UNITED
NATIONS

ST

Secretariat

Distr.
GENERAL

ST/SG/AC.10/C.3/2004/90
2 September 2004

ORIGINAL: ENGLISH

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

Twenty-sixth session, 29 November-3 December 2004
Item 3 (b) of the provisional agenda

OUTSTANDING ISSUES OR PROPOSALS OF AMENDMENTS TO THE RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Self-reactive substances

New formulation for the list in 2.4.2.3.2.3

Transmitted by the expert from Japan

A new formulation for self-reactive substances as mentioned hereunder meets the criteria of UN 3228, type E. The Data Sheet and the Test Report are attached hereto as annexes 1 and 2 respectively. Approval for maritime transport of the products has already been granted by Japanese Ministry of Land, Infrastructure and Transport.

The products have been transported from Japan to the United States of America and China for some years without any incident or accident.

It is proposed to add the formulation for self-reactive substances in the list in 2.4.2.3.2.3 in order to allow transport in the appropriate conditions.

Proposal

Add the following formulation in the list of currently assigned self-reactive substances in 2.4.2.3.2.3:

Self-reactive Substance:	ACETONE-PYROGALLOL COPOLYMER 1,2-NAPHTHOQUINONEDIAZIDO-5-SULPHONATE
Concentration(%) :	100
Packing Method :	OP8
Control Temperature :	None
Emergency Temperature :	None
UN Generic entry :	3228
Remarks :	None

Annex 1 (ENGLISH ONLY)

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

Submitted by Japan Date May 25, 2004

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 **Acetone-pyrogallol copolymer 1,2-Naphthoquinonediazido-5-sulphonate**

1.2 Chemical formula **$C_{24}H_{21}N_3O_6S_1$**

1.3 Other names/synonyms **Acetone-pyrogallol copolymer 2-Diazo-1-naphthol-5-sulphonate**

UN number **UN3228**

CAS number **68584-99-6**

1.5 Proposed classification for the Recommendations

1.5.1 proper shipping name (3.1.2[1]) **Self-reactive solid type E** .....

1.5.2 class/division **4.1** .....subsidiary risk(s) **None**.....
packing group **II** ....

1.5.3 proposed special provisions, if any **274** .....

1.5.4 proposed packing instruction(s) **P520**.....

Section 2. PHYSICAL PROPERTIES

2.1 Melting point or range**>290 °C**

2.2 Boiling point or range **not applicable**

2.3 Relative density at :

2.3.1 15 °C.....**600kg/m^3**
2.3.2 20 °C.....**600kg/m^3**
2.3.3 50 °C.....**600kg/m^3**

2.4 Vapour pressure at :

2.4.1 50 °C.....**not applicable**
2.4.2 65 °C.....**not applicable**

2.5 Viscosity at 20 °C[2] **not applicable**

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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.....**not soluble**

2.7 Physical state at 20°C (2.2.1.1[1]).....**solid**/~~liquid~~/~~gas~~[2]

2.8 Appearance at normal transport temperatures, including colour and odour.....

Yellow powder , odourless.....

2.9 Other relevant physical properties

.....

Section 3. FLAMMABILITY

3.1 Flammable vapour

3.1.1 Flash point (2.3.3[1]) **not applicable**
3.1.2 Is combustion sustained? (2.3.1.3[1]) ~~yes~~/**no**

3.2 Autoignition temperature .....**not known**

3.3 Flammability range (LEL/UEL).....**not known**

3.4 Is the substance a flammable solid? (2.4.21) ~~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 it ineffective .....

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

4.3.1 If yes, give details.....

.....

.....

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

If yes, state:

4.4.1 exit box of flow chart Exit E

What is the self-accelerating decomposition temperature (SADT) for a 50 kg package?65°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]) ..... ~~yes~~/**no**

4.5.1 If yes, give details.....

.....

.....

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

4.6.1 If yes, give details.....

.....

.....

4.7 Is the substance an organic peroxide (2.5.1[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? **65 °C**

Is temperature control required? (2.5.3.4.1[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[1]) ~~yes~~/**no**

4.8.1 If yes, give details.....

.....

.....

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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]) ~~yes~~/**no**

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

4.10 Corrosivity (2.8[1]) to:..... **Not corrosive**

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]) **19400**.....mg/kg Animal species rat .....

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

5.3 LC_{50}, inhalation (2.6.2.1.3[1]) ... .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]) **not applicable**

5.5 Skin exposure (2.8[1]) results Exposure time .....24 hours

Animal species..... rabbits

5.6 Other data

.....

5.7 Human experience

.....

Section 6. SUPPLEMENTARY INFORMATION

6.1 Recommended emergency action

6.1.1 Fire (include suitable and unsuitable extinguishing agents)
Use Dry chemical, CO_2 as extinguish media

6.1.2 Spillage

Eliminate all ignition sources. Do not touch or walk through spilled material by naked hands. Take up with spilled material using clean non-sparking tools and place into loosely covered plastic containers for later disposal. Prevent entry into floor drains, storm sewer, waterways or confined areas.

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

6.2 Is it proposed to transport the substance in:

6.2.1 Bulk Containers (6.8[1]) ~~yes~~/**no**

6.2.2 Intermediate Bulk Containers (6.5[1])? ~~yes~~/**no**

6.2.3 Portable tanks (6.7[1])? ~~yes~~/**no**

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) .....

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) .....

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 .....

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

Annex 2 (ENGLISH ONLY)

TEST REPORT

1. Name of the Self-reactive solid: ACETONE-PYROGALLOL COPOLYMER 1,2-NAPHTHOQUINONEDIAZIDO-5-SULPHONATE

2. General data

2.1	Composition	: 100%
2.2	Molecular formula	: C24H21N2O6S1
2.3	Physical form	: Solid
2.4	Colour	: Yellow
2.5	Density	: 600kg/m^3
2.6	Particle diameter	: None

3. Detonation (test series A)

	Box 1 of the flow chart	: Does it propagate a detonation?
3.1	Method	: BAM 50/60 steel tube test (test A.1)
3.2	Sample conditions	: Temperature 26 °C, Humidity 70%
3.3	Observations	: Fragmented part of the tube: 11.6 cm
3.4	Result	: No
3.5	Exit	: 1.3

4. Deflagration (test series C)

	Box 5 of the flow chart	: Can it propagate a deflagration?
4.1	Method 1	: Time/pressure test (test C.1)
4.2	Sample conditions	: Temperature 18 °C, Humidity 76%
4.3	Observations	: No pressure rise to 300psi
4.4	Result	: No
4.5	Method 2	: Deflagration test (test C.2)
4.6	Sample conditions	: Temperature 16 °C , Humidity 74%
4.7	Observations	: Deflagration rate 0.15 mm/s
4.8	Result	: No
4.9	Final result	: No
4.10	Exit	: 5.3

5. Heating under confinement (test series E)

	Box 9 of the flow chart	: What is the effect of heating it under defined confinement?
5.1	Method 1	: Koenen test (test E.1)
5.2	Sample conditions	: Temperature 20 °C, Humidity 91% , Mass 13.9 g
5.3	Observations	: Limiting diameter less than 1.0 mm
5.4	Result	: Low
5.5	Method 2	: Dutch pressure vessel test (test E.2)
5.6	Sample conditions	: Temperature 18 °C, Humidity 89% , Mass 50 g
5.7	Observations	: Limiting diameter less than 1.0 mm

5.8	Result	: No
5.9	Final result	: No
5.10	Exit	: 9.4

6. Thermal stability (outside of the flow chart: test series H)

6.1	Method	: Heat accumulation storage test (test H.4)
6.2	Sample conditions	: Dewar vessel (Diameter 60mm, Height 180mm , Mass 500 cc)
6.3	Observations	: at 60 °C no exothermal reaction at 65°C self-promotion decomposition, SADT 65 °C
6.4	Result	: Control temperature is not required

7. General remarks : The classification scheme is given in Fig.1

8. Proposed assignment

8.1	Proper shipping name	: SELF-REACTIVE SOLID TYPE E
8.2	UN number	: 3228
8.3	Division	: 4.1
8.4	Technical name	: ACETONE-PYROGALLOL COPOLYMER 1,2-NAPHTHOQUINONEDIAZIDO-5-SULPHONATE
8.5	Concentration	: 100%
8.6	Subsidiary risks	: None
8.7	Packing group	: II
8.8	Packing Method	: OP8
8.9	Control temperature	: None
8.10	Emergency temperature	: None

* * * *

Figure 1: FLOW CHART SCHEME FOR SELF-REACTIVE SUBSTANCES

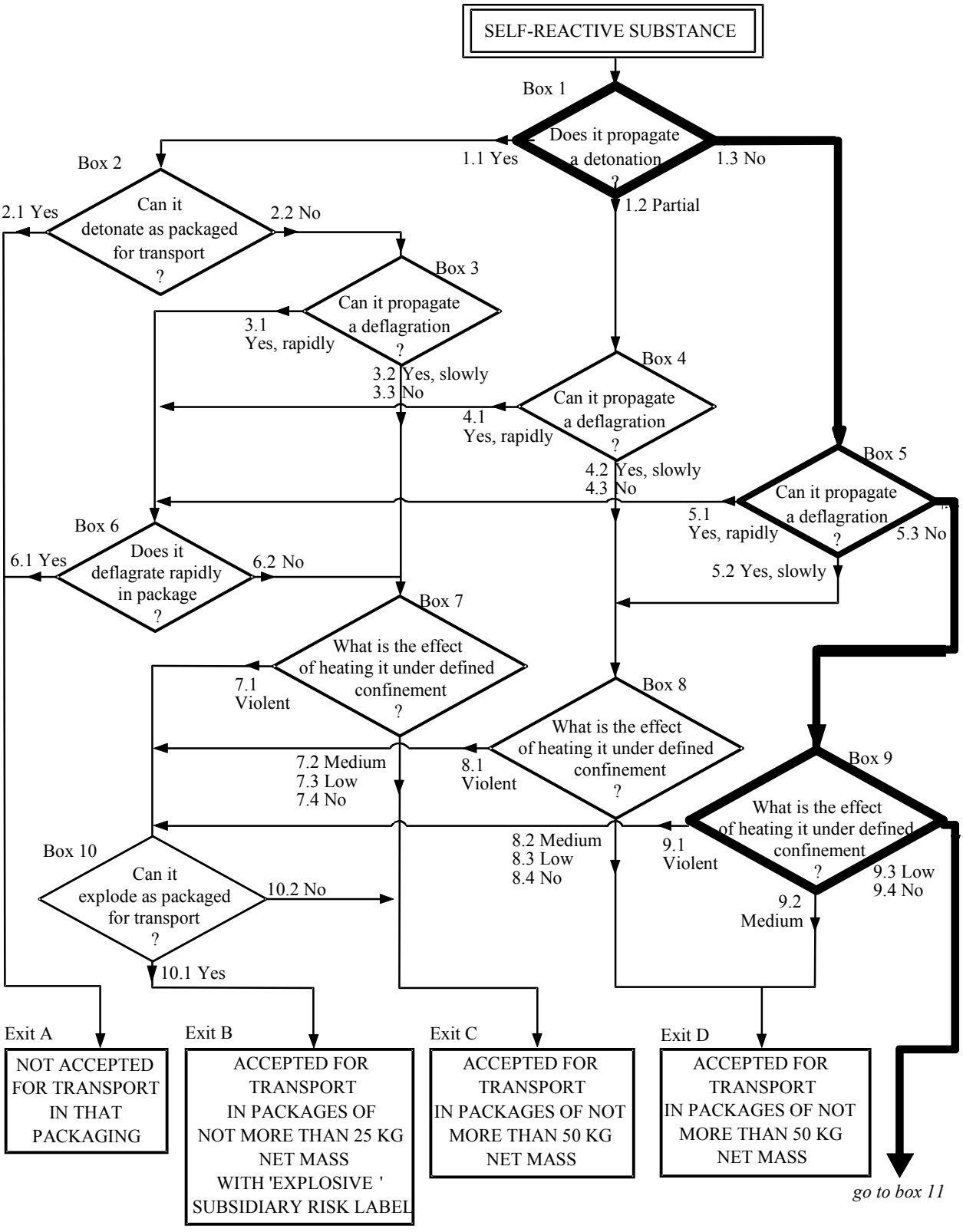

Figure1: FLOW CHART SCHEME FOR SELF-REACTIVE SUBSTANCES (cont'd)