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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

#### Sixty-first session

Geneva, 28 November-6 December 2022

Item 2 (b) (v) of the provisional agenda

**Recommendations made by the Sub-Committee at its fifty-eighth,  
fifty-ninth and sixtieth sessions and pending issues: explosives and related matters**

### **Assignment of special provision 28 to liquid desensitized explosives in the Dangerous Goods List of the Model Regulations**

**Submitted by the European Chemical Industry Council (Cefic)\***

#### **Introduction**

1. During the last session of the TDG Sub-Committee, in context with the discussions about document ST/SG/AC.10/C.3/2022/9, it was decided to modify special provision (SP) 28 to read (new text underlined): “This substance may be transported under the provisions of Class 3 or Division 4.1 only if it is so packed that the percentage of diluent will not fall below that stated, at any time during transport (see 2.3.1.4 and 2.4.2.4).”

2. The previous SP 28 has been assigned to the majority of solid desensitized explosives whereas no comparable provisions exist for the current entries of liquid desensitized explosives in the Model Regulations. As a result of the discussion in the Sub-Committee whether other liquid desensitized explosives entries in Class 3 could be harmonized with respect to special provision SP 28, Cefic volunteered to prepare a corresponding proposal for consideration at the next session.

#### **Discussion**

3. An analysis of the current use of SP 28 is summarized below:

SP 28 is assigned to the following entries of solid desensitized explosives: UN 1310, UN 1320, UN 1321, UN 1322, UN 1336, UN 1337, UN 1344, UN 1347, UN 1348, UN 1349, UN 1354, UN 1355, UN 1356, UN 1357, UN 1517, UN 1571, UN 2852, UN 3317, UN 3364, UN 3365, UN 3366, UN 3367, UN 3368, UN 3369, UN 3370, and UN 3376.

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

In all entries listed here, water is specified as a diluent in concentrations between 10 and 50 %. The applicable packing instruction is P406 in all cases.

4. The remaining entries for solid desensitized explosives are specified below:

UN No.	Name and description	Class or division	UN packing group	Special provisions	Packing instruction	Special packing provisions
(1)	(2)	(3)	(5)	(6)	(8)	(9)
2555	NITROCELLULOSE WITH WATER (not less than 25 % water, by mass)	4.1	II	394	P406	
2556	NITROCELLULOSE WITH ALCOHOL (not less than 25 % alcohol, by mass, and not more than 12.6 % nitrogen, by dry mass)	4.1	II	394	P406	
2557	NITROCELLULOSE, with not more than 12.6 % nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICIZER, WITH or WITHOUT PIGMENT	4.1	II	241 394	P406	
2907	ISOSORBIDE DINITRATE MIXTURE with not less than 60 % lactose, mannose, starch or calcium hydrogen phosphate	4.1	II	127	P406 IBC06	PP26 PP80 B2, B12
3319	NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2 % but not more than 10 % nitroglycerin, by mass	4.1	II	272 274	P099	
3344	PENTAERYTHRITOL TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10 % but not more than 20 % PETN, by mass	4.1	II	272 274	P406	PP26 PP80
3380	DESENSITIZED EXPLOSIVE, SOLID, N.O.S.	4.1	I	274 311 394	P099	
3474	1-HYDROXYBENZOTRIAZOLE MONOHYDRATE	4.1	I		P406	PP48

For UN 2555 and 2556, the diluent is water or alcohol whereas UN 2557, 2907, 3319 and 3344 appear to have a solid diluent. For the latter four entries, evaporation of the diluent is not possible, and SP 28 is not required. For UN 2555 and UN 2556, SP 28 should be added for consistency.

UN 3380 has SP 311 assigned which applies provisions equivalent to SP 28 in combination with an approval by the competent authority.

UN 3474 is a special case because it has water as diluent built into its crystal structure (i.e., the diluent is chemically bonded). SP 28 appears optional here, however, its assignment would not establish a disadvantage from a safety point of view.

5. Entries in the Dangerous Goods List for liquid desensitized explosives are:

UN No.	Name and description	Class or division	UN packing group	Special provisions	Packing instruction	Special packing provisions
(1)	(2)	(3)	(5)	(6)	(8)	(9)
1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1 % nitroglycerin	3	II		P001 IBC02	PP5
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6 % nitrogen, by dry mass, and not more than 55 % nitrocellulose	3	I	198	P001	
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6 % nitrogen, by dry mass, and not more than 55 % nitrocellulose	3	II	198	P001 IBC02	
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6 % nitrogen, by dry mass, and not more than 55 % nitrocellulose	3	III	198 223	P001 IBC03 LP01	
3064	NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1 % but not more than 5 % nitroglycerin	3	II	359	P300	
3343	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30 % nitroglycerin, by mass	3		274 278	P099	
3357	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30 % nitroglycerin, by mass	3	II	274 288	P099	
3379	DESENSITIZED EXPLOSIVE, LIQUID, N.O.S.	3	I	274 311	P099	

The description of the solvent or diluent is in all cases of very general character and does not specify any boiling point or volatility. Except for UN 3379 with its SP 311, no provisions comparable to SP 28 exist for the current entries of liquid desensitized explosives in the Model Regulations. UN 1204 and UN 3064 are both very dilute solution in alcohol but nevertheless during extended periods of time evaporation of the solvent may occur so a quality requirement for the package as specified in SP 28 may be helpful.

It is noted that UN 3343 is the only entry that has no packing group assigned to it. The Sub-Committee might wish to decide whether a packing group should be assigned for reasons of consistency.

## Proposal

6. Based on the discussion above, Cefic proposes the following amendments to 3.2.2:
7. For solid desensitized explosives, assign SP 28 to UN entries 2555, 2556 and 3474.
8. Assign SP 28 to the following UN entries of liquid desensitized explosives: UN numbers 1204, 2059, 3064, 3343, and 3357.
9. Add packing group II in column 5 of UN entry 3343.

## **Justification**

10. Based on the analysis of current entries, the proposed amendments will establish common and consistent quality requirements for the safe transport of desensitized explosives.

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