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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

#### Fifty-eighth session

Geneva, 28 June-2 July 2021

Item 5 (b) of the provisional agenda

**Transport of gases: limited quantities for division 2.2**

## **Increase of the Limited Quantity Volume for Division 2.2 compressed gases**

**Submitted by the Council on Safe Transportation of Hazardous Articles  
(COSTHA)\***

### **Introduction**

1. Currently the UN Model Regulations authorize the transport of Division 2.2 gases without subsidiary hazards to be transported in quantities not exceeding 120 ml per inner packaging and 30 kg per outer packaging. The rationale behind limited quantity provisions is that selected dangerous goods packed in small quantities and in good, robust packaging pose a lesser risk in transport than do the same goods packed in larger volumes, and on this basis some relief from specific requirements such as hazard labels is acceptable. During the previous biennium COSTHA and the European Industrial Gases Association (EIGA) submitted proposals to provide for relief of specific Division 2.2 gases consistent with special provision 653 of ADR. There were mixed positions related to these proposals and subsequently they were not adopted by the Sub-Committee.

2. During the discussions several experts indicated that they were supportive of addressing the provisions for limited quantities (LQ) as they relate to Division 2.2 gases.

(a) For instance, in response to document ST/SG/AC.10/C.3/2020/54 the expert from Canada stated the following:

*“(We) believe this issue would be better addressed through the revision of the limited quantity provisions for Division 2.2 gases in the UN Recommendations. Essentially, the Limited Quantity index could be increased from 0.120 litre to 1 litre to coincide with the limited quantity provision of aerosols. It must be noted that aerosols containing a class 2.1, 2.1 (8), and 2.2 (8) have all a limited quantity index of 1 litre. Cylinders do contain a higher pressure, but cylinders are more robust than aerosol cans.”*

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

(b) The expert from the United States of America stated:

*“In our experience, exceptions of this type are best suited to application at the regional and local level. The limited applicability of this proposed special provision to a single commodity is not suitable for general applicability in the UN Model Regulations. We are open to discussing more comprehensive options to address the appropriate requirements based on the hazard presented rather than looking at exceptions for single commodity (i.e., re-evaluate the LQ size limits applicable to all Division 2.2 materials).”*

(c) Several experts were supportive of a more multimodal approach and were not in favour of introducing a package marking in the UN Model Regulations that was unique and easily confused with the LQ marks.

3. Based on all the previous comments, COSTHA requests that the Sub-Committee consider this proposal to address the LQ provisions for Division 2.2 gases because we believe that most experts favour it as the appropriate recourse.

## **Justification**

4. Non-toxic, non-flammable compressed gases, such as carbon dioxide (UN 1013), argon (UN 1006) and other compressed gases with no subsidiary risks are required to be packaged in accordance with P200, which is an established packaging regime with a proven transport history. Shipments of compressed gases according to ADR special provision 653 has provided a history of safe shipments of these Division 2.2 compressed gases, with volumes greater than the existing limited quantity limitations (120 ml). The increase in the limited quantity volume for these commodities is supported by the inclusion of SP 653 in ADR, and the issuance of similar authorizations by the United States Department Of Transportation (DOT SP20796, DOT SP20936, etc.) and Transport Canada (TU0715) through their regulatory approval processes.

5. The limited quantity limits for aerosols and gas receptacles other than those that contain toxic gases are 1000°ml/30°kg in accordance with special provision 277. Consistent with the comment from Canada aerosols and gas receptacles containing a Division 2.1, 2.1 (8), and 2.2 (8) have all a limited quantity limit of 1,000 ml, and cylinders do contain a higher pressure, but cylinders are significantly more robust than aerosol cans.

## **Proposal**

6. In the Dangerous Goods List, increase the limited quantity limit (column 7A) for all Division 2.2 gases, with no subsidiary hazards, from 120 ml to 1,000 ml. A list of these gases is provided in the appendix of this proposal. The list separates refrigerated liquids because COSTHA does not have a strong opinion whether these should have a limited quantity value of 1,000 ml. In addition, it is not proposed to amend the limited quantity values for the Division 2.2 articles because exceptions for these articles are addressed through specific special provisions.

## Appendix

### Division 2.2 compressed and liquified gases without subsidiary hazards

- 1002 AIR, COMPRESSED
- 1006 ARGON, COMPRESSED
- 1009 BROMOTRIFLUOROMETHANE (REFRIGERANT GAS R 13B1)
- 1013 CARBON DIOXIDE
- 1018 CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)
- 1020 CHLOROPENTAFLUORO-ETHANE (REFRIGERANT GAS R 115)
- 1021 1-CHLORO-1,2,2,2- TETRAFLUROETHANE (REFRIGERANT GAS R 124)
- 1022 CHLOROTRIFLUORO-METHANE (REFRIGERANT GAS R 13)
- 1028 DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R 12)
- 1029 DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)
- 1043 FERTILIZER AMMONIATING SOLUTION with free ammonia
- 1056 KRYPTON, COMPRESSED
- 1058 LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air.
- 1065 NEON, COMPRESSED
- 1066 NITROGEN, COMPRESSED
- 1078 REFRIGERANT GAS, N.O.S.
- 1080 SULPHUR HEXAFLUORIDE
- 1858 HEXAFLUOROPROPYLENE (REFRIGERANT GAS R 1216)
- 1952 ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9 % ethylene oxide
- 1956 COMPRESSED GAS, N.O.S.
- 1958 1,2-DICHLORO-1,1,2,2- TETRAFLUROETHANE (REFRIGERANT GAS R 114)
- 1968 INSECTICIDE GAS, N.O.S.
- 1973 CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUORO-ETHANE MIXTURE with fixed boiling point, with approximately 49 % chlorodifluoromethane (REFRIGERANT GAS R 502)
- 1974 CHLORODIFLUOROBROMOMETHANE (REFRIGERANT GAS R 12B1)
- 1976 OCTAFLUROCYCLOBUTANE (REFRIGERANT GAS RC 318)
- 1982 TETRAFLUROMETHANE (REFRIGERANT GAS R 14)
- 1983 1-CHLORO-2,2,2- TRIFLUOROETHANE (REFRIGERANT GAS R 133a)
- 1984 TRIFLUOROMETHANE (REFRIGERANT GAS R 23)
- 2036 XENON
- 2073 AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35 % but not more than 50 % ammonia
- 2193 HEXAFLUROETHANE (REFRIGERANT GAS R 116)
- 2422 OCTAFLUROBUT-2-ENE (REFRIGERANT GAS R 1318)
- 2424 OCTAFLUROPROPANE (REFRIGERANT GAS R 218)

2455 METHYL NITRITE

2599 CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60 % chlorotrifluoromethane (REFRIGERANT GAS R 503)

2602 DICHLORODIFLUOROMETHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74 % dichlorodifluoromethane (REFRIGERANT GAS R 500)

3070 ETHYLENE OXIDE AND DICHLORODIFLUORO-METHANE MIXTURE with not more than 12.5 % ethylene oxide

3159 1,1,1,2-TETRAFLUROETHANE (REFRIGERANT GAS R 134a)

3163 LIQUEFIED GAS, N.O.S.

3220 PENTAFLUROETHANE (REFRIGERANT GAS R 125)

3296 HEPTAFLUROPROPANE (REFRIGERANT GAS R 227)

3297 ETHYLENE OXIDE AND CHLOROTETRAFLURO-ETHANE MIXTURE with not more than 8.8 % ethylene oxide 2

3298 ETHYLENE OXIDE AND PENTAFLUROETHANE MIXTURE with not more than 7.9 % ethylene oxide

3299 ETHYLENE OXIDE AND TETRAFLUROETHANE MIXTURE with not more than 5.6 % ethylene oxide

3337 REFRIGERANT GAS R 404A

3338 REFRIGERANT GAS R 407A

3339 REFRIGERANT GAS R 407B

3340 REFRIGERANT GAS R 407C

3511 ADSORBED GAS, N.O.S.

## **Division 2.2. Refrigerated Liquids without subsidiary hazards**

1913 NEON, REFRIGERATED LIQUID

1951 ARGON, REFRIGERATED LIQUID

1963 HELIUM, REFRIGERATED LIQUID

1970 KRYPTON, REFRIGERATED LIQUID

1977 NITROGEN, REFRIGERATED LIQUID

2187 CARBON DIOXIDE, REFRIGERATED LIQUID

3136 TRIFLUOROMETHANE, REFRIGERATED LIQUID

## **Articles that are not included because they have other provisions (e.g. Refrigerating machines are assigned SP 119)**

1044 FIRE EXTINGUISHERS with compressed or liquefied gas

2857 REFRIGERATING MACHINES containing non-flammable, non-toxic, gases or ammonia solutions (UN 2672)

3164 ARTICLES, PRESSURIZED, PNEUMATIC or HYDRAULIC (containing non-flammable gas)

3500 CHEMICALS UNDER PRESSURE, N.O.S.

3538 ARTICLES CONTAINING NON-FLAMMABLE, NON-TOXIC GAS, N.O.S.