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**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****Sixtieth session**

Geneva, 27 June-6 July 2022

Item 9 of the provisional agenda

**Guiding principles for the Model Regulations****Miscellaneous issues with portable tank instructions and  
portable tank special provisions****Note by the secretariat\*****I. Introduction**

1. During the final editing of the latest version of the guiding principles, the secretariat introduced a mistake in section C.3 containing the guidelines for assigning portable tank special provisions to individual substances. In the process of correcting that mistake, the secretariat took the opportunity to review the guidelines in section C.3, which lead to spotting a few other issues. This document proposes to correct the above-mentioned mistake and presents the issues which have been subsequently identified so that the Sub-Committee can decide whether further action is needed.

2. As part of this review, the secretariat has compiled some statistics on the use in the list of dangerous goods of the various portable tank instructions and portable tank special provisions. In the respect, two summary tables are presented below for information purposes.

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

**Table 1: Number of entries in the dangerous goods list by class and portable tank instruction (T)**

	Class or Division														Total	
	1.5D	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8		9
T1	2				1	35	26	22	40		85	1		38	6	256
T2					130						1				1	132
T3					2	25	32	30	63		152			50	5	359
T4					174				28		56			55	2	315
T5													4			4
T6											64			14		78
T7					76	4		7	3		131			91		312
T8					2						3			26		31
T9							1	14	1							16
T10					5			1	1					41		48
T11					56			1			51			11	1	120
T12					2											2
T13								3								3
T14					33			5			62			13		113
T15																0
T16																0
T17																0
T18																0
T19																0
T20											51			6		57
T21							12									12
T22							1		2		16			1		20
T23						4				4						8
T50		32	30	12												74
T75		6	13													19

**Table 2: Number of entries in the dangerous goods list by class and portable tank special provision (TP)**

	Class or Division														Total	
	1.5D	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8		9
TP1	2				374				31		66	1		62	3	539
TP2					104		4	17	5		302			179	1	612
TP3					3	4	2	1			3			2	1	16
TP4		3	3			4							4	1		15
TP5		6	13													19
TP6					1	4			4							9
TP7					11		13	31			4			23		82
TP8					36									1		37
TP9									1							1
TP10														1		1
TP13					77			6	2		187			52		324
TP16									1							1
TP17	2								2							4
TP18														1		1
TP19															2	2
TP20															1	1
TP21															2	2
TP22															4	4
TP24									4					4		8
TP25														1		1
TP26							2	1						1		4
TP27					52						97			23		172
TP28					21						45			18		84
TP29					17				1					1	2	21
TP30														1		1
TP31								1	1							2
TP32	2								1							3
TP33							58	66	65	102	2	301		102	10	706
TP34		1	1													2
TP36								6	15							21
TP40		3	3													6
TP41								2	15							17

## II. Mistake in the numbering of portable tank special provisions in section C.3 of the guiding principles

3. This is a straightforward mistake in the guiding principles where an entry in the list of portable tank special provisions (TPs) was duplicated and some of the following entries were numbered incorrectly as a consequence. The proposal below corrects the mistake:

### Proposal 1 (guiding principles)

C.3, §15 Delete the entry for TP2 and renumber TP3 to TP11 as TP2 to TP10.

## III. Inaccuracy in the guidelines for TP4

4. The guidelines for TP4 in the guiding principles currently state that it “applies to low specific activity radioactive materials authorized for transport in portable tanks, to polymerizing substances (UN Nos. 3531 to 3534) and to sulphur trioxide, stabilized”. However, a search through the dangerous goods list reveals that it is also applied to SCO radioactive materials (UN No. 2913) and to chemicals under pressure (UN Nos. 3500 to 3505). The following proposal adds those two categories to the guiding principles:

### Proposal 2 (guiding principles)

C.3, §15, TP4 Delete “low specific activity”. After “3534)” add “, to chemicals under pressure (UN Nos. 3500 to 3505)”.

## IV. Assignment of TP1 to UN 0331

5. TP1 specifies the maximum degree of filling of a portable tank. The guidelines for TP1 in the guiding principles currently state that it “applies to liquid substances with a vapour pressure of not more than 175 kPa (1.75 bar) at 65 °C other than substances of Division 6.1 or Class 8 in PG I or II”.

6. UN 0331 (EXPLOSIVE, BLASTING, TYPE B) has assigned code TP1. As far as the secretariat has been able to ascertain, UN 0331 is usually in granular form. If this is the case, the Sub-Committee may wish to consider whether the assignment of TP1 to UN 0331 is indeed correct or if the guiding principles need to be adjusted.

7. For historical context, TP1 (along with TP17 and TP32) was assigned to UN Nos. 0331, 0332 and 3375 in the thirteenth revised edition of the Model Regulations. The amendments were approved by the Committee (ST/SG/AC.10/29/Add.1), following a previous decision of the Sub-Committee (ST/SG/AC.10/C.3/42 and Add.3), which was based on a recommendation of the Ammonium Nitrate Emulsions (ANE) Working Group (UN/SCETDG/21/INF.69), which in turn was based on a proposal by the Dangerous Goods Advisory Council (DGAC) (UN/SCETDG/21/INF.10). Interestingly, in the original proposals (informal documents INF.10 and INF.69), it was only proposed to assign TP17 and TP32, but in the final amendments TP1 is also assigned without any additional explanation. For UN Nos. 0332 and 3375, TP1 does not seem surprising as they can be in emulsion or gel form.<sup>1</sup>

## V. Assignment of TP31 to UN Nos. 1442 and 1381

### A. UN 1422 (POTASSIUM SODIUM ALLOYS, LIQUID)

8. Potassium sodium alloys can be solid or liquid depending on their temperature and on the relative quantities of their components. For 77 % potassium (K), the alloy is liquid between -12.6 °C and 785 °C. Between 40 % and 90 % potassium, the alloy is liquid at room temperature.

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<sup>1</sup> There are only two entries of Class 1 with TP1 assigned: UN 0331 and UN 0332.

9. Originally the Model Regulations (Rev.11) contained a single entry for potassium sodium alloys (UN 1422) and it did not specify whether it was liquid or solid. It had TP3 and TP7 assigned. As TP3 applies to liquids, one can understand that it would apply only when transported in liquid form, whereas TP7 would apply in any case.

10. In 1999, the expert from the United States of America presented a proposal (UN/SCETDG/16/INF.10) to harmonize UN Nos. 1381, 1422, 1428 and 2257 with the International Maritime Dangerous Goods (IMDG) code, in which special tank requirement (m) from the IMDG code (“May only be carried in the solid state”) was transcribed to the Model Regulations as TP31 and was assigned to those UN numbers. Neither the proposal nor the report of the session (ST/SG/AC.10/C.3/32) contained any additional justification. As a result of this, in the Model Regulations (Rev.12), UN 1422 had TP3, TP7 and TP31 assigned to it. At the very least, this is difficult to understand, as TP3 implies that it can be transported in liquid form but TP31 explicitly prohibits its transport in liquid form.

11. Furthermore, in the following biennium the experts from Germany and the Netherlands presented a proposal (ST/SG/AC.10/C.3/2002/44) to separate entries which could be liquid or solid into two separate entries for each state. As a result, in the Model Regulations (Rev.13), the suffix “, LIQUID” was added to UN 1422, but maintaining the assignment of TP3, TP7 and TP31. A new entry UN 3404 was created with the suffix “, SOLID” and TP7 and TP33 were assigned to it. In this new situation, the assignment of TP31 to UN 1422 is difficult to understand, as the proper shipping name explicitly indicates that it is liquid. After this latest change, there have been no further changes in this regard.

12. The Sub-Committee may wish to consider if the assignment of TP31 to UN 1422 is correct and still needed. If so, it may wish to consider whether TP31 needs to be rephrased to clarify its intent.

13. For ease of reference, the affected portable tank instructions are reproduced below:

TP3: The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids shall be determined in accordance with 4.2.1.9.5.

$$\text{Degree of filling} = 95 \frac{d_r}{d_f}$$

TP7: Air shall be eliminated from the vapour space by nitrogen or other means.

TP31: This substance may only be transported in tanks in the solid state.

TP33: The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. For solids which are transported above their melting point see 4.2.1.19.

## **B. UN 1381 (PHOSPHORUS, WHITE or YELLOW, DRY or UNDER WATER or IN SOLUTION)**

14. UN 1381 currently has TP3 and TP31 assigned to it. The situation is similar to the one described for UN 1422, as it initially had only TP3 assigned to it, and it then had TP31 assigned at the same time as UN 1422. However, in this case, it was obvious from the outset that this UN number can be used for both solid and liquid forms, and it has never been split in two entries as for UN 1422.

## **VI. Unused portable tank instructions**

15. A quick glance at Table 1 above reveals that some of the portable tank instructions are currently not used. The secretariat would like to ask the Sub-Committee for clarification to understand whether these tank instructions should remain in the Model Regulations and if so, whether it might be useful to add some explanation in the guiding principles.