

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

Harmonisation of the requirement “structurally serviceable”

Transmitted by the expert from Germany and the European Chemical Industry Council (CEFIC)

Introduction

1. Special requirements to be met by cargo transport units for the transport of substances of Class 1 are set forth in 7.1.3.3 of the UN Model Regulations. 7.1.3.3 also requires that freight containers, road vehicles and rail wagons be structurally serviceable. Structurally serviceable is defined in 7.1.3.3.1 (b): “Structurally serviceable means that the freight container, road vehicle or rail wagon is free from major defects in its structural components, e.g. top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container.” It further includes a quantitative specification of defects, i.e. there must be no dents or bends greater than 19 mm in depth and the number of splices inserted in case of a repair is limited to one or two depending on the structural component.

2. In the IMDG Code, these requirements to be met by cargo transport units for Class 1, except for division 1.4, have been implemented accordingly (7.1.2 of the IMDG Code); in European land transport, corresponding structural serviceability requirements have been implemented generally for all large containers, irrespective of the class transported (7.1.4 of RID/ADR). Thus, the application of structural serviceability requirements is not harmonised across the different modes of transport, with the sole exception of bulk containers or flexible bulk containers, the requirements in 4.3.1.15 and 4.3.1.16 of the UN Model Regulations, which are included in the IMDG Code and in RID/ADR accordingly. The lack of harmonisation has already been the subject of an informal document INF.15 prepared by CEFIC for the Joint Meeting RID/ADR/ADN in September 2017¹.

3. Therefore, from the perspective of the UN Model Regulations, in particular the following questions arise:

- (a) Why do the requirements in 7.1.3.3.1 only apply to Class 1?
- (b) What is the technical reasoning behind the 19 mm limit for dents and bends?
- (c) What is the technical reasoning behind the reference to splices inserted in case of a repair?

¹ <http://www.unece.org/trans/main/dgdb/ac1/inf190917.html>

Background

4. According to information from the Secretariat, the limitation of applicability to Class 1 has historical reasons: before the TDG Sub-Committee, there was a TDG Committee with two sub-groups, one of which was the group of experts on explosive substances. This group developed special recommendations for Class 1 which, in 1981, were incorporated in Part 4 of the UN Recommendations applicable at that time.

5. The 19 mm may have been taken from a former standard of the IICL (International Institute of Container Lessors); but the 19 mm do not appear in the current IICL-6 standard². This standard was not a safety standard but a quality standard. Furthermore, the former requirements on the limitation of the number of splices in a structural member are no longer contained in the actual repair standards. Containers which would be repaired by splices are no longer in use, welded inserts or patches are used instead of splices. The repairs are carried out in accordance with the relevant repair and inspection standard³.

6. In the meantime, the IMO has also been dealing with the assessment of damage to containers. The IMO publishes "Recommendations on harmonized interpretation and implementation of the International Convention for Safe Containers, 1972". These Recommendations have already been updated several times and also include guidance on serious structural deficiencies in containers (Annex III of CSC). The corresponding Circular CSC.1/Circ.138/Rev.1 is provided in informal document INF.13/Add.1. It also includes criteria on the assessment of damage to various structural components. The criteria were developed to give guidance to authorized control officers to make immediate out-of-service determinations or impose transport restrictions.

Conclusion

7. All cargo transport units used for the transport of dangerous goods should be structurally serviceable. The text referring to structurally serviceable should be moved from the special provisions applicable to the transport of explosives to the general provisions in 7.1.1. The definition of structurally serviceable should be amended taking into account the technical development during recent years: References to dents or bends greater than 19 mm in depth and to splices should be deleted. Furthermore, relevant text on the distortion of the over-all configuration and damage to lifting attachments or handling equipment interface features (see 4.3.1.15) should be added.

8. All cargo transport units to be loaded with dangerous goods should be subject to an appropriate visual inspection prior to loading. This inspection should also include a check of possible residues of previous cargo and that the interior is free from protrusions, as these are factors which may influence the integrity of the packages to be loaded inside. For freight containers, reference to the International Convention for Safe Containers (CSC) and to the information in Circular CSC.1/Circ.138/Rev.1 should be incorporated to provide guidance on the assessment of damage to various structural components. These criteria on the assessment of damage to various structural components may also be used to assess deterioration including a differentiation between normal wear and wear to such an extent which would lead to a major defect.

² Guide for Container Equipment Inspection, 6th edition

³ See UCIRC - Unified Container Inspection & Repair Criteria

9. During the preparation of the proposal, it was also considered whether the compliance with the International Convention for Safe Containers (CSC) should be included as a mandatory requirement for freight containers. However, as the Convention itself is already a mandatory instrument, such a reference would not change the current legal situation.

10. In accordance with the Sub-Committee's advice from the fifty-third session, the experts from Germany and CEFIC are willing to prepare a formal document for the next meeting based on the following proposal.

Proposal

11. Amend 7.1.1.6 to read as follows (deleted text is struck through; new text is underlined):

“7.1.1.6 The interior and ~~the~~ exterior of a cargo transport unit shall be inspected prior to loading to ensure that there is no damage that could affect its integrity or that of the packages to be loaded in it ~~and to ensure that it is free of any residue of previous cargo.~~ Freight containers, road vehicles or rail wagons shall be checked to be structurally serviceable and that the interior floor and walls are free from protrusions.

Structurally serviceable means that the freight container, road vehicle or rail wagon is free from major defects in its structural components, e.g. top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container. Major defects include:

- (a) Bends, cracks or breaks in structural or supporting members and any damage to service or operational equipment that affect the integrity of the container;
- (b) Door hinges and hardware that are seized, twisted, broken, missing or otherwise inoperative;
- (c) Gaskets and seals that do not seal; or
- (d) For freight containers, any distortion of the over-all configuration and any damage to lifting attachments or handling equipment interface features great enough to prevent proper alignment of handling equipment, mounting and securing on chassis, vehicle or wagon, or insertion into ships' cells.

NOTE: When loading freight containers, further guidance related to the inspection and examination prior to loading of containers in accordance with the International Convention for Safe Containers (CSC), 1972, as amended, can be found in the Revised Recommendations on Harmonized Interpretation and Implementation of the CSC, 1972, as amended, see IMO Circular CSC.1/Circ.138/Rev.1.”

Consequential amendments:

12. Amend 4.3.1.15 to read as follows (deleted text is struck through; new text is underlined):

“4.3.1.15 Before a bulk container is filled it shall be visually examined to ensure it is structurally serviceable, its interior walls, ceiling and floors are free from protrusions or damage and that any inner liners or substance retaining equipment are free from rips, tears or any damage that would compromise its cargo retention capabilities. Structurally serviceable means the bulk container does not have major defects in its structural components, such as top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container. Major defects include:

- (a) Bends, cracks or breaks in the structural or supporting members and that affect the integrity of the container; any damage to service or operational equipment that affect the integrity of the container; More than one splice or an improper splice (such as a lapped splice) in top or bottom end rails or door headers;
 - ~~(c) More than two splices in any one top or bottom side rail;~~
 - ~~(d) Any splice in a door sill or corner post;~~
 - (eb) Door hinges and hardware that are seized, twisted, broken, missing, or otherwise inoperative;
 - (fc) Gaskets and seals that do not seal; or
 - (gd) Any distortion of the overall configuration and any damage to lifting attachments or handling equipment interface features great enough to prevent proper alignment of handling equipment, mounting and securing chassis or vehicle, or insertion into ships' cells;_
 - ~~(h) Any damage to lifting attachments or handling equipment interface features; or~~
 - ~~(i) Any damage to service or operational equipment.”~~
13. Delete 7.1.3.3.1 and renumber 7.1.3.3.2 accordingly.
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