SLOVENSKI STANDARD
oSIST prEN IEC 61340-4-11:2024

01-februar-2024

Elektrostatika - 4-11. del: Standardne preskusne metode za posebno uporabo - Preskušanje elektrostatičnih lastnosti kompozitnih IBC

Electrostatics - Part 4-11: Standard test methods for specific applications - Testing of electrostatic properties of composite IBC

Ta slovenski standard je istoveten z: **prEN IEC 61340-4-11:2023**

ICS:

17.220.99	Drugi standardi v zvezi z elektriko in magnetizmom	Other standards related to electricity and magnetism
55.080	Vreče. Vrečke	Sacks. Bags

oSIST prEN IEC 61340-4-11:2024 **en**

101/698/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 61340-4-11 ED1**	
DATE OF CIRCULATION: **2023-11-24**	CLOSING DATE FOR VOTING: **2024-02-16**
SUPERSEDES DOCUMENTS: **101/673C/CC, 101/694/CC**	

IEC TC 101 : ELECTROSTATICS

SECRETARIAT: Germany	SECRETARY: Mr Hartmut Berndt
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Electrostatics - Part 4-11: Standard test methods for specific applications - Testing of electrostatic properties of composite IBC

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROSTATICS –

Part 4-11: Standard test methods for specific applications – Testing of electrostatic properties of composite IBC

FOREWORD

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International Standard IEC 61340-4-11 has been prepared by IEC technical committee 101: Electrostatics.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

The National Committees are requested to note that for this document the stability date is 20XX..

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

INTRODUCTION

Rigid Intermediate Bulk Containers (RIBC), including composite IBC, are widely used for storage, transportation and handling of liquids.

Only composite IBC are considered in this part of IEC 61340. The detailed definition of composite IBC is specified in clause 6.5.1.3.4 of the Reference [1][1]. Composite IBC with plastic inner receptacles comprise a rigid outer casing surrounding a plastic inner receptacle, together with appropriate service and structural equipment. The assembled outer casing and inner receptacle form an integral unit for filling, storage, transportation and emptying.

The inner receptacle is not intended to perform a containment function without its outer casing. A “rigid” inner receptacle is a receptacle which retains its general shape when empty without closures in place and without benefit of the outer casing. Any inner receptacle that is not “rigid” is considered to be “flexible” (see paragraph 6.5.5.4.2 of Reference[1]).

Usually such a receptacle is made of HDPE (High Density Poly Ethylene) which shows a good chemical resistance to various liquids. The volume is usually between 0,5 m^3 and 1,3 m^3 and is typically 1 m^3.

HDPE is an electrically insulating material which can become electrostatically charged. Often the liquid inserted into a composite IBC is also electrically insulating. High electrostatic charges can occur during filling and emptying processes, and remain for a long period of time. An ignition hazard can occur which is why electrostatically unprotected composite IBC are not permitted to be used in hazardous areas.

Hazardous areas require the use of electrostatic protected IBC.

[1] Numbers in square brackets refer to the Bibliography

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Scope

This part of IEC 61340 specifies the electrostatic testing, design and safe use requirements for composite intermediate bulk containers (IBC) intended for use in hazardous areas.

Composite IBC are often filled with flammable liquids which can create an explosive atmosphere in the inner receptacle. The design requirements for composite IBC intended for such use are defined in 7.3.4.5 of IEC TS 60079-32-1:2013.

The test procedures described in this document can be used by manufacturers, suppliers and product users for product qualification and compliance verification of new and reconditioned composite IBC. Additionally the requirements of this standard may be used for testing the electrostatic properties of composite IBC, independent of any inspection periods.

Precautions regarding the use of composite IBC (e.g., stirring, cleaning etc.) are defined in 7.3.4.5 of IEC TS 60079-32-1:2013.

Compliance with the requirements of this document does not mitigate the need for full risk assessment.

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.

IEC TS 60079-32-1:2013 *Explosive atmospheres - Part 32-1: Electrostatic hazards, guidance +AMD1:2017*

IEC 60079-32-2:2015 *Explosive atmospheres - Part 32-2: Electrostatic hazard – Tests*

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

ISO 48-4:2018, *Rubber, vulcanized or thermoplastic - Determination of hardness - Part 4: Indentation hardness by durometer method (Shore hardness)*

Terms and definitions

For the purposes of this document, the terms and definitions of IEC/TS 60079-32-1:2013 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
reconditioning
refurbishment of a composite IBC using various processes to make it ready for re-use without any additional restrictions regarding its intended use

Note to entry:
Reconditioning refers to the Routine maintenance of rigid IBCs (e.g. cleaning of IBC), Remanufactured IBC or Repaired IBC as defined in clause 1.2.1 of Reference [2]

3.2
rebottling
replacement of the inner receptacle of a used composite IBC by a new one

Note 1 to entry: Inner receptacle is also known as bottle.
Note 2 to entry: Rebottling can be done under the regime of Repaired IBC as defined in clause 1.2.1 of Reference [2]

Electrical resistance measurements

4.1 Atmosphere for conditioning and testing

Unless otherwise agreed, the atmosphere for conditioning and testing for laboratory evaluation and acceptance testing shall be (23 ± 2) °C and (25 ± 5) % relative humidity, and the conditioning time prior to testing shall be at least 24 h.

Compliance verification testing is commonly performed under prevailing operational conditions of temperature and relative humidity. If compliance verification testing is done outside of normal operations, in a separate laboratory for example, temperature and relative humidity shall either be as specified above, or as typically found in normal operations. The temperature and relative humidity at the time of testing, and during any conditioning period, shall be recorded with the test results.

4.2 Apparatus

4.2.1 Instrumentation for measuring surface resistance and resistance to earth

4.2.1.1 General

Resistance measuring apparatus may consist of either a DC power supply and ammeter, or an integrated instrument (ohmmeter).

With some instrumentation, either one of the measuring terminals can be connected to earth. However, in some cases, it is important to only connect the correctly designated terminal to earth. This is an important consideration if the earth bonding point is connected to earth when measurements are made.

WARNING – The procedures and equipment described in this document can expose personnel to hazardous electrical conditions. Users of this document are responsible for selecting equipment that complies with applicable laws and regulatory codes. Test procedures shall not be carried out in the presence of powders, liquids or gases that can form explosive atmospheres. Users of this document are encouraged to carry out proper risk assessments before undertaking any of the test procedures. Safety requirements for electrical equipment for measurements are given in IEC 61010-1 and IEC 61010-2-030.

4.2.1.2 Instrumentation for laboratory evaluation

The open circuit voltage shall be (10,0 ± 0,5) V for measurements less than 1×10^6 Ω.

The output voltage under load shall be (500 ± 25) V for measurements greater than or equal to 1×10^6 Ω.

If an ohmmeter is used, readings shall be possible at least from 1×10^3 Ω to 1×10^{13} Ω, with an accuracy of ± 10%.