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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 (Twentieth session, 3-12 December 2001, agenda item 7 (d))

LISTING AND CLASSIFICATION

Miscellaneous amendment proposals

New entry for the persalt sodium carbonate peroxyhydrate in Division 5.1

Submitted by the expert from Germany

Background

- 1. At present the detergent raw material Sodium Carbonate Peroxyhydrate is shipped worldwide in quantities of approx. 180,000 MT/y with increasing tendency.
- 2. At present the shipping of this material is carried out in bags (plastics film and paper), bulk bags, (flexible IBCs), bulk packagings (non-pressurized boxtype freight containers with sift-proof inner liner), hopper type trucks and tank trucks.
- 3. Since February 1998 the majority of the quantity (including domestic shipments in the United States of America) shipped worldwide is nowadays classified as an oxidizer pursuant to the transport regulations (division 5.1, UN 1479, PG II and III) based on positive results given by the UN O.1 test (see Annex 1).

Reasoning

4. For safety reasons dangerous substances, globally shipped in such large quantities like this material, should have assigned individual UN numbers, because on the one hand this promotes a unique safety standard in multimodal transportation all over the world and on the other hand only individual UN entries allow the assigning of specific packing provisions, specific operational stowage instructions, specific treatment and faster identification and access to safety information for emergency intervening in cases of emergency.

For commercial reasons further it has to be considered, that it is scheduled to ship large quantities of this material in bulk packagings (boxtype freight containers with sift-proof inner liner, filled/loaded by gravity), which is prohibited for generic entries pursuant to the restructured modal regulations coming into force during 2001, i. e. those shipments would have to be carried out with exemptions granted by the competent authorities only.

For these reasons, the expert from Germany proposes the introduction of a new entry as mentioned below (see Annex 2 - data sheet).

Proposal

5. (a) Add entry 3yyy with two lines in the Dangerous Goods List as follows:

UN	Name and Description	Class	Subsid	UN	Special	Limited	Packaging	s and IBCs	Porta	ble tanks
No.		or division	iary Risks	packing group	provi - sions	quantities	Packing instruction	Special provisions	Portable tank instruction	Portable tank special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Зууу	SODIUM CARBONATE PEROXYHYDRATE	5.1	1	II	1	500 g	P002 IBC08	PPXX B2, B3, B4, BX	T1	-
Зууу	SODIUM CARBONATE PEROXYHYDRATE	5.1	-	III	-	1 kg	P002 IBC08 LP02	PPXX B3, BX	T1	-

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

SODIUM CARBONATE PEROXYHYDRATE 5.1

Зууу

6. Add a new special packaging provision to P002 to read:

PPxx For UN 3xxx and 3yyy, metal packagings shall be vented.

- 7. Add a new special packaging provision to IBC 08 to read:
 - Bx For UN 3xxx and 3yyy, metal IBCs shall be vented.

Annex 1

INFRACOR Degussa-Hüls gruppe

Hanau, February 05, 2001

Report SPZ 92/97-1 (n)

UN Testing with Sodium Percarbonate

Test for oxidizing solids (according to UN Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.3, 1999, 34.4.1, Test O.1)

1.1 Samples

The test was conducted with four different samples in two series (which means with two reference test series). The test samples and the reference samples were prepared according to the test procedures as prescribed in section 34.4.1 of the UN test manual.

1.2 Results

The following table shows the test results with the relation to the reference test results (mean burning time of five trials):

Ratio of Mixture	4:1	1.1	Ref.
Sample	Burning time [s]	Burning time [s]	No
Sodium Percarbonate (sample 1)	62.4	n.t.	1
Sodium Percarbonate (sample 2)	32.4	n.t.	1
Sodium Percarbonate (sample 3)	29.0	114.6	2
Sodium Percarbonate (sample 4)	27.8	108.2	2

Ratio of Mixture	No	6:4	4:6	3:7
Reference Sample		Burning time [s]	Burning time	Burning time [s]
			[s]	
Potassium Bromate : Cellulose	1	6.8	26.2	89.4
Potassium Bromate : Cellulose	2	n.t.	26.4	84.0

n.t. = not tested

1.3 Conclusion

The product sodium percarbonate, represented by the tested samples, should by classified in Packing Group III of Division 5.1.

Dr. W. Wildner

Annex 2

Figure 1

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

Submitted by the expert from Germany

Date:

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: Sodium Carbonate Peroxyhydrate
- 1.2 Chemical formula: $Na_2CO_3 * 1.5 H_2O_2$
- 1.3 Other names/synonyms: **Sodium Percarbonate / PCS, SPC**
- 1.4.1 UN number: **3yyy** 1.4.2 CAS number: **15630-89-4**
- 1.5 Proposed classification for the Recommendations
 - 1.5.1 proper shipping name (3.1.2*/): **SODIUM CARBONATE PEROXYHYDRATE**
 - 1.5.2 class/division: **5.1** subsidiary risk(s) **none** packing group: **II / III**
 - 1.5.3 proposed special provisions, if any: none
 - 1.5.4 proposed packing instruction(s): PG.II: P002 (PPxx), IBC08 (B2, B3, B4, Bx) PG.III: P002 (PPxx), IBC08 (B3, Bx), LP02

PPxx:For UN 3xxx and UN 3yyy, metal packagings shall be vented. Bx: For UN 3xxx and UN 3yyy, metal IBCs shall be vented.

Section 2. PHYSICAL PROPERTIES

- 2.1 Melting point or range: **n.a**.
- 2.2 Boiling point or range: **n.a.**
- 2.3 Relative density at :
 - 2.3.1 15 °C: **see 2.3.2**
 - 2.3.2 20 °C: **900 1200 g/l (bulk density)**
 - 2.3.3 50 °C: **see 2.3.2**
- 2.4 Vapour pressure at:
 - 2.4.1 50 °C: **n.a** kPa 2.4.2 65 °C: **n.a** kPa
- 2.5 Viscosity at 20 °C**/: n. a. m^2/s
- 2.6 Solubility in water at 20 °C 14 g/100 ml

^{*/} 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.

2.7	Physica	1 state at 20 °C (2.2.1.2*/) solid / liquid / gas **/					
2.8	Appearence at normal carriage temperatures, including colour and odour : Crystalline, white, free flowing granules, odourless						
2.9		elevant physical properties: f decomposition when exposed to permanent heat (exothermic decomposition	з 60°C).				
Secti	on 3. F	LAMMABILITY					
3.1	Flamma	ıble vapour					
	3.1.1	Flash point (2.3.3*/) n.a. °C oc/cc					
	3.1.2	Is combustion sustained? (2.3.1.2*/)yes/no					
3.2	Autoign	nition temperature n.a . °C					
3.3	Flamma	ability range (LEL/UEL) n.a . %					
3.4	Is the su	abstance a flammable solid? (2.4.2 */) yes/ no					
	3.4.1 I	f yes, give details					
Secti	on 4. C	HEMICAL PROPERTIES	••••••				
4.1		ne substance require inhibition/stabilization or other treatment such as nitrogen blanket us reactivity? tate	to prevent				
	4.1.1	Inhibitor/stabilizer used:					
	4.1.2	Alternative method:					
	4.1.3	Time effective at 55 °C:					
	4.1.4	Conditions rendering in ineffective:					
4.2	Is the su	abstance an explosive according to paragraph 2.1.1.1? (2.1 */)	yes /no				
	4.2.1	If yes, give details:					
4.3	Is the su	abstance a desensitized explosive? (2.4.2.4 */)	yes /no				
	4.3.1	3.1 If yes, give details:					

^{*/} 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.

4.4	Is the substance a self-reactive substance? $(2.4.1 +)$						
	If yes, state:						
	4.4.1	exit box of flow chart:					
	What is the self accelerating decomposition temperature (SADT) for a 50 kg package?						
	Is the temperature control required? (2.4.2.3.5 */)						
	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 sub 4.5.1	stance pyrophoric? (2.4.3 */)					
4.6	Is the sub 4.6.1	stance liable to self-heating? (2.4.3 */)					
4.7	Is the sub	yes / no					
	4.7.1	exit box of flow chart:					
	What is th	e? °C					
	Is the tem 4.7.2	yes / no °C					
	4.7.3	proposed emergency temperature for a 50 kg package	°C				
4.8	Does the 4.8.1	substance in contact with water emit flammable gases? (2.4.4 * /)					
4.9	Does the 4.9.1	substance have oxidizing properties (2.5.1 */)		r			
4.10	Corrosivity (2.8 */) to:						
	4.10.1	mild steel: < 0,01 mm/year at 55 °C					
	4.10.2	aluminium: 0,064 mm /year at 55 °C					
	4.10.3 (specify)	other packaging materials not known	•				
4.11		evant chemical properties:	·				

^{*/}This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

Section 5. HARMFUL BIOLOGICAL EFFECTS

5.1	LD 50, oral (2.6.2.1.1 <u>*</u> /)	1034 mg /kg	Animal spe	ccies: Rat, male and female (lit.)
5.2	LD 50, dermal (2.6.2.1.2 */)	> 2000 mg /kg	Animal spe	ccies: Rabbit, OECD 402 (lit.)
5.3	LC 50, inhalation (2.6.2.1.3 */) or	not available not applicab	-	Exposure time: 1 hours Animal species: Rat
5.4	Saturated vapour concentration a	at 20 °C (2.6.2.2	.4.3 * /)	not applicable
5.5	Skin exposure (2.8 <u>*</u> /) results: S	lightly irritant	t	Exposure time: hours/minutes Animal species: Rabbit (OECD 404)
5.6	Other data: Not sensitizing, Buehler test	t, guinea pig (OECD 406	,
5.7	Human experience:			

Irritating to eyes and skin. Harmful if swallowed. In case product dust is released,

Section 6. SUPPLEMENTARY INFORMATION

irritating to respiratory system.

- 6.1 Recommended emergency action
 - 6.1.1 Fire (include suitable and unsuitable extinguishing agents):

Product itself is not combustible. Contact with combustible substances may cause ignition. Involved in a fire or exposed to high temperatures, it may decompose yielding oxygen and steam. Risk of overpressure and bursting due to decomposition in confined spaces. Suitable extinguishing media: Water, quenching foam and powder; Unsuitable extinguishing media: Carbon dioxide, organic compounds.

6.1.2: Spillage:

Keep away from heat. Protect from moisture. Absorb mechanically. Avoid production of dust. Keep containers open; do not seal hermetically. Never return spilled product into its original container for re-use (Risk of decomposition).

6.2 Is it proposed to transport the substance in :

6.2.1	Intermediate Bulk Containers (6.5*/)?	yes/ no				
6.2.2	Multimodal tanks (6.7*/) ?	yes/ no				
6.2.3	Box type container with liner	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): **All types listed in packing instruction IBC08 (exempted 13H1) Metal IBCs shall be provided with a device to allow venting during transport.**

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)	T1
8.2	Minimum test pressure	1,5 bar
8.3	Minimum shell thickness	5 mm
8.4	Details of bottom openings, if any	2 shut-off devices
8.5	Pressure relief arrangements	Normal type

^{*/} This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.