INTERNATIONAL STANDARD

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Packaging — Transport packaging for dangerous goods — Recycled plastics material

Emballages — Emballages de transport pour marchandises dangereuses — Matériaux plastiques recyclés

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Foreword

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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 16103 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests for means of packaging, packages and unit loads (as required by ISO/TC 122)*.

Introduction

The aim of this International Standard is to specify sufficiently the necessary controls for the use of recycled plastics materials as identified in the *United Nations Recommendations on the Transport of Dangerous Goods*, by selection into batches. Packagings produced from each batch of recycled plastics material undergo mechanical testing as in design type testing.

These Recommendations are given legal entity by the provisions of a series of modal agreements for the international transport of dangerous goods:

— the *European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)* (see [1] in the Bibliography);

— the International Civil Aviation Organization's *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (see [2] in the Bibliography);

— the *International Maritime Dangerous Goods Code* (see [3] in the Bibliography);

— the *Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)* (see [4] in the Bibliography).

The application of this International Standard needs to take account of the requirements of these international agreements and the relevant national regulations for domestic transport of dangerous goods.

Packaging — Transport packaging for dangerous goods — Recycled plastics material

1 Scope

This International Standard specifies the requirements and test methods for the production of recycled plastics materials to be used for packagings for the transport of dangerous goods. This includes guidance on the quality assurance programme.

NOTE The quality assurance programme for the production of packagings is described in ISO 16106 (see [5] in the Bibliography).

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 527-1, *Plastics — Determination of tensile properties — Part 1: General principles*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 1133, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics*

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pyknometer method and titration method*

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

ISO 16101, *Packaging — Transport packaging for dangerous goods — Plastics compatibility testing*

ISO 16104, *Packaging — Transport packaging for dangerous goods — Test methods*

United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations, ST/SG/AC. 10/1/Rev.13: United Nations, ISBN 92-1-139090-7

3 Terms and definitions

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

3.1
recycled plastics material
material recovered from used industrial packagings that has been cleaned and prepared for processing into new packagings

3.2
batch of recycled plastics materials
defined quantity, maximum 25 t, of homogeneous material with known parameters (melt flow rate, density and tensile stress at yield)

3.3
competent authority
national regulatory body or authority designated or otherwise recognized as such for any purpose in connection with the regulations specified in the Bibliography

4 General framework

The specific properties of recycled plastics material used for production of new packaging shall be assured and documented as part of a quality assurance programme. This record shall be maintained under the following headings:

a) collection of packagings;

b) incoming inspection;

c) process control;

d) final quality control;

e) mechanical testing of packagings;

f) documentation.

NOTE Where regulatory requirements apply, this may require recognition by the competent authority.

5 Requirements

5.1 Collection

5.1.1 The collection shall be restricted to industrial packagings, e.g. drums, jerricans, large packagings, and intermediate bulk containers (IBCs).

5.1.2 All packagings shall have the following characteristics:

a) have evidence of previous contents, including identification of dangerous goods;

b) be embossed with the accepted international material code symbol (see Annex A) or be identified by other means;

c) be marked with the month and year of manufacture.

5.1.3 Uncleaned packagings which are UN-marked shall

a) display the required hazard identification labels, if applicable;

b) be closed suitable for transport;

c) be empty, i.e. all residues that can be removed by the emptier have been removed using the practices commonly employed to remove residues from that type of packaging (pouring, aspirating, shaking, scraping, chipping, etc. or, if necessary, a combination of these).