

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

4 June 2019

### **Sub-Committee of Experts on the Transport of Dangerous Goods Fifty-fifth session**

Geneva, 1-5 July 2019

Item 6 (c) of the provisional agenda

### **Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: fibre-reinforced plastics (FRP) portable tanks**

## **Inclusion of new Chapter 6.9.3 in the UN Model Regulations on the Transport of Dangerous Goods: “Requirements to the structure, manufacture, inspection and testing of portable tanks with polymeric composite materials (PCM) vessel intended for carriage of non-refrigerated liquefied gas of maximum permissible working pressure 20.0 bar and less”**

### **Submitted by the Russian Federation**

#### **General**

1. Multimodal transport of UN Portable Tank, including tank containers for carriage of non-refrigerated liquefied gas play a crucial part in global transport sector.
2. During the fifty-second session of TDG Sub-Committee the Russian Federation submitted document ST/SG/AC.10/2017/40 on new Chapter 6.9 “Provisions for design, manufacture, inspection and testing of portable tanks with PCM vessel intended for transportation of substances and of categories 3, 5.1, 6.1, 6.2, 8 and 9.”
3. Herewith, in debating the UN experts noted that use of FRP to manufacture tanks may not only be used for substances of categories 3, 5.1, 6.1, 6.2, 8 and 9, but also for substances of categories 1 and 2.
4. Informal working group on fibre-reinforced plastics (FRP) portable tanks, issues of carrying substances of categories 1 and 2 were accepted for discussion.
5. Regarding the issues of category 2 substances carriage, the working group agreed to the point that transport of non-refrigerated liquefied gas of maximum permissible working pressure 20.0 bar and less may be performed in the fibre-reinforced plastics (FRP) portable tanks. However, the review of this issue was not accepted for discussion.
6. The Russian Federation reported that it had certain best practice in this respect and it

#### **Requested actions**

7. All the above considered, the Russian Federation invites the delegates of the Sub-Committee to:
  - Review the proposed draft of Sub-chapter 6.9.3 “Requirements to the design, manufacture, inspection and testing of portable tanks with PCM vessel intended for

carriage of non-refrigerated liquefied gas of maximum permissible working pressure 20.0 bar and less”;

- Invite experts from states concerned to contribute to the development of new Sub-chapter 6.9.3, given that industry and operators are looking forward to new safe, environmentally friendly and cost-effective portable tanks for the transport of non-refrigerated liquefied gas.

## Appendix A

### SUB-CHAPTER 6.9.3

6.9.3 Requirements to the design, manufacture, inspection and testing of portable tanks with PCM vessel intended for carriage of non-refrigerated liquefied gas of maximum permissible working pressure 20.0 bar and less

#### 6.9.3.1 Definitions

For the purposes of the section definitions in 6.9.2 shall be applied as well as those in 6.7.3 with the exception of definitions related to metals (“Fine grain steel”, “Mild steel” and “Reference steel”) to manufacture the portable tank vessel.

Additionally:

Liner - internal gas-tight vessel layers made of PCM or metals.

#### 6.9.3.2 General requirements for design and manufacture

6.9.3.2.1 Requirements of 6.7.3.2 shall be, except for 6.7.3.2.1, 6.7.3.2.2 b), 6.7.3.2.4, 6.7.3.2.10, 6.7.3.2.11 and 6.7.3.2.12, concerning the tank hull structures from metals and requirements of 6.9.2.2 as well.

#### 6.9.3.3 Criteria for calculation

6.9.3.3.1 Requirements of 6.9.2.3 shall be applied, exception being 6.9.2.3.2.

Additionally:

6.9.3.3.2 The hulls shall be designed and manufactured to withstand the test pressure exceeding at least 1,3 times the design pressure. In the design of the hull structures, MAWP minimum values shall be taken into account, specified in the Instructions for portable tanks T50 contained in 4.2.5.2.6 for each non-refrigerated liquefied gas to be carried. Requirements to the minimum wall thickness of such hulls contained in 6.9.2.4 shall be considered.

#### 6.9.3.4 Minimum hull wall/bulkhead thickness

6.9.3.4.1 Minimum hull wall/bulkhead thickness shall be determined in accordance with 6.9.2.4.

#### 6.9.3.5 Components of equipment for portable tanks with PCM vessel

6.9.3.5.1 Arrangements for tank loading, vapors and gases, bottom openings, safety devices, instrumentation and gauges and also portable tank supports, frameworks, lifting and tie-down attachments shall comply with 6.7.3.5-6.7.3.13.

#### 6.9.3.6 Design type approval

6.9.3.6.1 Design type approval of portable tanks with PCM vessel shall be performed in accordance with 6.7.3.14 and 6.9.2.6.2.

#### 6.9.3.7 Checks and tests.

6.9.3.7.1 Checks and tests shall be carried out in accordance with 6.7.3.15 and 6.9.2.7

#### 6.9.3.8 Marking

6.9.3.8.1 Requirements of 6.7.3.16.1 shall be applied except for f) ii).

6.9.3.8.2 In addition, 6.7.3.16.1 f) ii) specifies the PCM brand and Specifications / Performance Specification No. for PCM manufacture.

6.9.3.8.3 Requirements of 6.7.3.16.2 shall be applied.