaldab Euroopa standardi EN ISO 14713-3:2017 ingliskeelset teksti.     | This Estonian standard EVS-EN ISO 14713-3:2017 consists of the English text of the European standard EN ISO 14713-3:2017.          |
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English Version

**Zinc coatings - Guidelines and recommendations for the  
protection against corrosion of iron and steel in structures  
- Part 3: Sherardizing (ISO 14713-3:2017)**

Revêtements de zinc - Lignes directrices et  
recommandations pour la protection contre la  
corrosion du fer et de l'acier dans les constructions -  
Partie 3: Shérardisation (ISO 14713-3:2017)

Zinküberzüge - Leitfäden und Empfehlungen zum  
Schutz von Eisen- und Stahlkonstruktionen vor  
Korrosion - Teil 3: Sherardisieren (ISO 14713-3:2017)

This European Standard was approved by CEN on 3 May 2017.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## European foreword

This document (EN ISO 14713-3:2017) has been prepared by Technical Committee ISO/TC 107 “Metallic and other inorganic coatings” in collaboration with Technical Committee CEN/TC 262 “Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 14713-3:2009.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 14713-3:2017 has been approved by CEN as EN ISO 14713-3:2017 without any modification.

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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.

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](http://www.iso.org/directives)).

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

For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 4, *Hot dip coatings (galvanized, etc.)*.

This second edition cancels and replaces the first edition (ISO 14713-3:2009), of which it constitutes a minor revision following the publication of ISO 17668 with the following changes:

- ISO 17668 has replaced EN 13811;
- [Table 1](#) has been amended to align coating classes with ISO 17668.

A list of all parts in the ISO 14713 series can be found on the ISO website.

## Introduction

Sherardizing is a thermal diffusion process in which articles are heated in the presence of a sherardizing mixture consisting of zinc dust with or without an inert material.

The process is carried out in a slowly rotating closed container at temperatures ranging from about 300 °C to 500 °C. The normal processing temperature is below the melting point of zinc (419 °C).

During the process, zinc/iron alloys are built up on the surface of the ferrous articles. A coating thickness of 10 µm to 75 µm (and higher if required) can be achieved. The coating thickness is accurately controlled by the amount of zinc dust, the processing time and temperature. The coating closely follows the contours of the basis material, and uniform coatings are produced on articles, including those of irregular shape.

After sherardizing, the containers are cooled down. A screening process separates the sherardized articles from the unused sherardizing mixture. The articles, with the zinc/iron-alloyed layer, are normally post-treated by phosphating, chromating or another suitable passivation process (conversion coating) resulting in a dust-free and clean passivated surface.

Most steel and iron articles can be sherardized.

# Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures —

## Part 3: Sherardizing

### 1 Scope

This document provides guidelines and recommendations regarding the general principles of design that are appropriate for articles to be sherardized for corrosion protection.

The protection afforded by the sherardized coating to the article will depend upon the method of application of the coating, the design of the article and the specific environment to which the article is exposed. The sherardized article can be further protected by application of additional coatings (outside the scope of this document), such as organic coatings (wet paints or powder coatings). When applied to sherardized articles, this combination of coatings is often known as a “duplex system”.

General guidance on this subject can be found in ISO 12944-5 and EN 13438.

The maintenance of corrosion protection in service for steel with sherardized coatings is outside the scope of this document.

Specific product-related requirements (e.g. for sherardized coatings on fasteners or tubes, etc.) will take precedence over these general recommendations.

### 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 8044, *Corrosion of metals and alloys — Basic terms and definitions*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8044 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **sherardizing**

thermal diffusion process in which articles are heated in close contact with a sherardizing mixture, consisting of zinc dust with or without an inert material, in a closed container, usually rotated