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

*Peintures et vernis — Peintures d'électrodéposition —
Partie 5: Détermination du refus sur tamis*

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Foreword

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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

Electro-deposition coating materials are exposed to different stability stresses, such as temperature differences, shear stress and different deposition conditions. All of these influences, together or individually, can lead to instability of the dispersion. Coagulation and kick out of the electro-deposition paint can occur. This, in turn, can result in sedimentation inside the tank and/or on surfaces to be coated, as well as in clogging of the filters and other similar plant-specific problems.

With this test method, the alteration of the stability level of electro-deposition coating materials can be integrally detected.

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Paints and varnishes — Electro-deposition coatings —

Part 5: Determination of sieve residue

1 Scope

This document specifies a method for the determination of soiling material, e.g. from previous processes, non-dispersed paint particles and other foreign material in the electro-deposition coating material.

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

In practice, increased sieve residue can have different causes, such as metal particles, which are introduced together with the object to be coated, or clots.

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 4618, *Paints and varnishes — Terms and definitions*

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

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, ISO 22553-1 and the following 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/>

3.1

sieve residue

material remaining on a sieve with specified mesh size

4 Principle

A specified volume of the electro-deposition coating material is passed through a sieve and the residue remaining on the sieve is weighed.

5 Apparatus and materials

Ordinary laboratory apparatus, together with the following.

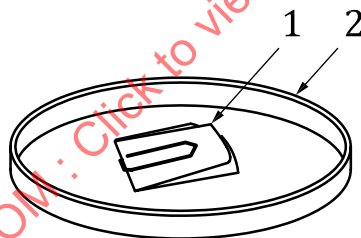
- 5.1 **Two bottomless plastic cups**, upper diameter about 7 cm.
- 5.2 **Sieve fabric**, mesh size about 30 μm , sieve size about 10 cm $\times$ 10 cm, e.g. polyamide fibre.
- 5.3 **Metal or glass dish**, diameter (8 $\pm$ 2) cm, or other dish, temperature-resistant up to about 110 $^{\circ}\text{C}$.
- 5.4 **Metal paper clip**.
- 5.5 **Balance**, with a weighing accuracy of 1 mg.
- 5.6 **Demineralized water**, as specified in ISO 23321.

6 Number of determinations

Carry out the determination in duplicate.

7 Procedure

Dry the sieve fabric (5.2) in the oven until it reaches a constant mass. Fold the dried sieve fabric (5.2) and hold in place using the paper clip (5.4), see Figure 1. Put this sieve fabric (5.2) in the dish (5.3) and weigh (m_1).

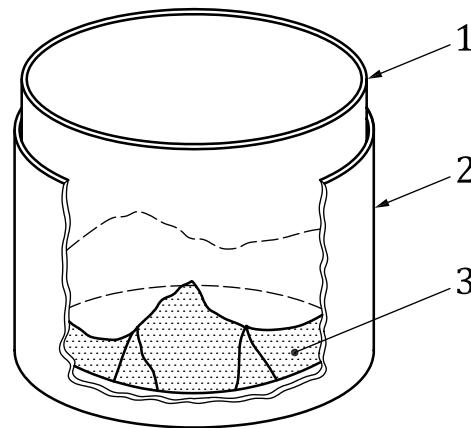


Key

- 1 sieve fabric with paper clip
- 2 dish

Figure 1 — Dish with folded sieve fabric and paper clip

Wrap the weighed sieve fabric (5.2) around the first cup (5.1) and insert into the second cup (5.1), see Figure 2.

**Key**

- 1 inner (first) cup
- 2 outer (second) cup
- 3 sieve fabric

Figure 2 — Cups with sieve fabric

Pour a sufficient amount ($V_{\text{e-coat}}$, minimum 2 l) of the homogenized electro-deposition coating material through the sieve, which is fixed by means of the cups (5.1), into the collecting tray. Thoroughly rinse the sieve fabric (5.2) and the sieve residue using demineralized water (5.6) from a spray bottle. Remove the sieve fabric (5.2), fold it and hold in place again by means of the paper clip (5.4) used above. Put the sieve fabric (5.2) into the dish (5.3) used above, dry in the oven at 80 °C for 30 min and cool to room temperature.

Weigh the sieve fabric (5.2) together with the paper clip (5.4) and the dish (5.3) (m_2).

8 Evaluation

Calculate the mass of the sieve residue in relation to the flow-through volume, d_{sr} , in milligrams per litre, in accordance with Formula (1):

$$d_{\text{sr}} = \frac{m_2 - m_1}{V_{\text{e-coat}}} \quad (1)$$

where

m_1 is the mass, in milligrams, of the sieve fabric;

m_2 is the mass, in milligrams, of the sieve fabric with the sieve residue;

$V_{\text{e-coat}}$ is the volume of electro-deposition coating material used for the test, in litres.

9 Precision

No precision data are currently available.