SLOVENSKI STANDARD

SIST EN 61340-4-4:2006

februar 2006

Elektrostatika - 4-4. del: Standardne preskusne metode za posebne aplikacije – Elektrostatična razvrstitev prožnih vmesnih vsebnikov (FIBC) - Preskusne metode in zahteve (IEC 61340-4-4:2005)

Electrostatics – Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC) (IEC 61340-4-4:2005)

ICS 17.220.01; 55.180.99

Referenčna številka
SIST EN 61340-4-4:2006(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61340-4-4

November 2005

ICS 17.220.99; 29.020; 55.080

English version

Electrostatics
Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)
(IEC 61340-4-4:2005)

Electrostatique
Partie 4-4: Méthodes d'essai normalisées pour des applications spécifiques - Classification électrostatique des grands récipients pour vrac souples (GRVS)
(CEI 61340-4-4:2005)

Elektrostatik
Teil 4-4: Normprüfverfahren für spezielle Anwendungen – Einordnung flexibler Schüttgutbehälter (FIBC) in elektrostatischer Hinsicht
(IEC 61340-4-4:2005)

This European Standard was approved by CENELEC on 2005-10-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61340-4-4:2005 E

Foreword

The text of document 101/211/FDIS, future edition 1 of IEC 61340-4-4, prepared by IEC TC 101, Electrostatics and SC 3, Performance requirements and texts for means of packaging, packages and unit loads, of ISO TC 122, Packaging, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61340-4-4 on 2005-10-01.

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)	2006-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61340-4-4:2005 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60243-1	- [1)]	Electrical strength of insulating materials - Test methods Part 1: Tests at power frequencies	EN 60243-1	1998 [2)]
IEC 60243-2	- [1)]	Part 2: Additional requirements for tests using direct voltage	EN 60243-2	2001 [2)]
ISO 21898	- [1)]	Packaging - Flexible intermediate bulk containers (FIBCs) for non-dangerous goods	-	-
ASTM E582	- [1)]	Standard test method for minimum ignition energy and quenching distance in gaseous mixtures	-	-

1) Undated reference.

2) Valid edition at date of issue.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

IEC 61340-4-4

Première édition
First edition
2005-10

Electrostatique –

Partie 4-4:
Méthodes d'essai normalisées pour des applications spécifiques – Classification électrostatique des grands récipients pour vrac souples (GRVS)

Electrostatics –

Part 4-4:
Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)

Numéro de référence
Reference number
IEC 61340-4-4:2005

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROSTATICS –

Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard IEC 61340-4-4 has been prepared by IEC technical committee 101: Electrostatics, and ISO SC3: Performance requirements and tests for means of packaging, packages and unit loads, of ISO technical committee 122: Packaging.

It is published as a double logo standard.

The text of this standard is based on the following documents:

FDIS	Report on voting
101/211/FDIS	101/212/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 11 P members out of 11 having cast a vote.

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

IEC 61340 consists of the following parts, under the general title *Electrostatics:*

Part 1: Guide to the principle of electrostatic phenomena [1],

Part 2: Measurement methods

Part 3: Methods for simulation of electrostatic effects

Part 4: Standard test methods for specific applications

Part 5: Protection of electronic devices from electrostatic phenomena

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

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

1 Under consideration.

INTRODUCTION

Flexible intermediate bulk containers (FIBC) are widely used for the storage, transportation and handling of powdered, flaked or granular material. Typically, they are constructed from woven polypropylene fabric in the form of cubic bags of about 1 m^3 volume. The fabric used may be a single layer, a multi-layer laminate, or a coated fabric. Untreated polypropylene is a good electrical insulator, as is often the case with the products placed in FIBC. There is ample opportunity for the generation of electrostatic charge during filling and emptying operations and in unprotected FIBC high levels of charge can quickly build up. In such cases electrostatic discharges are inevitable and can be a severe problem when FIBC are used in flammable environments.

A flammable environment can be generated when handling fine powders that create dust clouds or thin layers of powder, both of which can be ignited by electrostatic discharges. A flammable environment can also be generated when using gases or volatile solvents. In these industrial situations there is clearly a need to eliminate incendive electrostatic discharges.

As with any industrial equipment, a thorough risk assessment should always be conducted before using FIBC in potentially hazardous situations. This International Standard describes test methods that can be used by manufacturers, specifiers and end-users as part of a risk assessment of any FIBC intended for use within a flammable or explosive environment. However, it does not include procedures for evaluating the specific risks of electrostatic discharges arising from products within FIBC, e.g. cone discharges, or from equipment used near FIBC.

CAUTION: The test methods specified in this standard involve the use of high voltage power supplies and flammable gases that may present hazards if handled incorrectly, particularly by unqualified or inexperienced personnel. Users of this standard are encouraged to carry out proper risk assessments and pay due regard to local regulations before undertaking any of the test procedures.

ELECTROSTATICS –

Part 4-4: Standard test methods for specific applications – Electrostatic classification of flexible intermediate bulk containers (FIBC)

1 Scope

This part of IEC 61340 describes procedures for evaluating the ignition risk presented by electrostatic discharges from FIBC to flammable or explosive environments.

The requirements of this standard are applicable to all types of FIBC, tested as manufactured, prior to usage, intended for use without liners in flammable or explosive environments with minimum ignition energy of more than 0,14 mJ, and where the charging currents do not exceed 3,0 µA.

NOTE 0,14 mJ is the minimum ignition energy normally quoted for methanol. Although more sensitive materials exist, methanol has the lowest minimum ignition energy of any material that is likely to be present when FIBC are emptied. 3,0 µA is the highest charging current likely to be found in common industrial processes. This combination of minimum ignition energy and charging current represents the most severe conditions that might be expected in practice.

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

The test methods included in this standard may be used in association with other performance requirements, for example when a risk assessment has shown the minimum ignition energy of concern is less than 0,14 mJ or charging currents greater than 3,0 µA are present.

2 Normative references

The following referenced documents are indispensable for the application 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 60243-1, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60243-2, *Electric strength of insulating materials – Test methods – Part 2: Additional requirements for tests using direct voltage*

ISO 21898, *Packaging – Flexible intermediate bulk containers (FIBCs) for non-dangerous goods*

ASTM E582, *Standard test method for minimum ignition energy and quenching distance in gaseous mixtures*