



**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****Sixty-first session**

Geneva, 28 November-6 December 2022

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****Amending the definition of recycled plastics material****Transmitted by the expert from Belgium*****Introduction**

1. During previous sessions of this Sub-Committee, Belgium has already presented several documents that explained the relevance to consider amendments to the current provisions on the use of recycled plastics material for the production of dangerous goods packagings. At the last sixtieth session, Belgium presented document ST/SG/AC.10/C.3/2022/29 to the Sub-Committee. In this document the general principles of the International Organization for Standardization (ISO) working group for the revision of standard ISO 16103:2005 “Packaging – Transport packages for dangerous goods — Recycled plastics material” were described. Additionally, it was proposed to have a lunch time working group on the subject of recycled plastics material to discuss alignment between the ISO standard and the Model Regulations.

2. Based on the discussions during the lunch time working group and a debriefing of the secretary of the ISO working group on the status of the work of this group, the following was noted in the report ST/SG/AC.10/C.3/120 of the sixtieth session of this Sub-Committee:

“(a) Most experts acknowledged the need to carefully consider the use of recycled plastics material for packagings for the safe transport of dangerous goods worldwide by enhancing and modernizing the Model Regulations. It was suggested to promote the use of recycled plastics material by evaluating relevant standards and practices with a view to modernizing the current Model Regulations to better reflect technical progress of recycling of polymers to date. It was also proposed to broaden the scope for the use of recycled plastics material by providing in the Model Regulations a framework and description of new provisions linked to the use of recycled plastics material. Several delegates shared their experiences and believed more information, practical examples and data was needed from the packaging and polymer industries

* A/75/6 (Sect.20), para. 20.51

that already use innovative technologies to produce recycled plastics material for packagings not intended to carry dangerous goods.

(b) On the ISO working group reviewing standard ISO 16103:2005 it was suggested that the Sub-Committee work in parallel to anticipate, in an efficient way, possible amendments in the Model Regulations. Thus, the Sub-Committee should regularly be updated on the status of the work of the ISO working group. It was acknowledged that such detailed requirements and specifications on the use of recycled plastics material currently already exist to ensure the goal of economic efficiency, quality, and most important safety.”

3. During and following the sixtieth session of this Sub-Committee, Belgium was involved in developing proposals to amend the definition of recycled plastics material in 1.2.1. Belgium is of the opinion that this is a very good first step towards modernizing the current prescriptions on the use of recycled material in the Model Regulations. Additionally, these proposals take into account current practices and technical progress for recycling of polymers. And these proposals are also in line with how the work of the ISO working group is progressing.

4. The first proposal differentiates between two ways in which plastics material can be obtained for recycling. Either industrial packagings from a well-known source and use (i.e. a closed loop system) or packagings from which the source and use are less well known (i.e. open source material), for example household waste. Given the fact that the source, the use and the possible impacts on the packagings and Intermediate Bulk Containers (IBCs) in a closed loop system are very well known, the source material is of a better and more consistent quality than the material derived from open source systems. As such, the testing of the source material required for the closed loop system can be less tremendous as compared to material obtained from an open source and the packagings or IBCs produced from such material can also be tested as is done for packagings or IBCs manufactured from virgin material. On the other hand, the source material and the packagings or IBCs produced from open source material would need to be tested as is currently required for recycled plastics material.

5. The second proposal is presented as an alternative to the first proposal. In this proposal smaller changes are proposed, but these would also lead to the allowance of recycled plastics material other than material originating from used industrial packagings. In this proposal it would still be required to do all the testing for packagings and IBCs manufactured from recycled plastics material according to the current testing regimes.

6. During the discussions on these proposals, it was also remarked that competent authorities give a different interpretation to the text on standard ISO 16103:2005 and more specifically to the wording “to be followed”. Given the fact that it is written in a note, Belgium believes that application of this standard is not obligatory even though the text reads “to be followed”. In addition, the current version of the standard is based on experience from twenty years ago with drums and jerrycans only and, its prescriptions cannot be applied as such to other types of packagings or IBCs. It especially does not provide any prescriptions on the use of recycled plastics material from open sources. Thus, it is proposed to clarify that this standard can be used as guidance and is not considered obligatory by changing the wording “to be followed” to “which may be followed”.

7. The proposals have been completed with references to IBCs, which Belgium believes to be an overlooked additional change to those amendments adopted during the previous biennium which allow for recycled plastics material to be used for the manufacturing of IBCs.

8. In the note on standard ISO 16103:2005 reference is made to large packagings. Belgium would like to know the opinion of the Sub-Committee if references to large packagings should also be included in the definition of recycled plastics material, similar to what has been proposed as described in paragraph 7 of this working document on IBCs.

9. Belgium also believes that the text on the use of dynamic compression testing for performing the stacking test is non-obligatory text and should be considered as clarifying text. Therefore, this text has been put in a note.

10. To modernize the prescriptions on the use of recycled material in the Model Regulations, taking into account the current technological development and the work of the

ISO working group on the revision of standard ISO 16103:2005, Belgium proposes to amend the definition of recycled plastics material. The Sub-Committee is invited to consider one of the following proposals.

Proposal 1

11. It is proposed to amend in 1.2.1 the definition of recycled plastics material as follows (new text is underlined, deleted text stricken-through):

~~“Recycled plastics material means material recovered from used industrial packagings that has been cleaned and prepared for processing into new packagings. The specific properties of the recycled material used for production of new packagings shall be assured and documented regularly as part of a quality assurance programme recognized by the competent authority. recovered plastics material that has been pre-sorted and prepared for processing into new packagings or IBCs. The plastics material can be recovered through one of the following recycling processes:~~

(a) Recycling of used industrial packagings or IBCs

The specific properties of the recycled material from this process shall be assured and documented regularly as part of a quality assurance programme recognized by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, and tensile yield strength, consistent with the material specifications of the design type manufactured from such recycled material. Packagings or IBCs manufactured from this recycled material are subject to test methods and criteria equivalent to that for packagings or IBCs manufactured from virgin material.

(b) Recycling of used plastics products, other than used industrial packagings or IBCs

The specific properties of the recycled material from this process shall be assured and documented regularly as part of a quality assurance programme recognized by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, tensile yield strength and other properties depending on the used plastics products, consistent with that the material specifications of the design type manufactured from such recycled material. This necessarily includes knowledge about the ~~packaging material~~ used plastics products from which the recycled plastics have been derived, as well as awareness of the prior contents of those ~~packagings~~ plastics products if those prior contents might reduce the capability of new packagings or IBCs produced using that material. In addition, the packaging or IBC manufacturer's quality assurance programme under 6.1.1.4 or 6.5.4.1 shall include performance of the appropriate mechanical design type tests in 6.1.5 or 6.5.6 on packagings or IBCs manufactured from each batch of recycled plastics material.

NOTE 1: *In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing;*

NOTE 2: *ISO 16103:2005 “Packaging – Transport packages for dangerous goods – Recycled plastics material”, provides additional guidance on procedures ~~to be followed~~ which may be followed in approving the use of recycled plastics material. These guidelines have been developed based on the experience of the manufacturing of drums and jerricans from recycled plastics material and as such may need to be adapted for other types of packagings, IBCs and large packagings made of recycled plastics material.”*

Proposal 2

12. It is proposed to amend in 1.2.1 the definition of recycled plastics material as follows (new text is underlined, deleted text stricken-through):

“Recycled plastics material means material recovered from used ~~industrial packagings~~ plastics products that has been ~~cleaned~~ pre-sorted and prepared for processing into new packagings or IBCs. The specific properties of the recycled material used for production of new packagings or IBCs shall be assured and documented regularly as part of a quality assurance programme recognized by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, and tensile yield strength, consistent with ~~that the~~ the material specifications of the design type manufactured from such recycled material. This necessarily includes knowledge about the ~~packaging material used~~ plastics products from which the recycled plastics have been derived, as well as awareness of the prior contents of the plastics products if those prior contents might reduce the capability of new packagings or IBCs produced using that material. In addition, the packaging or IBC manufacturer's quality assurance programme under 6.1.1.4 or 6.5.4.1 shall include performance of the appropriate mechanical design type tests in 6.1.5 or 6.5.6 on packagings or IBCs manufactured from each batch of recycled plastics material.

NOTE 1: *In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing;*

NOTE 2: *ISO 16103:2005 “Packaging – Transport packages for dangerous goods – Recycled plastics material”, provides additional guidance on procedures ~~to be followed~~ which may be followed in approving the use of recycled plastics material. These guidelines have been developed based on the experience of the manufacturing of drums and jerricans from recycled plastics material and as such may need to be adapted for other types of packagings, IBCs and large packagings made of recycled plastics material.”*