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**Paints and varnishes — Electro-  
deposition coatings —**

**Part 11:  
Bath stability**

*Peintures et vernis — Peintures d'électrodéposition —  
Partie 11: Stabilité du bain*

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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)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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

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](http://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](http://www.iso.org/members.html).

# Paints and varnishes — Electro-deposition coatings —

## Part 11: Bath stability

### 1 Scope

This document specifies a method for assessing the bath stability of electro-deposition coatings used for automotive industries and other general industrial applications, e.g. chiller units, consumer products, radiators, aerospace, agriculture.

### 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 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO 14680-1, *Paints and varnishes — Determination of pigment content — Part 1: Centrifuge method*

ISO 14680-2, *Paints and varnishes — Determination of pigment content — Part 2: Ashing method*

ISO 15091, *Paints and varnishes — Determination of electrical conductivity and resistance*

ISO 19396-1, *Paints and varnishes — Determination of pH value — Part 1: pH electrodes with glass membrane*

ISO 22518, *Paints and varnishes — Determination of solvents in water-thinnable coating materials — Gas-chromatographic method*

ISO 22553-1, *Paints and varnishes — Electro-deposition coatings — Part 1: Vocabulary*

ISO 22553-5, *Paints and varnishes — Electro-deposition coatings — Part 5: Determination of sieve residue*

ISO 22553-8<sup>1)</sup>, *Paints and varnishes — Electro-deposition coatings — Part 8: Electric charge density*

ISO 23321, *Solvents for paints and varnishes — Demineralized water for industrial applications — Specification and test methods*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and ISO 22553-1 apply.

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/>

1) Under preparation. Stage at the time of publication: ISO/FDIS 22553-8:2020.

## 4 Principle

An electro-deposition coating material is aged at a specified temperature over a defined period of time. The properties of the electro-deposition coating material before and after ageing are compared.

## 5 Apparatus and materials

Typical laboratory apparatus, together with the following:

5.1 5-l container.

5.2 Stirrer.

5.3 Thermostat system.

5.4 Timer, with a reading accuracy of 1 s.

## 6 Number of determinations

Carry out one single determination.

## 7 Procedure

### 7.1 Preparation of the electro-deposition coating material

Prepare at least 6 l of electro-deposition coating material consisting of binder, pigment paste and demineralized water as specified in ISO 23321 (for water-based coating materials) as per the manufacturer's specifications. Homogenize at a temperature of  $(28 \pm 3)$  °C, for example, by means of a stirring machine with paddle stirrer (diameter min. 50 mm) at  $500 \text{ min}^{-1}$ .

### 7.2 Blank test

Determine the following parameters for the prepared electro-deposition coating material (see 7.1):

- pH value in accordance with ISO 19396-1;
- conductivity in accordance with ISO 15091;
- solvent fraction in accordance with ISO 22518;
- non-volatile-matter content in accordance with ISO 3251;
- pigment content in accordance with ISO 14680-1 (centrifuge method) or in accordance with ISO 14680-2 (ashing method);
- sieve residue of the total volume (5 l) in accordance with ISO 22553-5;
- volume charge density in accordance with ISO 22553-8.

NOTE The pigment-binder ratio can also be determined instead of the ash content.

### 7.3 Ageing of the sample

Measure 5 l from the prepared electro-deposition coating material (see 7.1) and stir it without it being covered for approx. 90 days at  $(30 \pm 2)$  °C.