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BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

Draft Indian Standard

Explosive atmospheres – Part 32-1: Electrostatic hazards, guidance

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Electrical Apparatus for Explosive Atmosphere Sectional Committee, ETD 22

Last date of receipt of comments**: 01 Mar 2024**

NATIONAL FOREWORD

This draft Indian Standard which is identical with IEC TS 60079-32-1 "Explosive atmospheres – Part 32-1: Electrostatic hazards, guidance" issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Electrical Apparatus for Explosive Atmosphere Sectional Committee.

This draft Indian standard gives guidance about the equipment, product and process properties necessary to avoid ignition and electrostatic shock hazards arising from static electricity as well as the operational requirements needed to ensure safe use of the equipment, product or process. It can be used in a risk assessment of electrostatic hazards or for the preparation of product family or dedicated product standards for electrical or non-electrical machines or equipment.

The text of IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60079-0: 2011, Explosive atmospheres - Part 0: Equipment - General requirements	IS/IEC 60079-0 : 2017 Explosive Atmospheres Part 0 Equipment — General Requirements (Third Revision)	Identical
IEC 60079-10-2, Explosive atmospheres – Part 10-2: Classification of areas – Combustible dust atmospheres	IS/IEC 60079-10-2 : 2015 Explosive atmospheres: Part 10 classification of areas: Sec 2 explosive dust atmospheres (First Revision)	Identical
IEC 60079-14, Explosive atmospheres – Part 14: Electrical installations design, selection and erection	IS 16724 : 2018 Explosive atmospheres - Electrical installations design, selection and erection	Modified/Technically Equivalent with IEC 60079-14 : 2013
IEC 60079-20-1, Explosive atmospheres – Part 20-1: Material characteristics for gas and vapour classification – Test methods and data	IS/ISO/IEC 80079-20-1 : 2017	Identical
IEC 60079-32-2:2015, Explosive atmospheres – Part 32-2: Electrostatic hazards – Tests	[Doc. ETD 22 (22397)WC Under preparation]	Identical to IEC 60079 : PART 32: Sec 2: 2015
IEC 60093, Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials	IS 3396 : 1979 Methods of test for volume and surface resistivity of solid electrical insulating materials (First Revision)	Modified/Technically Equivalent with IEC 60093
ISO 6297, Petroleum products – Aviation and distillate fuels – Determination of electrical conductivity	IS 1448 (Part 148) : 2019 Methods of test for petroleum and its products [p : 148] petroleum products - Aviation and distillate fuels - Determination of electrical conductivity (First Revision)	Identical with ISO 6297 : 1997
ISO 8031, Rubber and plastics hoses and hose assemblies – Determination of electrical resistance	IS 443 (Part 4) : 2022 Methods of Test for Rubber and Plastics Tubing, Hoses and Hose Assemblies Part 4 Rubber and Plastics Hoses and Hose Assemblies Determination of Electrical Resistance and Conductivity	Identical with ISO 8031 : 2020

ISO 9563, Belt drives; electrical conductivity of antistatic endless synchronous belts; characteristics and test method	IS 16378 : 2017 Belt drives - Electrical conductivity of antistatic endless synchronous belts - Characteristics and test method	Identical with ISO 9563 : 1990
ISO 21178, Light conveyor belts – Determination of electrical resistances	IS 16381 : 2017 Light conveyor belts - Determination of electrical resistances	Identical with ISO 21178 : 2013
ISO 21179, Light conveyor belts – Determination of the electrostatic field generated by a running light conveyor belt	IS 16382 : 2017 Light conveyor belts - Determination of the electrostatic field generated by a running light conveyor belt	Identical with ISO 21179 : 2013
ISO 21183-1, Light conveyor belts – Part 1: Principal characteristics and applications	IS 16385 (Part 1) : 2017 Light conveyor belts: Part 1 principal characteristics and applications	Identical with ISO 21183-1 : 2005
BS 5958: Code of practice for control of undesirable static electricity Part 1: General considerations Part 2: Recommendations for particular industrial situations	IS 7689 : 1989 Guide for control of undesirable static electricity (First Revision)	Modified/Technically Equivalent with BS 5958 Part 1 : 1980, and Part 2 : 1983

The technical committee has reviewed the provisions of the following international standards referred in this adopted standard and decided that they are acceptable for use in conjunction with this standard.

International Standard	*Title*
IEC 60079-10-1	*Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*
IEC 60167	*Methods of test for the determination of the insulation resistance of solid insulating materials*
IEC 61340-2-3	*Electrostatics – Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation*
IEC 61340-4-1	*Electrostatics – Part 4-1: Standard test methods for specific applications – Electrical resistance of floor coverings and installed floors*
IEC 61340-4-3	*Electrostatics – Part 4-3: Standard test methods for specific applications – Footwear*
IEC 61340-4-4:2012	*Electrostatics – Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)*

ISO 284	*Conveyor belts – Electrical conductivity – Specification and test method*
ISO 12100-1	*Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology*
ISO 16392	*Tyres – Electrical resistance – Test method for measuring electrical resistance of tyres on a test rig*
ASTM D257	*Standard Test Methods for DC Resistance or Conductance of Insulating Materials*
ASTM D2624-07a	*Standard Test Methods for Electrical Conductivity of Aviation and Distillate Fuels*
ASTM D4308-95	*Standard Test Method for Electrical Conductivity of Liquid Hydrocarbons by Precision Meter*
ASTM E582-88	*Standard test method for minimum ignition energy and quenching distance in gaseous mixtures*
ASTM E2019-03	*Standard test method for minimum ignition energy of a dust cloud in air*
ASTM F150	*Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring*
ASTM F1971	*Standard Test Method for Electrical Resistance of Tires Under Load On the Test Bench*
BS 7506	*Methods for measurements in electrostatics – Part 2 Test methods*
DIN 51412-1	*Testing of petroleum products; determination of the electrical conductivity, laboratory method*
DIN 51412-2	*Testing of petroleum products; determination of the electrical conductivity; field method*
EN 1081	*Resilient floor coverings – Determination of the electrical resistance*
EN 1149-3	*Protecting clothes – Electrostatic properties – Part 3: Test method for measuring the charge dissipation*
EN 1149-5	*Protective clothing – Electrostatic properties – Part 5: Material performance and design requirements*
EN 1360	*Rubber and plastic hoses and hose assemblies for measured fuel dispensing systems – Specification*
EN 1361	*Rubber hoses and hose assemblies for aviation fuel handling – Specification*
EN 13463-1	*Non-electrical equipment for potentially flammable atmospheres – Part 1: Basic principles and general requirements*
EN 14125	*Underground pipework for petrol filling stations*
EN 14973	*Conveyor belts for use in underground installations – Electrical and flammability safety requirements*
International Safety Guide for Oil Tankers and Terminals (ISGOTT), fifth edition, International chamber of shipping, 2006.	
JNIOSH TR 42	*Recommendations for Requirements for Avoiding Electrostatic Hazards in Industry*
NFPA 77	*Recommended practice on static electricity*
SAE J1645	*Surface vehicle recommended practice – Fuel systems and Components – Electrostatic Charge Mitigation*

Only the English language text has been retained while adopting it in this Indian Standard, and as such, the page numbers given here are not the same as in the IEC Publication.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding of numerical values (Second Revision)’. The number of significant places retained in the rounded off value should be the same as that of thespecified value in this standard.

Note: The technical content of the document is not available on website. For details, please refer the corresponding IEC TS 60079-32-1:2013+AMD1:2017 or kindly contact:

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