

**Metallic and other inorganic coatings - Electrodeposited coatings of chromium for engineering purposes (ISO 6158:2011)**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6158:2011 sisaldab Euroopa standardi EN ISO 6158:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 29.07.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.07.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 6158:2011 consists of the English text of the European standard EN ISO 6158:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 29.07.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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EUROPEAN STANDARD

**EN ISO 6158**

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

**Metallic and other inorganic coatings - Electrodeposited coatings  
of chromium for engineering purposes (ISO 6158:2011)**

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inorganiques - Dépôts électrolytiques de chrome pour  
usages industriels (ISO 6158:2011)

Metallische und andere anorganische Überzüge -  
Galvanische Chromüberzüge für technische Zwecke (ISO  
6158:2011)

This European Standard was approved by CEN on 14 July 2011.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN ISO 6158:2011) 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" 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of an identical text or by endorsement, at the latest by January 2012, and conflicting national standards shall be withdrawn at the latest by January 2012.

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 6158:2004.

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### Endorsement notice

The text of ISO 6158:2011 has been approved by CEN as a EN ISO 6158:2011 without any modification.

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## Introduction

Electrodeposited chromium coatings are frequently deposited from hexavalent chromium solutions similar to those used for decorative electroplating. Engineering chromium coatings, however, are generally thicker than decorative ones. Regular or conventional chromium is the type most frequently specified, but porous, cracked or specially profiled surfaces and duplex chromium are also applied to achieve oil-retaining or non-sticking surfaces, or to improve corrosion resistance.

Electrodeposited chromium coatings for engineering applications are most often applied directly to the basis metal to increase wear and abrasion resistance, to increase fretting resistance, to reduce static and kinetic friction, to reduce galling and seizing, to increase corrosion resistance, and to build up undersize or worn parts. For protection against severe corrosion, nickel or other metallic undercoats may be applied prior to the electrodeposition of chromium, or the corrosion resistance of the chromium coating may be increased by alloying, e.g. with molybdenum.

# Metallic and other inorganic coatings — Electrodeposited coatings of chromium for engineering purposes

**WARNING** — This International Standard may not be compliant with some countries' health and safety legislations and calls for the use of substances and/or procedures that may be injurious to health if adequate safety measures are not taken. This International Standard does not address any health hazards, safety or environmental matters and legislations associated with its use. It is the responsibility of the user of this International Standard to establish appropriate health, safety and environmentally acceptable practices and take suitable actions to comply with any national and International regulations. Compliance with this International Standard does not in itself confer immunity from legal obligations.

## 1 Scope

This International Standard specifies requirements for electroplated coatings of hexavalent chromium, with or without undercoats, on ferrous and non-ferrous metals for engineering purposes. The coating designation provides a means of specifying the thickness of chromium appropriate for typical engineering applications.

## 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 1463, *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method*

ISO 2064, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness*

ISO 2080, *Metallic and other inorganic coatings — Surface treatment, metallic and other inorganic coatings — Vocabulary*

ISO 2177, *Metallic coatings — Measurement of coating thickness — Coulometric method by anodic dissolution*

ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method*

ISO 2819, *Metallic coatings on metallic substrates — Electrodeposited and chemically deposited coatings — Review of methods available for testing adhesion*

ISO 3497, *Metallic coatings — Measurement of coating thickness — X-ray spectrometric method*

ISO 3543, *Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method*

ISO 3882, *Metallic and other inorganic coatings — Review of methods of measurement of thickness*

ISO 4516, *Metallic and other inorganic coatings — Vickers and Knoop microhardness tests*

ISO 4519, *Electrodeposited metallic coatings and related finishes — Sampling procedures for inspection by attributes*

ISO 4526, *Metallic coatings — Electroplated coatings of nickel for engineering purposes*

ISO 9220, *Metallic coatings — Measurement of coating thickness — Scanning electron microscope method*

ISO 9587, *Metallic and other inorganic coatings — Pretreatment of iron or steel to reduce the risk of hydrogen embrittlement*

ISO 9588, *Metallic and other inorganic coatings — Post-coating treatments of iron or steel to reduce the risk of hydrogen embrittlement*

ISO 10309, *Metallic coatings — Porosity tests — Ferroxy test*

ISO 10587, *Metallic and other inorganic coatings — Test for residual embrittlement in both metallic-coated and uncoated externally-threaded articles and rods — Inclined wedge method*

ISO 12686, *Metallic and other inorganic coatings — Automated controlled shot-peening of metallic articles prior to nickel, autocatalytic nickel or chromium plating, or as a final finish*

ISO 15724, *Metallic and other inorganic coatings — Electrochemical measurement of diffusible hydrogen in steels — Barnacle electrode method*

### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in ISO 2064, ISO 2080, ISO 3882, ISO 9587, ISO 9588 and ISO 12686 apply.

### **4 Information to be supplied by the purchaser to the processor**

When ordering articles to be processed in accordance with this International Standard, the purchaser shall provide the following essential information in writing, for example, in the contract or purchase order, or on the engineering drawings:

- a) the designation (see Clause 5);
- b) the nominal composition or specification, and metallurgical condition of the basis metal including hardness (see 5.3); in the case of reclaimed articles, it may not be possible to supply this information, and it may, therefore, be difficult to guarantee the quality of the coating;
- c) the nature, condition and finish of the basis metal if they are likely to affect the serviceability and/or appearance of the coating (see 6.3);
- d) the significant surface, indicated by drawings of the articles or by suitably marked samples (see 6.2);
- e) the requirements for special test specimens (see 6.1);
- f) the appearance and surface finish of the chromium coating, e.g. as-plated, ground or machined (see 6.2 and 6.3); alternatively, samples showing the appearance and required finish shall be supplied or approved by the purchaser, and used for comparison purposes (see 6.2);
- g) the necessity for any treatment to induce compressive stress, e.g. peening before or after electroplating (see 6.10);