

**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals**

Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 6 (b) of the provisional agenda

**Miscellaneous proposals for amendments to the Model Regulations
on the Transport of Dangerous Goods:**

Packagings, including the use of recycled plastics material

**Recycled plastic materials for dangerous goods packaging –
Information on revision of ISO 16103**

**Transmitted by the expert from Germany on behalf of the convenor of
ISO/TC/122/SC3/WG8**

I. Introduction

1. Conditions of use for recycled plastics material for transport packaging for dangerous goods is a current topic as for reasons of sustainability and increasing numbers of customer requests for design type approvals and packagings produced from recycling materials.

2. In reference to the discussion of working document *ST/SG/AC.10/C.3/2022/29 – Use of recycled plastics material (Belgium)* at the 60th session, the Sub-Committee invited the ISO working group to report on the status of the revision of standard ISO 16103 “*Packaging – Transport packaging for dangerous goods – Conditions of use for recycled plastics material*” to ensure that possible amendments to the *Model Regulations* could be considered in an efficient way (see report of the 60th session, ST/SG/AC.10/C.3/120, para. 80f.).

3. Standard ISO 16103 is currently under revision by ISO/TC/122/SC3/WG8. The standard describes requirements for recycled plastics material for use in dangerous goods packaging: quality characteristics that are essential and must be controlled for the dangerous goods sector are the grade purity of the polymers and the mechanical properties. However, contaminants from previous use that may pose a risk during the manufacture and use of the packaging are addressed as well as the aging condition of the material.

II. Content of the standard

4. The quality of the collection streams has a significant influence on the homogeneity and quality of the recycled plastic and is therefore also subject to different requirements for incoming inspection. For proving the required quality of recycled plastics material for the use in dangerous goods packaging there are two possible routes:

- either well-defined suitable streams e.g. pure industrial recyclate/closed loops material (“defined source (DS)”); or
- batches of less well-defined material (“other source (OS)”) which shall be tested for suitability.

5. For this purpose, there are on one hand requirements for the quality of recycled material (depending on origin and on the properties), and on the other hand requirements for quality assurance of the packaging made from recycled material. It is also necessary to consider whether the recycled plastic is in direct contact with (liquid) dangerous goods, or

for example, if it is part of a multilayer composite with virgin material in direct contact with liquid dangerous goods.

6. Data Quality Levels (DQL) are introduced based on:
 - general information; and
 - on tested properties (melt flow rate, ash content, water content, density, melting point, tensile properties, impact and chemical resistance and oxygen induction time) for which the respective standards are applied. Chemical compatibility is only considered for liquids.
7. Obviously, for “other source (OS)” material there are more tests required than for “defined source (DS)” material.
8. Products (packagings) shall undergo the design type tests as defined in standard ISO 16495 on the basis of UN Recommendations in chapter 6.

III. State of revision and outlook

9. The status of the revision is the Committee Draft (CD). ISO/CD 16103 is currently published for consultation and comments via the national standardization bodies.

10. Deadline for the national standardisation bodies is 10 December 2024. Subsequently, ISO WG8 will evaluate and incorporate comments received to ensure publication of the Committee Draft for Voting (CDV) or the Final Draft International Standard (FDIS) by August 2025 at the latest.
