

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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LISTING, CLASSIFICATION AND PACKING

Toxic by inhalation substances

Comments on ST/SG/AC.10/C.3/2008/49 and UN/SCETDG/33/INF.8

Transmitted by the International Council of Chemical Associations (ICCA)

1. In ST/SG/AC.10/C.3/2008/49 the Expert from the Netherlands indicated that the Dutch National Institute for Public Health and the Environment (RIVM) was asked to collect data on 41 substances, in order to establish whether these substances should be considered as toxic by inhalation. Meanwhile the Netherlands have issued UN/SCETDG/33/INF.8, which contains the results of the study by RIVM. It provides very detailed data and offers a good basis for discussion

2. These results have been reviewed by a major manufacturing company in cooperation with the experienced toxicology department of Bayer (Germany) for a number of the substances listed and this resulted in the following findings:

UN 1810 (Phosphorus oxychloride)

The "LC50 low" value, listed in table 1 of the RIVM study, is difficult to accept in comparison with the "LC50 high" value, which is put forward by AEGL (Acute Exposure Guideline Levels) as the relevant value. Therefore the "LC50 high" value should be used for classifying the substance.

Vapour pressure at 20 °C: 36 hPa (taken from the SDS of the manufacturing company)

UN 1834 (Sulphuryl chloride)

There are no studies available, which were performed according to current OECD guidelines. However, the study "Du Pont, 1982; Kelly and Stula, 1983; BG Chemie, 2000" is considered to be sufficient to evaluate this endpoint. The 4 h LC50 was calculated to be 878 mg/m³ = 159 ppm (equivalent value for 1 h: 318 ppm) which is identical to the "LC50 high" value of the RIVM report. Therefore the high value should be considered for the classification.

Vapour pressure at 20 °C: 148 hPa (taken from the SDS of the manufacturing company)

UN 2483 (Isopropyl isocyanate)

The RIVM study contains no data for this substance and the proposed classification is based on read-across arguments. However a 4 h vapour study from 1988 is available: Pauluhn (1988), OTS0544097, DocID 88-920005123. This study provides the following data, which should be used rather than the read-across approach:

- LC50 = 499 mg/m³ (rat, male) = 144.7 ppm (equivalent value for 1 h: about 290 ppm)
- LC50 = 613 mg/m³ (rat, female) = 177.7 ppm (equivalent value for 1 h: about 356 ppm)

Vapour pressure at 20 °C: 110 hPa (taken from the SDS of the manufacturing company)

UN 2484 (tert-Butyl isocyanate)

The RIVM study contains no data for this substance and the proposed classification is based on read-across arguments. However an acute 4 h vapour study from 1988 is available: Pauluhn, Bayer AG (1988), Ber.Nr. 16952. This study provides the following data, which should be used rather than the read-across approach:

- LC50 = about 1593 mg/m³ (rat, male+female) = 398 ppm (equivalent value for 1 h: about 800 ppm)

Vapour pressure at 20 °C: 74 hPa (taken from the SDS of the manufacturing company)

UN 2485 (n-Butyl isocyanate)

The 1 h study in the RIVM study dates from 1965. There is however a more recent study from 1979: Thyssen, Bayer AG (1979), Ber.Nr. 8598. This study provides the following data:

- LC50 = about 600 mg/m³ (rat, male) = 150 ppm
- LC50 = about 500 mg/m³ (rat, female) = 125 ppm

Vapour pressure at 20 °C: 23 hPa (taken from the SDS of the manufacturing company)

UN 2487 (Phenyl isocyanate)

The 1 h study referred to in the RIVM study dates probably from 1978. However a more recent study is available: Pauluhn, Bayer AG (1991), Ber.Nr. 20354 and Pauluhn, Rüngeler, Mohr (1995), Fundam Appl Toxicol 24, 217-228. This study provides the following data:

- LC50 = 22 mg/m³ (rat, male+female) = 4.5 ppm (equivalent value for 1 h: 9 ppm)

Vapour pressure at 20 °C: 2.5 hPa (taken from the SDS of the manufacturing company)

UN 2488 (Cyclohexyl isocyanate)

The RIVM study contains no data for this substance and the proposed classification is based on read-across arguments. However a 6 h study from 1994 is available: Eastman Kodak (1994), OTS0544097, DocID 88-920005123. This study provides the following data, which should be used rather than the read-across approach:

- LC50 = > 91; < 272 mg/m³ (rat) = > 17.7; < 53 ppm

Vapour pressure at 20 °C: 2.2 hPa (taken from the SDS of the manufacturing company)

3. The following table provides the result of using these data against the criteria for toxicity by inhalation:

- (a) is assigned if $LC50 < 200$ ppm and $SVC > 500LC50$
- (b) is assigned if $LC50 < 1000$ ppm and $SVC > 10LC50$

UN	Substance	RIVM (low)	RIVM (high)	This document
1810	Phosphorus oxychloride	(a)	(b)	(b)
1834	Sulphuryl chloride	(a)	(b)	(b)
2483	Isopropyl isocyanate	(a)*		(b)
2484	tert-Butyl isocyanate	(a)*		(b)
2485	n-Butyl isocyanate	(a)	(b)	(b)
2487	Phenyl isocyanate	(a)	(b)	(b)
2488	Cyclohexyl isocyanate	(a)*		(b)

*: substances for which no data were available, according to the RIVM study, but for which the read-across principle was used.

4. ICCA invites UNSCETDG to take these observations into account during the discussion of documents ST/SG/AC.10/C.3/2008/49 and UN/SCETDG/33/INF.8

5. ICCA expects that TP35 is assigned to any substance, identified as a TIH substance and being assigned either T22 or T20.

ICCA furthermore invites UNSCETDG to re-consider the transitional period mentioned in TP35 and to extend it from 31-12-2014 to 31-12-2016. Indeed, the number of TIH substances, requiring T22/T20 portable tanks, which are in short supply, may rise substantially. T14 could be assigned to the substances, which currently have not been assigned T14 but T7 (UN 1810-2442-2474-2668-2826), T8 (UN 2486) or T10 (UN 1838), in case they would be considered as TIH substances.

6. As there may be an impact on the demand for P601 packagings, a transitional measure may be considered as well.