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**COMMITTEE OF EXPERTS ON THE TRANSPORT  
OF DANGEROUS GOODS**

**Sub-Committee of Experts on the  
Transport of Dangerous Goods**  
(Eighteenth session, 3-14 July 2000,  
agenda item 5 (a))

**MISCELLANEOUS DRAFT AMENDMENTS TO THE MODEL REGULATIONS  
ON THE TRANSPORT OF DANGEROUS GOODS**

**Listing and classification**

**Proposal for a new entry for Calcium Hypochlorite in Division 5.1**

**Transmitted by the expert from Japan**

**Background**

1. It has been several decades from the beginning of the manufacture of Calcium Hypochlorite in Japan. Recently some accidents occurred on transporting the Calcium Hypochlorites (including hydrated material, UN 2880), so shipping companies began not to accept the cargo of such Calcium Hypochlorite. Japanese manufacturers are under the severe situation for exporting. Japanese materials have had no accident on transporting for more than 25 years.
2. There are three entries (UN 1748, 2208 and 2880) of Calcium Hypochlorites, but there is no entry for Calcium hypochlorite with more than 10% water.
3. We succeeded in the development of Calcium hypochlorite with higher moisture content to ensure safe transport of the substance.

GE.00-

Now we are transporting by sea about 10 thousand tons/year of Calcium hypochlorite with more than 10% water contents for more than 50 countries over the world without any accident during transportation. It seems tough situation for the substance to continue to transport as OXYDIZING SOLID, N.O.S.(UN 1479) .

4. The Expert from Japan proposes that new entry for Calcium hypochlorite with more than 10% water to include in Dangerous Goods List in Chapter 3.2 of the Model Regulation. The attached data sheet for the substance not specifically listed by name in the List support this position.

### Proposal

5. (a) Add an entry 3XXX in the Dangerous Goods List as follows:

UN No.	Name and Description	Class or division	Subsidiary Risks	UN packing group	Special provisions	Limited quantities	Packagings and IBCs		Portable tanks	
							Packing instruction	Special provisions	Portable tank instruction	Portable tank special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
3XXX	CALCIUM HYPOCHLORITE, HYDRATED, with more than 10% water	5.1		II		500 g	P002			

(b) Amend the entry in the alphabetical index to read :

CALCIUM HYPOCHLORITE, HYDRATED,  
with more than 10% water

5.1

3XXXX

\* \* \* \* \*

**Figure 1**  
**DATA SHEET TO BE SUBMITTED TO THE UNITED NATIONS**  
**FOR NEW OR AMENDED CLASSIFICATION OF SUBSTANCES**

Submitted by . . . . Japan. . . . . Date 31 March 20000 .....

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 **Calcium hypochlorite, hydrated, with more than 10% water**
- 1.2 Chemical formula **Ca(ClO)<sub>2</sub> n H<sub>2</sub>O**
- 1.3 Other names/synonyms
- 1.4.1 UN number ..... 1.4.2 CAS number **7778-54-1**
- 1.5 Proposed classification for the Recommendations
  - 1.5.1 proper shipping name (3.1.2<sup>\*</sup>) **Calcium hypochlorite, hydrated, or Calcium hypochlorite, Hydrated mixture, with more than 10% water**
  - 1.5.2 class/division **5.1/oxidizing agent** subsidiary risk(s) **No** .....  
packing group **II**
  - 1.5.3 proposed special provisions, if any **No**
  - 1.5.4 proposed packing instruction(s) **No**.....

**Section 2. PHYSICAL PROPERTIES**

- 2.1 Melting point or range ... **Not applicable**
- 2.2 Boiling point or range .... **Not applicable**
- 2.3 Relative density at :
  - 2.3.1 15 EC .....
  - 2.3.2 20 EC **about 1(bulk density) for granular**
  - 2.3.3 50 EC .....
- 2.4 Vapour pressure at :
  - 2.4.1 50 EC **Not applicable**
  - 2.4.2 65 EC **Not applicable**
- 2.5 Viscosity at 20EC\*\* **Not applicable**
- 2.6 Solubility in water at 20EC **about 20g/100 ml**
- 2.7 Physical state at 20EC (2.2.1.1<sup>\*</sup>) **Solid** solid/liquid/gas<sup>\*\*</sup>

<sup>\*</sup> *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*

<sup>\*\*</sup> *See definition of "liquid" in 1.2.1 of the Model Regulations on the Transport of Dangerous Goods.*

2.8 Appearance at normal carriage temperatures, including colour and odour

**White or pale yellowish granular or tablet , chlorine odour**

2.9 Other relevant physical properties **Not known** .....

### Section 3. FLAMMABILITY

3.1 Flammable vapour

3.1.1 Flash point (2.3.3<sup>\*</sup>) **Not applicable**

3.1.2 Is combustion sustained? (2.3.1.2<sup>\*</sup>) **No** yes/no

3.2 Autoignition temperature **Not applicable**

3.3 Flammability range (LEL/UEL) **Not applicable**

3.4 Is the substance a flammable solid? (2.4.2<sup>\*</sup>) **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** yes/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<sup>\*</sup>) **No** yes/no

4.2.1 If yes, give details .....

4.3 Is the substance a desensitized explosive? (2.4.2.4<sup>\*</sup>) **No** .....

4.3.1 If yes, give details .....

4.4 Is the substance a self-reactive substance? (2.4.1<sup>\*</sup>) **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<sup>\*/</sup>) **No** 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

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

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

- 4.5 Is the substance pyrophoric? (2.4.3 <sup>\*</sup>) **No** ..... yes/no  
4.5.1 If yes, give details .....
- 4.6 Is the substance liable to self-heating? (2.4.3 <sup>\*/</sup>) **No** ..... yes/no  
4.6.1 If yes, give details.....
- 4.7 Is the substance an organic peroxide (2.5.1 <sup>\*/</sup>) **No** ..... yes/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 the temperature control required? (2.5.3.4.1 <sup>\*/</sup>) **No** ..... yes/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 <sup>\*/</sup>) **No** yes/no  
4.8.1 If yes give details .....
- 4.9 Does the substance have oxidizing properties (2.5.1 <sup>\*/</sup>) **Yes**..... yes/no  
4.9.1 If yes, give details  
**A mean burning time by a 3:2 mixture of potassium bromate and cellulose : 16.8sec**  
**A mean burning time by a 4:1 mixture of test sample and cellulose : 17.9sec**  
**A mean burning time by a 1:1 mixture of test sample and cellulose : 110sec**  
**Packaging group of this substance was classified as 2, based the above results .**
- 4.10 Corrosivity (2.8 <sup>\*/</sup>) to: **Not known**  
4.10.1 mild steel **Not known** .....mm/year at **Not known**..... °C  
4.10.2 aluminium **Not known** .....mm/year at **Not known**..... °C  
4.10.3 other packaging materials  
(specify) **Not known**.....mm/year at..... °C  
**Not known**.....mm/year at..... °C
- 4.11 Other relevant chemical properties **Not known**.....

**Section 5. HARMFUL BIOLOGICAL EFFECTS**

- 5.1 LD 50, oral (2.6.2.1.1 <sup>\*</sup>) <sup>1)</sup> **850mg/kg** Animal species **rat**
- 5.2 LD 50, dermal (2.6.2.1.2 <sup>\*</sup>) <sup>2)</sup> **LDL<sub>0</sub>=2000mg/kg** Animal species **rabbit**
- 5.3 LC 50, inhalation (2.6.2.1.3 <sup>\*</sup>) **Not known** mg/litre Exposure time **Not known** hours  
or **Not known** ml/m<sup>3</sup> Animal species **Not known**
- 5.4 Saturated vapour concentration at 20 EC (2.6.2.2.4.3 <sup>\*</sup>) **not applicable**
- 5.5 Skin exposure (2.8 <sup>\*</sup>) results Exposure time **Not known** hours/minutes  
**Not known** Animal species **Not known** .....
- 5.6 Other data ..... **Mutation test(Ames test) <sup>3)</sup> : Negative**

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<sup>\*</sup> *This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.*

5.7 Human experience **No**.....

**Section 6. SUPPLEMENTARY INFORMATION**

6.1 Recommended emergency action

6.1.1 Fire (include suitable and unsuitable extinguishing agents)

**Wear suitable protective equipments containing self-contained breathing apparatus.**

**Suitable extinguishing agents : a large amount of water**

**Unsuitable extinguishing agents : a small amount of water, CO<sub>2</sub>, foam and dry chemical**

6.1.2 Spillage.....

**Collect spill to other container as much as possible and flush with plenty of water.**

**Dissolve collected spill in a plenty of water and reduce the solution by adding reducing solution.**

6.2 Is it proposed to transport the substance in :

6.2.1 Intermediate Bulk Containers (6.5<sup>\*</sup>) ? **No**..... yes/no

6.2.2 Portable tanks (6.6<sup>\*</sup>) ? **No**..... yes/no

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

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

7.1 Proposed type(s) .....

**Section 8. MULTIMODAL TANK TRANSPORT (only complete if yes in 6.2.2)**

8.1 Description of proposed tank (including IMO tank type if known) .....

8.2 Minimum test pressure.....

8.3 Minimum shell thickness .....

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

8.5 Pressure relief arrangements.....

8.6 Degree of filling .....

8.7 Unsuitable construction materials .....

**References** <sup>1)</sup> Pesticide & Toxic Chemical News, vol.9, p21(1980)

<sup>2)</sup> National Technical Information Service, OTS0570606

<sup>3)</sup> Food and Chemical Toxicology, vol.22, p623(1984)

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

