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

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 3 of the provisional agenda

Listing, classification and packaging

Classification of UN1891

Transmitted by the expert from Belgium

Introduction

1. In the Model Regulations UN1891 ETHYLBROMIDE is currently classified as a class 6.1, packing group II substance without any subsidiary hazard.
2. According to the European CLP-regulation this substance nevertheless classifies as acute toxic category 4 for both acute oral toxicity and acute toxicity by inhalation, while classifying as a category 2 flammable liquid. As such, flammability seems to be considered here as a “more important” hazard than acute toxicity.
3. Data from different sources (see annex) show that this substance has a flashpoint of -20°C and a boiling point of 38°C. When taking these values into account, according to the Model Regulations, this substance would thus classify as class 3, packing group II substance according to paragraph 2.3.2.6.
4. As a consequence, this substance should rather be classified as a class 3, packing group II substance according to the *precedence of hazards* table in paragraph 2.0.3.3 of the Model Regulations, instead of as a class 6.1, packing group II substance.
5. Even more, as already indicated, according to the CLP-regulation UN1891 classifies as a category 4 substance for both acute oral toxicity and acute inhalation toxicity. In contrast with the current classification for transport as a class 6.1, packing group II substance, table A1.19 of Annex 1 to the GHS seems to indicate that category 4 of neither acute oral nor inhalation toxicity requires classification as toxic according to the Model Regulations.
6. This is confirmed when applying the values for the LD₅₀ (data in annex) according to the classification principles of paragraph 2.6.2.2.4.1 of the Model Regulations. The same conclusion can also be drawn when looking at the values for the LC₅₀ (data in annex). When applying the principles for classification of substances for acute toxicity by inhalation of vapors in paragraphs 2.6.2.2.4.3 to 2.6.2.2.4.5 of the Model Regulations, this substance does not classify as acute toxic by inhalation.
7. Taking into account the data given and what has been explained in the previous paragraphs, it seems that the current classification of UN1891 is not correct according to the principles of the Model Regulations. Nevertheless, paragraph 2.6.2.2.2 specifies that *account shall be taken of human experience*, which might be the reason for the current classification of UN1891. However, even if this would be the reason for classification as a toxic substance, it still seems inappropriate not to communicate the flammability as a subsidiary hazard.

Proposal

8. The aim of this document is to inform the Sub-Committee of this apparent inappropriate classification and hear its opinion on the following ways forward:

- (a) Align the current classification of UN1891 with what the given scientific data indicate and as such reclassify UN1891 as a class 3, packing group II substance. With or without class 6.1 as a subsidiary hazard.
- (b) Keep the current classification of UN1891 and take into account what the given scientific data indicate and as such add class 3 as a subsidiary hazard for UN1891.
- (c) Any other way forward towards clearly indicating the hazards of this substance.

Annex

Obtained data for UN1891

Table 1: Flash- and boiling point, LD₅₀ and LC₅₀

Property Source	Flashpoint (°C)	Boiling point (°C)	Oral toxicity LD ₅₀ (mg/kg)	Inhalation toxicity LC ₅₀
BIG Kaleidos Database ¹	-20	38	/	/
Pubmed Database ²	-20	38	1350 (rat)	26980 mg/kg (rat) 16230 mg/kg (mouse)
Concise International Chemical Assessment Document 42 (WHO) ^{3, 4}	-20	38.4	1350 (rat)	21200 mg/m ³ = 4681 ppm (rat, 4h) 12300 mg/m ³ = 2723 ppm (mouse, 4h)
MSDS Bromoethane ⁵	-23	37 - 40°C	1350 (rat)	20,9 mg/l (rat, 4h) 26980 ppm (rat, 1h)

Table 2: Volatility and vapour pressure

Source	Value
MSDS Bromoethane ⁵	Volatility: 400 mm Hg
ILO international chemical safety card ⁶	Vapor pressure at 20°C: 51 kPa

Sources

1: <https://www.big.be/en-us/Products/Kaleidos>

2: <https://pubchem.ncbi.nlm.nih.gov/compound/Bromoethane#section=Acute-Effects>

3: <https://www.who.int/ipcs/publications/cicad/en/cicad42.pdf?ua=1>, Data LC₅₀: source 4

4: Only for LC₅₀: In the document for LC₅₀ rat: see table 5; LC₅₀mice: see table 16.
https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr363.pdf?utm_source=direct&utm_medium=prod&utm_campaign=ntpgolinks&utm_term=tr363

5:

<https://www.fishersci.com/store/msds?partNumber=AC154215000&productDescription=BR OMOETHANE+98%25+500ML&vendorId=VN00032119&countryCode=US&language=en>

6: http://www.ilo.org/dyn/icsc/showcard.display?p_version=2&p_card_id=1378