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Selection, use, care and maintenance of personal protective equipment for preventing electrostatic risks in hazardous areas (explosion risks)

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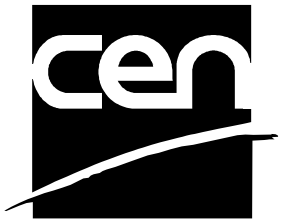

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Foreword

This document (CEN/CLC/TR 16832:2015) has been prepared by Technical Committee CEN/CLC/JWG 7 “PPE against electrostatic risks”, the secretariat of which is held by NEN.

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

Introduction

European Standards for personal protective equipment (PPE) are developed to ensure compliance with the European Directive 89/686/EEC. Since the primary aim of this directive is to guarantee a free market in the European Union, these standards are made to meet the needs for a common set of safety requirements and test methods.

The actual use of PPE is not covered by this directive, nor by related standards.

This Technical Report has been developed to meet the needs for a document on selection, use, care and maintenance. Regulations on health and safety are based on Directive 89/686/EEC, giving minimum requirements on the selection and use of PPE in the workplace. EU Member States may impose more stringent requirements and may define exposure limits.

The information in this Technical Report has been produced to assist employers in making the necessary decisions regarding the selection, use, care and maintenance of PPE. The guidance given may also be useful for other parties such as suppliers of PPE or services, inspection agencies, insurance companies, etc.

The purpose of this Technical Report is to highlight the main areas that an employer needs to consider.

This Technical Report may serve as guidance and as a checklist when a company is preparing its own management system or programme for PPE.

1 Scope

This Technical Report sets out guidance for the selection, use, care and maintenance of clothing and related items of personal protective equipment designed to prevent hazards caused by static electricity in hazardous areas.

Static electricity should not be confused with mains supply electricity, or other forms of electric current; the requirements for protection against static electricity are different to the requirements for protection against hazards associated with electric current. Protection against electrostatic risks should not be confused with protection against electric arc; the former is concerned with electrical properties and the latter is concerned with heat, flame and projectile protection.

Directive 89/686/EEC requires that PPE intended for use in explosive atmospheres must be so designed and manufactured that it cannot be the source of an electric, electrostatic or impact-induced arc or spark likely to cause an explosive mixture to ignite. Whereas this Technical Report addresses electrostatic ignition risks, it does not address other possible sources of ignition. Nevertheless, other possible sources of ignition are required to be considered when certifying PPE to the requirements of Directive 89/686/EEC.

NOTE EN 13463–1 gives guidance on assessing possible ignition sources in non-electrical equipment that may be used for some items of PPE.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1081, *Resilient floor coverings — Determination of the electrical resistance*

EN 1149-1, *Protective clothing — Electrostatic properties — Part 1: Test method for measurement of surface resistivity*

EN 1149-2, *Protective clothing — Electrostatic properties — Part 2: Test method for measurement of the electrical resistance through a material (vertical resistance)*

EN 1149-3, *Protective clothing — Electrostatic properties — Part 3: Test methods for measurement of charge decay*

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

CEN/TR 15321:2006, *Guidelines on the selection, use, care and maintenance of protective clothing*

EN 16350, *Protective gloves — Electrostatic properties*

EN 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres (IEC 60079-10-1)*

EN 60079-10-2, *Explosive atmospheres — Classification of areas — Combustible dust atmospheres (IEC 60079-10-2)*

CLC/TR 60079-32-1:2015, *Explosive atmospheres — Part 32-1: Electrostatic hazards, Guidance (IEC/TS 60079-32-1:2013)*

EN 60079-32-2:2015, *Explosive atmospheres — Part 32-2: Electrostatics hazards — Tests (under consideration) (IEC 60079-32-2:2015)*

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

EN 61340-4-3, *Electrostatics — Part 4-3: Standard test methods for specific applications — Footwear (IEC 61340-4-3)*

EN 61340-4-5, *Electrostatics — Part 4-5: Standard test methods for specific applications — Methods for characterizing the electrostatic protection of footwear and flooring in combination with a person (IEC 61340-4-5)*

EN ISO 11611, *Protective clothing for use in welding and allied processes (ISO 11611)*

EN ISO 13688, *Protective clothing — General requirements (ISO 13688)*

CEN ISO/TR 18690, *Guidance for the selection, use and maintenance of safety and occupational footwear and other personal protective equipment offering foot and leg protection (ISO/TR 18690)*

EN ISO 20344, *Personal protective equipment — Test methods for footwear (ISO 20344)*

EN ISO 20345, *Personal protective equipment — Safety footwear (ISO 20345)*

EN ISO 20346, *Personal protective equipment — Protective footwear (ISO 20346)*

EN ISO 20347, *Personal protective equipment — Occupational footwear (ISO 20347)*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 10965, *Textile floor coverings — Determination of electrical resistance*

3 Term and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
hazard
situation which can be the cause of harm or damage to the health of the human body

[SOURCE: CEN/TR 15321:2006, 2.1]

Note 1 to entry: The effects of static electricity can be a nuisance. Electrostatic attraction of dirt and electrostatic shocks to personnel, for example, are not directly harmful, but they are nonetheless undesirable. Nuisance effects may cause hazards indirectly. For example, a person working on a ladder may fall off the ladder because of an involuntary reflex after receiving an electrostatic shock. If nuisance shocks are felt, it is an indication that there is an electrostatic ignition risk, if the person concerned is in a hazardous area.

3.2
risk
combination of the frequency, or probability, of occurrence and the consequence of a specified hazardous event

[SOURCE: CEN/TR 15321:2006, 2.2]

3.3
selection
process of determining the type of protective equipment (garments) that is necessary for the required protection