

**Industrial application of powder organic coatings to hot dip galvanized and sherardized steel articles [duplex systems] - Specifications, recommendations and guidelines**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15773:2009 sisaldab Euroopa standardi EN 15773:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.08.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 24.06.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 15773:2009 consists of the English text of the European standard EN 15773:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.08.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 24.06.2009.

The standard is available from Estonian standardisation organisation.

ICS 25.220.99

### Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

### Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:  
Aru str 10 Tallinn 10317 Estonia; [www.evs.ee](http://www.evs.ee); Phone: +372 605 5050; E-mail: [info@evs.ee](mailto:info@evs.ee)

English Version

Industrial application of powder organic coatings to hot dip  
galvanized or sherardized steel articles [duplex systems] -  
Specifications, recommendations and guidelines

Application industrielle de revêtements en poudre  
organiques à des produits en acier galvanisés à chaud et  
shérardisés [systèmes duplex] - Spécifications,  
recommandations et lignes directrices

Industrielle Pulverbeschichtung von feuerverzinkten und  
sherardisierten Gegenständen aus Stahl [Duplex-Systeme]  
- Spezifikationen, Empfehlungen und Leitlinien

This European Standard was approved by CEN on 20 May 2009.

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 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 Management Centre has the same status as the official versions.

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



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

# Contents

Page

Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Ordering .....	8
4.1 General.....	8
4.2 Request for quotation .....	10
4.3 Information provision.....	10
4.4 Delivery of product prepared for coating.....	11
5 Fabrication.....	11
5.1 Surface condition of the steel .....	11
5.2 Nature and composition of the raw material.....	11
5.3 Welds, markings, labels .....	11
5.4 Deviations of edges and sides .....	11
6 Zinc coating and zinc surface .....	12
6.1 Cooling.....	12
6.2 Quality and inspection of the zinc coating .....	12
6.3 Storage, packaging and transport after galvanizing or sherardizing.....	13
6.4 Acceptance check.....	13
7 Pre-treatment of the zinc surface.....	13
7.1 General.....	13
7.2 Chemical pre-treatment.....	13
7.3 Mechanical pre-treatment (sweep blasting).....	13
8 Powder organic coating layers.....	15
8.1 General.....	15
8.2 Specification of powder organic coating .....	15
8.3 Repair of the coating system.....	15
9 Packaging, storage and further movement of finished products .....	15
10 Installation .....	15
11 Inspection of finished products .....	16
12 Health and Safety .....	16
<b>Annex A (normative) Considerations when designing and fabricating items for galvanizing or sherardizing and subsequent application of powder organic coatings .....</b>	<b>17</b>
<b>Annex B (informative) Guidance on the influence of steel surface chemistry on the surface condition and pre-treatment of galvanized or sherardized articles prior to application of powder organic coatings .....</b>	<b>18</b>
<b>Annex C (informative) Guidance on treatment of hot dip galvanized or sherardized articles prior to pre-treatment for application of powder organic coatings .....</b>	<b>20</b>
C.1 Cooling.....	20
C.2 Prominent welds and sharp points on the zinc coating .....	20
C.3 Avoidance of condensation during storage, packaging and transport after galvanizing or sherardizing.....	20

<b>Annex D (informative) Guidance on pre-treatment of hot dip galvanized or sherardized articles prior to the application of powder organic coatings .....</b>	<b>21</b>
<b>D.1 General .....</b>	<b>21</b>
<b>D.2 Mechanical pre-treatment .....</b>	<b>21</b>
<b>Bibliography .....</b>	<b>22</b>

## Figures

Figure 1 — Sweep blasting setup .....	14
---------------------------------------	----

## Tables

Table 1 — Standards for powder organic coatings and hot dip galvanized steel or sherardized steel .....	5
Table 2 — Duplex systems: supply phases, essential communication links between parties involved and appropriate specifications / further guidance reference sources .....	9
Table 2 ( <i>continued</i> ) .....	10
Table B.1 — Coating characteristics related to steel composition .....	19

## Foreword

This document (EN 15773:2009) has been prepared by Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

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 December 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

In order to achieve a duplex system which satisfies the many varied aesthetic and performance requirements currently in existence in the marketplace, the following aspects of the supply and application of the systems should be controllable:

- fabrication and composition of the material (Clause 5);
- the zinc coating (Clause 6);
- surface smoothing for coating (Clause 6);
- environmental conditions during storage, transport and application (Clause 6);
- the pre-treatment of the zinc surface (Clause 7);
- instructions provided by chemical pre-treatment suppliers (Clause 7), powder manufacturers (Clause 8);
- the organic coating system (Clause 8);
- packaging, storage and movement of finished products (Clause 9);
- installation (Clause 10);
- inspection (Clause 11).

This European Standard does not incorporate the application of paint coatings according to EN ISO 12944 (parts 1 to 8) [1] when paint systems are specified. This European Standard incorporates the application of coating powders according to EN 13438 when powder coatings are specified.

Table 1 shows the relationship between this European Standard, EN 13438 and other standards relating to zinc coated articles.

**Table 1 — Standards for powder organic coatings and hot dip galvanized steel or sherardized steel**

<b>Galvanizing or sherardizing</b>	<b>Powder organic coatings for galvanized or sherardized steel products</b>	<b>Communications and quality issues surrounding supply of duplex coated articles</b>
EN ISO 1461 EN 10240 EN 10326 EN 10327 EN 13811	EN 13438 or specific product specification	EN 15773
<b>Good communications in place and agreements made between galvanizer or sherardizer and client regarding general quality requirements in relation to zinc coating.</b>  NOTE prEN ISO 14713-2 and -3 also provide useful information on design for galvanizing and sherardizing respectively.	<b>Good communications in place and agreements made between the client and the company applying the powder organic coating regarding general quality requirements of the powder organic coating.</b>	<b>Good communications in place and agreements made between client, galvanizer or sherardizer and applicator of the powder organic coating regarding quality requirements for duplex systems in relation to quality of zinc coating, the pre-treatment and powder organic coating.</b>

## 1 Scope

This European Standard specifies the agreements to be made between the client, the galvanizer / sherardizer, the chemical suppliers and the applicators of the pre-treatment and the powder organic coating systems (if they are not one and the same). It also specifies the quality of the galvanized or sherardized articles to which the powder organic coatings are to be applied and for the pre-treatment and powder organic coatings intended for application to the galvanized or sherardized articles.

This standard applies to the application of hot dip galvanized, sherardized and powder organic coatings by controlled industrial processes to articles consisting of or manufactured from steel. The standard applies to hot dip galvanized products, galvanized in accordance with EN ISO 1461 and EN 10240 or products sherardized in accordance with EN 13811, as well as parts of these products manufactured from continuously galvanized sheet and strip galvanized in accordance with EN 10326 or EN 10327, which, after the galvanizing and/or assembly, or sherardizing, will have a powder organic coating system applied. This standard also applies to products which have been hot dip galvanized or sherardized according to specific product standards to which powder organic systems are applied.

This standard might also be useful when supplying other organic coating systems (excluding wet 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.

EN 10021, *General technical delivery conditions for steel products*

EN 10130, *Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions*

EN 10326, *Continuously hot-dip coated strip and sheet of structural steels — Technical delivery conditions*

EN 10327, *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming — Technical delivery conditions*

EN 10163-1, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 1: General requirements*

EN 10163-2, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 2: Plate and wide flats*

EN 10163-3, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 3: Sections*

EN 10221, *Surface quality classes for hot-rolled bars and rods — Technical delivery conditions*

EN 10240, *Internal and/or external protective coatings for steel tubes — Specification for hot dip galvanized coatings applied in automatic plants*

EN 13438, *Paints and varnishes — Powder organic coatings for galvanized or sherardized steel products for construction purposes*

EN 13811, *Sherardizing — Zinc diffusion coatings on ferrous products — Specification*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods (ISO 1461:1999)*



EN ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817:2003, corrected version:2005, including Technical Corrigendum 1:2006)*

prEN ISO 14713-1, *Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Zinc coatings — Part 1: General principles of design and corrosion resistance (ISO/DIS 14713-1:2008)*

prEN ISO 14713-2, *Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Zinc coatings — Part 2: Hot dip galvanizing (ISO/DIS 14713-2:2008)*

prEN ISO 14713-3, *Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Zinc coatings — Part 3: Sherardizing (ISO/DIS 14713-3:2008)*

ISO 9223, *Corrosion of metals and alloys — Corrosivity of atmospheres — Classification*