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Hand-held electrostatic application equipment for non-ignitable liquid coating materials - Safety requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Hand-held electrostatic application equipment for non-ignitable
liquid coating materials - Safety requirements**

Équipement manuel d'application électrostatique de
produits de revêtement liquides non-inflammables -
Exigences de sécurité

Elektrostatische Handsprüheinrichtungen -
Sicherheitsanforderungen - Handsprüheinrichtungen für
nichtentzündbare Beschichtungsstoffe

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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EN 50059:2025 (E)**European foreword**

This document (EN 50059:2025) has been prepared by CLC/TC 204 “Safety of electrostatic painting and finishing equipment”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-02-28
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2028-02-29

This document supersedes EN 50059:2018 and all of its amendments and corrigenda (if any).

EN 50059:2024 includes the following significant technical changes with respect to EN 50059:2018:

- new structure of the entire document,
- update of Clause 2,
- complete revision of Clauses 1, 3 to 7,
- revision of Annex A (normative),
- revision of Annex C (informative).

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

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZZ, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Introduction

During the electrostatic coating process, the non-ignitable liquid coating material is transported to a spraying device where it is atomized by mechanical forces and/or by the influence of an electric field. The generated spray cloud is charged by high voltage of some 10 kV, is attracted by, and is applied to the earthed workpiece.

Spray clouds which are not applied to the workpiece (overspray) are removed by a suction device or by other means.

The coating material is cured at room temperature or by heating.

EN 50059:2025 (E)**1 Scope**

1.1 This document specifies the electrical requirements for hand-held or hand-operated electrostatic application equipment for non-ignitable liquid coating materials which

- do not generate an explosive atmosphere inside the spraying area,
- are used to process coating materials with a conductivity of the complete system up to 2 000 $\mu\text{S}/\text{cm}$,
- operate with direct current having a d.c. sinusoidal ripple of not more than 10 % of the r.m.s. value, and
- are used within a temperature range from 5 °C to 40 °C.

1.2 This document specifies

- requirements for an interface to machinery according to EN 16985:2018,
- additional requirements for machinery according to EN 1953:2025 and EN 12621:2025.

1.3 This document also specifies requirements for a safe operation of electrostatic application equipment, including the electrical installation. The requirements consider both the processing of coating materials and the cleaning and purge processes.

1.4 For electrostatic application equipment used in food and pharmaceutical industry, additional requirements can apply.

1.5 This document does not apply to

- electrostatic hand-held spraying equipment for ignitable materials, see EN 50050:2013, Parts 1 to 3,
- cleaning systems for spraying devices,
- quality assurance systems for electrostatic spraying equipment (see EN ISO/IEC 80079-34:2020, Clause ZB.11).

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.

EN 1149-5:2018, *Protective clothing - Electrostatic properties - Part 5: Material performance and design requirements*

EN 1953:2025, *Application equipment for coating materials — Safety requirements*

EN 12621:2025, *Machinery for supply and circulation of liquid coating materials — Safety requirements*

EN 16985:2018, *Spray booths for organic coating material - Safety requirements*

EN 50176:2025, *Automatic electrostatic application systems for ignitable liquid coating materials - Safety requirements*

EN 60204-1:2018, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60529:1991,¹ *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 61340-4-1:2004,² *Electrostatics - Part 4-1: Standard test methods for specific applications - Electrical resistance of floor coverings and installed floors (IEC 61340-4-1:2003)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2023, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 20344:2021, *Personal protective equipment - Test methods for footwear (ISO 20344:2021)*

IEC 60479-1:2018, *Effects of current on human beings and livestock — Part 1: General aspects*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

¹ As impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

² As impacted by EN 61340-4-1:2004/A1:2015.