SLOVENSKI PREDSTANDARD

oSIST prEN ISO 21898:2005

april 2005

Embalaža - Prožni vsebniki IBC za nenevarne snovi (ISO 21898:2004)

Packaging - Flexible intermediate bulk containers (FIBCs) for non-dangerous goods (ISO 21898:2004)

ICS 55.180.99

Referenčna številka
oSIST prEN ISO 21898:2005(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

FINAL DRAFT
prEN ISO 21898

February 2005

ICS 55.180.99

English version

Packaging - Flexible intermediate bulk containers (FIBCs) for non-dangerous goods (ISO 21898:2004)

Emballages - Grands récipients vrac souples (GRVS) pour matières non dangereuses (ISO 21898:2004)

Verpackung - Flexible Großpackmittel (FIBC) für nicht-gefährliche Güter (ISO 21898:2004)

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 261.

If this draft becomes a European Standard, CEN 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.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies 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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. prEN ISO 21898:2005: E

Foreword

The text of the International Standard from Technical Committee ISO/TC 122 "Packaging" of the International Organization for Standardization (ISO) has been taken over as a European Standard by Technical Committee CEN/TC 261 "Packaging", the secretariat of which is held by AFNOR.

This document is currently submitted to the Unique Acceptance Procedure.

Endorsement notice

The text of ISO 21898:2004 has been approved by CEN as prEN ISO 21898:2005 without any modifications.

INTERNATIONAL STANDARD

ISO 21898

First edition
2004-07-01

Packaging — Flexible intermediate bulk containers (FIBCs) for non-dangerous goods

Emballages — Grands récipients vrac souples (GRVS) pour matières non dangereuses

Reference number
ISO 21898:2004(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 21898 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests for means of packaging, packages and unit loads*.

Packaging — Flexible intermediate bulk containers (FIBCs) for non-dangerous goods

1 Scope

This International Standard specifies materials, construction and design requirements, type test, certification and marking requirements for flexible intermediate bulk containers (FIBCs) intended to contain non-dangerous solid materials in powder, granular or paste form, and designed to be lifted from above by integral or detachable devices.

Guidance is also provided on the selection and safe usage of FIBCs.

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.

ISO 12048, *Packaging — Complete, filled transport packages — Compression and stacking tests using a compression tester*

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

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

3.1 General

3.1.1
flexible intermediate bulk container
FIBC
intermediate bulk container having the body made of flexible material such as woven fabric, plastics film or paper, designed to be in contact with the contents, either directly or through an inner liner, and collapsible when empty

3.1.2
heavy-duty reusable flexible intermediate bulk container
FIBC designed and intended to be used for a multitude of fillings and discharges, and both factory and field repairable in such a way that the tensile strength across a repair is at least as great as that of the original

3.1.3
standard-duty reusable flexible intermediate bulk container
FIBC designed and intended to be used for a limited number of fillings and discharges

NOTE 1 An FIBC of this category cannot be reused if damaged, i.e. it is not repairable.

NOTE 2 The replacement of a removable inner liner is not considered a repair.

3.1.4
single-trip flexible intermediate bulk container
FIBC designed and intended to be used for one filling only

NOTE An FIBC of this category cannot be reused. Neither replacement of an inner liner nor repair of the FIBC is relevant to this category.

3.1.5
FIBC type
FIBCs of like design, manufactured using like materials and methods of construction (giving at least equal performance) to the same nominal cross-sectional dimensions

NOTE 1 Within a type, the circumference may be increased by up to 10 % by comparison with samples passing a type test, provided the same geometry is maintained. Where the type has a base discharge spout, smaller diameter discharge spouts of like design may be used.

NOTE 2 The presence or absence of an inner liner does not constitute a change of type.

3.1.6
safe working load
SWL
maximum load which the FIBC may carry in service, as certified

3.1.7
safety factor
SF
integer quotient between the final test load in the cyclic top lift test and the SWL value rounded down

NOTE 1 Safety factors may be illustrated as follows (see also B.3.3):

	Example 1	Example 2
Designated SWL	500 kg	500 kg
Final load, cyclic test	2 400 kgf	2 600 kgf
Quotient	4,8	5,2
Integer quotient, rounded down	4	5

NOTE 2 The results in Example 1 above indicate a single-trip FIBC which does not meet the requirements of this International Standard, whilst those in Example 2 indicate a single-trip FIBC which meets the requirements.

3.1.8
lifting device
integral and/or fixed lifting devices which form part of the FIBC and are tested with it

NOTE Detachable lifting devices are regarded as lifting tools.

3.2 FIBC parts

3.2.1
walls
tube of one or more layers, seamless or made out of one or more panels joined together

3.2.2
base
that part of the FIBC which is connected to or integral with the walls and forms the base of the standing FIBC

3.2.3
plain base
base without an opening

3.2.4
base with opening
flat, conical or in another way formed base with an opening

3.2.5
full open base
extensions to the wall(s), forming the base of the FIBC after closing

3.2.6
top
upper part of the FIBC, excluding handling devices, forming the top of the FIBC after closing

3.2.7
body
walls and base of the FIBC

3.2.8
inner liner
integral or removable container which fits into the FIBC

3.3 Operating devices

3.3.1
filling opening
opening for filling the FIBC

3.3.2
filling spout
tube-shaped part at the top for filling the FIBC

3.3.3
filling slit
slit-shaped opening at the top for filling the FIBC

3.3.4
outlet
opening for discharging the FIBC

3.3.5
discharging spout
tube-shaped part at the base for discharging the FIBC

3.3.6
closing parts
webbing, cords, straps, etc. which are used to close the filling and discharging devices

3.4 Handling devices

3.4.1
supporting and lifting devices
webbings, loops, ropes, eyes, frames or other devices formed from a continuation of the walls of the FIBC, which are integral or detachable, and are used to support or lift the FIBC

3.4.2
four-point lifting
four lifting devices used simultaneously to lift the FIBC

3.4.3
two-point lifting
two lifting devices used simultaneously to lift the FIBC

3.4.4
one-point lifting
one lifting device, or one or more lifting devices brought to one point for lifting

3.5
safety and protection devices
valves, ventilation devices and additional parts which protect the filling, discharging or handling devices

3.6
coated and laminated materials
materials having a surface coating or comprising two or more layers laminated together to protect the contents of the filled FIBC or to protect the environment against the effects of leakage of the contents

3.7 Special treatments

3.7.1
stabilization
modification of the FIBC materials to give better resistance against weathering and ageing

EXAMPLE The addition of an ultraviolet (UV) absorber and/or an antioxidant.

3.7.2
electrostatic conductivity treatment
treatment for modifying the electrostatic behaviour of the FIBC

3.7.3
insect-repellent treatment
treatment for increasing the ability of the FIBC to protect itself and/or its contents against insect attack

3.7.4
flame-retardant treatment
treatment to impart flame resistance to the FIBC

4 Materials, construction and design

4.1 Materials

All categories of FIBC shall be manufactured from flexible materials covered by a written specification. The FIBC manufacturer shall have an authorized statement of conformity for each separate batch of materials.

The properties of the materials may be modified by additives to improve the resistance of the materials against, for example, degradation by heat and sunlight, and to reduce the effect of static electricity.

All materials shall be tested for breaking force in accordance with the appropriate International Standards, and shall be capable of retaining at least 85 % of the original breaking force after being completely immersed in water for (25 ± 1) h. This measurement shall be taken after first drying the test specimen then, secondly, by conditioning it for (60 ± 5) min at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.

All load-bearing materials of the FIBC shall, after being tested in accordance with the test described in Annex A, retain at least 50 % of the original values of the breaking force and elongation of the materials.

Materials should be chosen and joined together in such a way that recovery is promoted.

