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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 Perborate Monohydrate
in Division 5.1**

Submitted by the expert from Germany

Background

1. At present the detergent raw material Sodium Perborate Monohydrate is shipped worldwide in quantities of approx. 200,000 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 and tank railcars and hopper type 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 III) based on positive results given by the UN O.1 test (see Annex 1).

GE.01-

Annex 1

INFRACOR
Degussa-Hüls Gruppe

Hanau, February 05, 2001

Report SPZ 92/97-2 (n)**UN Testing with Sodium Perborate Monohydrate**

1 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 two samples of the same production batch 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 Perborate Monohydrate (sample 1)	50.2	45.6	1
Sodium Perborate Monohydrate (sample 2)	34.6	51.8	2

Ratio of Mixture	No	6:4	4:6	3:7
Reference Sample		Burning time [s]	Burning time [s]	Burning time [s]
Potassium Bromate : Cellulose	1	7.0	31.0	92.8
Potassium Bromate : Cellulose	2	6.8	26.2	89.4

1.3 Conclusion

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

Dr. W. Wildner

- 2.9 Other relevant physical properties:
Risk of decomposition when exposed to permanent heat (exothermic decomposition ³ 60 °C).

Section 3. FLAMMABILITY

- 3.1 Flammable 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 Autoignition temperature **n.a.** °C
3.3 Flammability range (LEL/UEL) **n.a.** %
3.4 Is the substance a flammable solid? (2.4.2 */) **yes/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 ? **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 in ineffective:.....
4.2 Is the substance an explosive according to paragraph 2.1.1.1? (2.1 */) **yes/no**
4.2.1 If yes, give details:.....
4.3 Is the substance a desensitized explosive? (2.4.2.4 */)..... **yes/no**
4.3.1 If yes, give details:.....
4.4 Is the substance a self-reactive substance? (2.4.1 */) **yes/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?
Is the temperature control required? (2.4.2.3.5 */) **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 */) **yes/no**
4.5.1 If yes, give details:.....
4.6 Is the substance liable to self-heating? (2.4.3 */) **yes/no**
4.6.1 If yes, give details:.....

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

- 4.7 Is the substance an organic peroxide (2.5.1 */)..... **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? (2.5.3.5.1 */) **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 */) **yes/no**
 4.8.1 If yes give details

 4.9 Does the substance have oxidizing properties (2.5.1 */) **yes/no**
 4.9.1 If yes, give details:
see encl. Test report # SPZ 92/97-2 (n) dated Feb. 05, 2001 prepared by Infracor Safety Data Testing Centre, Hanau, Germany
 4.10 Corrosivity (2.8 */) to:
 4.10.1 mild steel: < **0,01** mm/year at 55 °C
 4.10.2 aluminium: < **0,01** mm/year at 55 °C
 4.10.3 other packaging materials
 (specify) not knownmm/year at
mm/year at
 4.11 Other relevant chemical properties :
Stable under normal conditions. Conditions to avoid: Sources of heat, moisture, water

Section 5. HARMFUL BIOLOGICAL EFFECTS

- 5.1 LD 50, oral (2.6.2.1.1 */) **1500 - 1900** mg/kg Animal species : **Rat, female (lit.)**
1700 - 2500 mg/kg **Rat, male (lit.)**
 5.2 LD 50, dermal (2.6.2.1.2 */) > **2000** mg/kg Animal species : **Rabbit, OECD 402 (lit.)**
 5.3 LC 50, inhalation (2.6.2.1.3 */) **not available** mg/litre Exposure time :
 or **not available** ml/m³ Animal species :
 5.4 Saturated vapour concentration at 20 °C (2.6.2.2.4.3 */) **not applicable**
 5.5 Skin exposure (2.8 */) results: **Irritant** Exposure time: hours/minutes
 Animal species: **Rabbit (OECD 404)**
 5.6 Other data:
Not sensitizing, Buehler test, guinea pig (OECD 406) (lit.)
 5.7 Human experience:
When swallowed localised irritation in the throat area, vomiting and diarrhea, as well as pyrosis, arose. At working place concentration > 21 mg/m³ irritating effects in the airways occurred.

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

Section 6. SUPPLEMENTARY INFORMATION

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 ignitions. 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 instr. IBC08 with the exemption of 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.*