Paints and varnishes - Electro-deposition coatings - Part 1: Vocabulary (ISO 22553-1:2019)

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 22553-1:2020 sisaldab Euroopa standardi EN ISO 22553-1:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 22553-1:2020 consists of the English text of the European standard EN ISO 22553-1:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.12.2020.	Date of Availability of the European standard is 02.12.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Paints and varnishes - Electro-deposition coatings - Part 1: Vocabulary (ISO 22553-1:2019)

Peintures et vernis - Peintures d'électrodéposition - Partie 1: Vocabulaire (ISO 22553-1:2019)

Beschichtungsstoffe - Elektrotauchlacke - Teil 1: Begriffe (ISO 22553-1:2019)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

The text of ISO 22553-1:2019 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 22553-1:2020 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of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

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

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Endorsement notice

The text of ISO 22553-1:2019 has been approved by CEN as EN ISO 22553-1:2020 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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

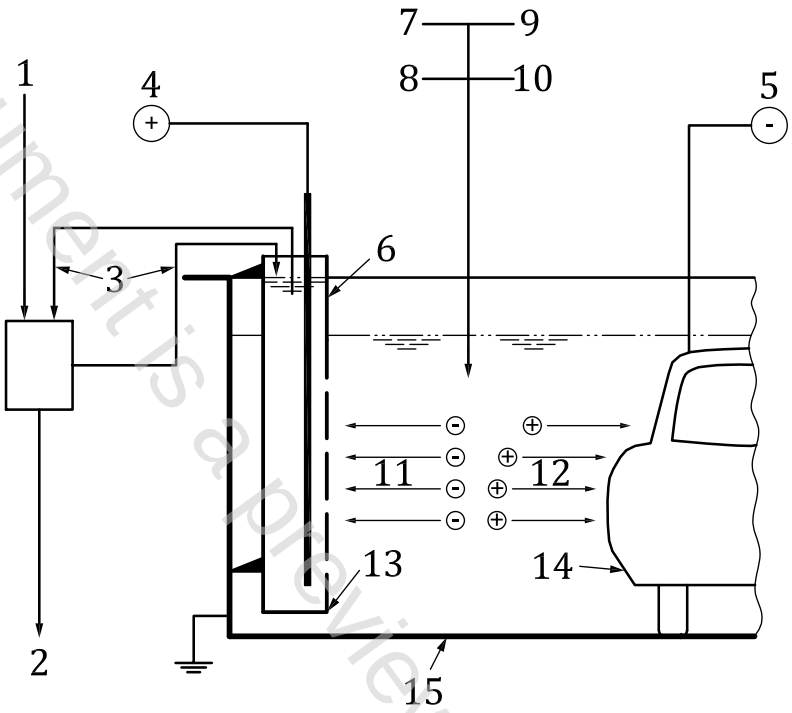
This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

A list of all parts in the ISO 22553 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

During the electro-deposition coating process, the non-volatile matter content from water-thinnable electro-deposition coating materials is deposited on the workpiece caused by an electrophoretic process. During that process, the areas on the inside as well as on the outside of the workpiece, including all cavities, are reached. Depending on whether the workpiece is used as cathode or anode, it is distinguished between cathodic or anodic deposition. The cathodic electro-deposition coating process is commonly used (see Figure 1).



Key

1 demineralized water
2 wastewater treatment
3 anolyte circulation
4 anode
5 cathode
6 anode box
7 binder
8 pigment
9 solvent
10 demineralized water
11 acid
12 electro-deposition coating material
13 ion-selective membrane
14 vehicle body
15 cathodic e-coat tank

Figure 1 — Example of a deposition processes during cathodic electro-deposition coating

With the combination of binder, pigment and deposition process, a very resistant coating is generated on the workpiece after hardening, which significantly contributes to the corrosion protection in interior and exterior areas.

The electric properties of the material are also significant for the electric power consumption of the process (density of volume charge).

Since the e-coat is jointly responsible for the total appearance of the coating system, a good run of the coating without visible defects is generally emphasized.

Consequently, for extensive corrosion protection and for sealing the workpiece, an additional application of seam-sealing materials, adhesives or foams is recommended.

Inside the e-coat tanks, there is a possibility of bacterial contamination due to the dragged-in material and the physical conditions (heat, aqueous media, sources of carbon, etc.).

This document specifies terms and definitions for electro-deposition coatings. The subsequent parts of the ISO 22553 series specify methods for the characterization of electro-deposition coatings and test methods. An overview on the test methods is given in Annex A.

Paints and varnishes — Electro-deposition coatings —

Part 1: Vocabulary

1 Scope

This document defines terms for electro-deposition coatings.

It is applicable to electro-deposition coatings for automotive industries and other general industrial applications, e.g. chiller units, consumer products, radiators, aerospace, agriculture.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
density of volume charge
ρ_A
quotient from an electrical charge, Q, and a volume, V, as shown by the formula:

$$\rho_A = \frac{Q}{V}$$

Note 1 to entry: The density of volume charge is expressed in coulombs per cubic metre (C/m^3).

Note 2 to entry: 1 C/m^3 = 1 $A \cdot s/m^3$.

3.2
deposition voltage
tank voltage
U
voltage adjusted on the respective device, in order to deposit an *electro-deposition coating material* (3.9), by an anodic or cathodic method, with a film thickness specified for that coating material

Note 1 to entry: The deposition voltage is given in volts (V).

3.3
deposition time
time necessary to obtain the required film thickness

3.4
anodic electro-deposition coating process
anodic e-coating process
variant of the electro-deposition coating where the coated component is connected as the anode and the counter electrode is connected as the cathode