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 **15 November 2011**

Fortieth session
Geneva, 28 November – 7 December 2011
Item 2 (a) of the provisional agenda
Listing, classification and packing: proposals of amendments to the list of dangerous goods of Chapter 3.2

Classification of mercurous chloride

Transmitted by the expert from the United Kingdom

Introduction

1. On the basis of UN/SCETDG/39/INF.11 and the discussions at the June 2011 Sub-Committee meeting, the expert from the United Kingdom was invited to prepare a proposal for the next session presenting data available for the classification of mercurous chloride (see ST/SG/AC.10/C.3/78 paragraphs 35 and 36).

2. A data sheet for mercurous chloride has been completed and is submitted in the annex to this paper.

3. Various sources on the oral toxicity of mercurous chloride quote either a LD_{50} oral of 210 mg/kg or 166 mg/kg to rats. According to this oral toxicity data, mercurous chloride meets the criteria for classification in Division 6.1, packing group III.

Proposal

4. Based on this data, the expert from the United Kingdom believes there are three options for dealing with the classification and transport of mercurous chloride as follows: -

Option 1

Under UN 2025 Mercury compound, solid, n.o.s., Division 6.1, packing group III.

Option 2

Under UN 1624 by amending this entry to cover both mercuric chloride and mercurous chloride as follows:

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
								Packing instruction	Special provisions	Instruction	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
1624	MERCURY CHLORIDE	6.1		II		500g	E4	P002 IBC08	B2, B4	T3	TP33
1624	MERCURY CHLORIDE	6.1		III		5kg	E1	P002 IBC08 LP02	B3	T1	TP33

As a consequence in the index replace 'MERCURIC CHLORIDE 6.1 1624' by 'Mercuric chloride, see 6.1 1624' and 'Mercurous chloride, see 6.1 1624'

Option 3

If mercurous chloride is transported in significant quantities assign a new specific UN number to it as follows:

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
								Packing instruction	Special provisions	Instruction	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
35XY	MERCUROUS CHLORIDE	6.1		III		5kg	E1	P002 IBC08 LP02	B3	T1	TP33

5. Whichever option is chosen, as a consequence Special Provision 66 in Chapter 3.3 should be amended to read 'Cinnabar is not subject to these Regulations'.

6. The Sub-Committee is invited to consider the above proposals and decide which of the three options is the most appropriate.

Annex

Data sheet to be submitted to the United Nations for new or amended classification of substances

Submitted by.... **UNITED KINGDOM**..... …..…..Date…....**30 September 2011**

Supply all relevant information including sources of basic classification data. Data should relate to the product in the form to be transported. State test methods. Answer all questions - if necessary state "not known" or "not applicable" - If data is not available in the form requested, provide what is available with details. Delete inappropriate words.

Section 1. SUBSTANCE IDENTITY

1.1 Chemical name **Mercurous Chloride**

1.2 Chemical formula **Hg_2Cl_2**

1.3 Other names/synonyms **Calomel, Mercury (I) Chloride**

1.4.1 UN number .....1.4.2 CAS number **10112-91-1**.....

1.5 Proposed classification for the Recommendations

1.5.1 proper shipping name (3.1.2[1]) .. **Mercurous Chloride**.....…….

1.5.2 class/division ..**6.1**.....subsidiary risk(s) .....…
packing group ....**III**.....

1.5.3 proposed special provisions, if any .....…

1.5.4 proposed packing instruction(s)...**P002**.....…….

Section 2. PHYSICAL PROPERTIES

2.1 Melting point or range **Sublimes at 400 °C to 500 °C**

2.2 Boiling point or range

2.3 Relative density at :

2.3.1 15 °C .....

2.3.2 20 °C **7.15**

2.3.3 50 °C .....

2.4 Vapour pressure at :

2.4.1 50 °C ..... kPa

2.4.2 65 °C ..... kPa

2.5 Viscosity at 20 °C[2]..... m^2/s

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[1] *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*

[2] *See definition of "liquid" in 1.2.1 of the Model Regulations on the Transport of Dangerous Goods.*

2.6 Solubility in water at 20 °C .....**0.00020** g/100 ml

2.7 Physical state at 20°C (2.2.1.1[1]) solid/

2.8 Appearance at normal transport temperatures, including colour and odour ...**Heavy white powder or crystals, odorless, tasteless**.....…….

2.9 Other relevant physical properties. **Exposure to sunlight causes decomposition into mercuric chloride and elemental mercury**.....

.....

.....

Section 3. FLAMMABILITY

3.1 Flammable vapour

3.1.1 Flash point (2.3.3[1]) .....**N/A**..... °C oc/cc

3.1.2 Is combustion sustained? (2.3.1.3[1]) yes/no

3.2 Autoignition temperature .....**N/A**..... °C

3.3 Flammability range (LEL/UEL) .....**N/A**..... %

3.4 Is the substance a flammable solid? (2.4.2[1]) **no**

3.4.1 If yes, give details .....

.....

.....

.....

Section 4. CHEMICAL PROPERTIES

4.1 Does the substance require inhibition/stabilization or other treatment such as nitrogen blanket to prevent hazardous reactivity ? **no**

If yes, state:

4.1.1 Inhibitor/stabilizer used . .....

4.1.2 Alternative method .....

4.1.3 Time effective at 55 °C .....

4.1.4 Conditions rendering it ineffective .....

4.2 Is the substance an explosive according to paragraph 2.1.1.1? (2.1[1]) **no**

4.2.1 If yes, give details .....

.....

.....

.....

1 *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods*

4.3 Is the substance a desensitized explosive? (2.4.2.4[1]) **no**

4.3.1 If yes, give details .....

.....

.....

4.4 Is the substance a self-reactive substance? (2.4.1[1]) **no**

If yes, state:

4.4.1 exit box of flow chart... .....

What is the self-accelerating decomposition temperature (SADT) for a 50 kg package? ..... °C Is the temperature control required? (2.4.2.3.4[1]) yes/no

4.4.2 proposed control temperature for a 50 kg package ..... °C

4.4.3 proposed emergency temperature for a 50 kg package ..... °C

4.5 Is the substance pyrophoric? (2.4.3[1]) **no**

4.5.1 If yes, give details .....

.....

.....

.....

4.6 Is the substance liable to self-heating? (2.4.3[1]) **no**

4.6.1 If yes, give details .....

.....

.....

.....

4.7 Is the substance an organic peroxide (2.5.1[1]) **no**

If yes state:

4.7.1 exit box of flow chart... .....

What is the self accelerating decomposition temperature (SADT) for a 50 kg package?..... °C Is temperature control required? (2.5.3.4.1[1]) **no**

4.7.2 proposed control temperature for a 50 kg package ..... °C

4.7.3 proposed emergency temperature for a 50 kg package ..... °C

4.8 Does the substance in contact with water emit flammable gases? (2.4.4[1]) **no**

4.8.1 If yes, give details .....

.....

.....

.....

1. *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*

4.9 Does the substance have oxidizing properties (2.5.1[1]) **no**

4.9.1 If yes, give details .....
.....
.....
.....

4.10 Corrosivity (2.8[1]) to:

4.10.1 mild steel .....mm/year at ..... °C

4.10.2 aluminium.....mm/year at..... °C

4.10.3 other packaging materials (specify)

..... mm/year at..... °C

..... mm/year at..... °C

4.11 Other relevant chemical properties .....
.....
.....
.....

Section 5. HARMFUL BIOLOGICAL EFFECTS

5.1 LD_{50}, oral (2.6.2.1.1[1]) .. **210 or 166**.... mg/kg Animal species .....**RAT**.....

5.2 LD_{50}, dermal (2.6.2.1.2[1]).....**1500**..... mg/kg Animal species .....**RAT**.....…….

5.3 LC_{50}, inhalation (2.6.2.1.3[1]) ... ...**N/K**..... mg/litre Exposure time..... hours

or .... ml/m^3 Animal species .....

5.4 Saturated vapour concentration at 20 °C (2.6.2.2.4.3[1]) .....**N/A**..... ml/m^3

5.5 Skin exposure (2.8[1]) results Exposure time ..... hours/minutes

Animal species.....

5.6 Other data .....
.....
.....

5.7 Human experience...**Excessive doses may causes mercury poisoning**.....……..
.....
.....

Section 6. SUPPLEMENTARY INFORMATION

6.1 Recommended emergency action

6.1.1 Fire (include suitable and unsuitable extinguishing agents) **Not considered to be a fire hazard. Use water, dry powder, foam or CO_2. extinuguishant**.....……

1. *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*

6.1.2 Spillage **Ventillate area of leak. Clean up personnel require protective clothing and respiratory protection from dust**. ....……

6.2 Is it proposed to transport the substance in:

6.2.1 Bulk Containers (6.8[1]) **No**

6.2.2 Intermediate Bulk Containers (6.5[1])? **Yes**

6.2.3 Portable tanks (6.7[1])? **Yes**

If yes, give details in Sections 7, 8 and/or 9.

Section 7. BULK CONTAINERS (only complete if yes in 6.2.1)

7.1 Proposed type(s).....…….

Section 8. INTERMEDIATE BULK CONTAINERS (IBCs) (only complete if yes in 6.2.2)

8.1 Proposed type(s).**As specified in IBC 08**.....……

Section 9. MULTIMODAL TANK TRANSPORT (only complete if yes in 6.2.3)

9.1 Description of proposed tank (including IMO tank type if known).**As specified by T1**.....

9.2 Minimum test pressure .....

9.3 Minimum shell thickness .....

9.4 Details of bottom openings, if any .....

9.5 Pressure relief arrangements .....

9.6 Degree of filling .....

9.7 Unsuitable construction materials .....

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[1] *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*