



**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****Fifty-fourth session**

Geneva, 26 November–4 December 2018

Item 2 (f) of the provisional agenda

**Recommendations made by the Sub-Committee on its fifty-first,
fifty-second and fifty-third sessions and pending issues:
miscellaneous pending issues****Design pressure calculations****Transmitted by the expert from the Russian Federation*****Introduction**

1. Paragraph 6.7.3.1 of the UN Recommendations on the Transport of Dangerous Goods, Model Regulations says:

“Design pressure means the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures:

- (a) The maximum effective gauge pressure allowed in the shell during filling or discharge, or*
- (b) The sum of:*
 - (i) the maximum effective gauge pressure to which the shell is designed as defined in (b) of the MAWP definition,*
 - (ii) a head pressure determined on the basis of the static forces specified in 6.7.3.2.9 but not less than 0.35 bar.”.*

2. The expert from the Russian Federation understands this to be applicable for the stand-alone vessel design pressure calculation, not for portable tanks.

* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, para. 14).

3. The design pressure calculation for the portable tank seems not to comply with 6.7.3.1.
4. Paragraph 6.7.3.2.9 defines the strength requirements for portable tanks as whole, with fastenings, and taking into account application of static forces during transportation, which are calculated basing on Maximum Permissible Gross Mass (MPGM).
5. In accordance with 6.7.3.2.9, the head pressure to be used for design pressure is calculated basing on the MPGM instead of a payload directly applied to the walls of the vessel (P impact). To our mind, this follows to the increase of shell thickness and consequently to increase of mass of vessel.
6. It is suggested to calculate the head pressure on the basis of the maximum payload but not on maximum gross mass as stated in 6.7.3.2.9.

Proposal

7. Bearing in mind the above, it is suggested to amend 6.7.3.1 (ii) as follows:
“(ii) a head pressure determined on the basis of the static forces ~~specified in 6.7.3.2.9~~ at the direction of travel: $(2R-T)g$ (where $R=$ MPGM, $T=$ tare, $g=$ acceleration of gravity), but not less than 0.35 bar.”.
