

საქართველოს სტანდარტი

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ეროვნული სააგენტო
თბილისი

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English version

**Stationary electrostatic application equipment
for non-ignitable liquid coating material -
Safety requirements**

Matériel fixe de projection électrostatique
de produit à projeter liquide inflammable -
Exigences de sécurité

Stationäre Ausrüstung
zum elektrostatischen Beschichten
mit nichtentzündbaren flüssigen
Beschichtungsstoffen -
Sicherheitsanforderungen

This European Standard was approved by CENELEC on 2009-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 204, Safety of electrostatic painting and finishing equipment.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50348 on 2009-12-01.

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

This European Standard supersedes EN 50348:2001.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2010-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-12-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 2006/42/EC. See Annex ZZ.

The State of the Art is included in Annex ZY “Significant changes between this European Standard and EN 50348:2001”.

Contents

0	Introduction.....	4
0.1	Process	4
0.2	Fire hazards	4
0.3	Electric hazards.....	4
1	Scope	5
2	Normative references	5
3	Definitions.....	6
4	General requirements.....	9
5	Requirements for the equipment.....	10
5.1	Electrostatic spraying systems.....	10
5.2	Requirements for spraying systems for non-ignitable liquid coating material	10
5.3	Spraying area	11
5.4	High voltage supply	11
5.5	Electric requirements	12
5.6	Grounding measures	12
5.7	Supply for coating material.....	12
6	Testing.....	13
6.1	Type tests of the high voltage cables.....	13
6.2	Type tests of the insulating spraying material supply hose.....	13
6.3	Routine tests of the stationary equipment.....	13
7	Information for use	15
7.1	General	15
7.2	Instruction manual.....	15
7.3	Marking	16
7.4	Warning sign	17
	Annex A (informative) Ignitability of water-based paints	18
	Annex ZY (informative) Significant changes between this European Standard and EN 50348:2001	20
	Annex ZZ (informative) Coverage of Essential Requirements of EC Directive 2006/42/EC	21
	Bibliography.....	22

Tables

Table 1 – Electrostatic spraying systems for non-ignitable coating material – Fields of application	10
Table 2 – Requirements for electrostatic spraying systems for non-ignitable liquid coating material.....	10
Table 3 – Survey of the tests	14
Table 4 – Test intervals	16

0 Introduction

0.1 Process

During the electrostatic coating process the liquid coating material is transported to an electrostatic spraying device where it is converted to droplets by mechanical forces and by the influence of an electric field. During this atomising process the droplets are charged by high voltage of some 10 kV and a spray cloud is generated. The charged droplets are attracted by and applied to the grounded workpiece.

Droplets which are not applied to the workpiece (overspray) are removed by an extraction device or by another device.

The coated workpieces are transported to dryer, where the solvent is evaporated and a dry film of coating material is generated.

0.2 Fire hazards

0.2.1 Fire hazards can be caused by paint and varnish deposits inside the spray booth, exhaust air ducts and filters. During operation, malfunctions or electrical faults may cause ignition of these residues. This is especially true for spray booths where electrostatic coating takes place. The fast propagation of the fire leads to hazards also in adjacent areas.

0.2.2 Particular attention shall be paid to the prevention of electrostatic charges on different surfaces, which are in the vicinity of the spray cloud. This could apply to workpieces during the coating process or the reciprocating devices and the mounting parts of the spraying system, etc.

0.2.3 When spraying non-ignitable coating material, the formation of an explosive atmosphere is not likely to occur. Electrostatic application equipment for ignitable liquid coating materials and hard to ignite coating materials are covered by EN 50176.

0.3 Electric hazards

0.3.1 Electric shock (by direct or indirect contact) can be generated, for instance, by contact with

- live parts, which are not insulated for operational reasons,
- conductive parts, which are not under dangerous voltage during normal operation, but only in case of failure,
- insulated live parts whose insulation is insufficient or has been damaged due to mechanical influences.

0.3.2 Inadequate grounding may occur, for instance, due to

- faulty connections to the protective grounding system,
- a too high resistance to ground (requirement as in 5.6).

0.3.3 Hazards could occur, for instance, if hazardous malfunctions (e.g. shortcut of electronic safety circuits, of access guards to dangerous areas or of warning devices) occur due to interferences of the high voltage equipment and the components of the control and safety systems.

0.3.4 Hazardous electrostatic discharges could be generated, for instance, by non-grounded conductive components or by large insulating surfaces, especially if they are backed with conductive material.