

**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-first session, 1-10 July 2002,
agenda item 4)**

TRANSPORT OF SOLID SUBSTANCES IN BULK IN CONTAINERS

COMMENTS TO DOCUMENT ST/SG/AC.10/C.3/2002/33

Transmitted by the experts from Germany and the Netherlands

1. General

Having reviewed document ST/SG/AC.10/C.3/2002/33, submitted by the expert from the United States of America, especially with regard to the following items:

- **Substances not considered appropriate or not practical for the transport in portable tanks**
- **Provisions applicable to the transport of elevated temperature substances and solid substances being transported above their melting point but below 100° C. List of substances being authorized for transport in portable tanks. Amendments to the proposed new sections 4.2.1.18, 4.2.1.18.1 and 4.2.1.18.2**
- **The proposed rationalized approach (see Annex 1 of document ST/SG/AC.10/C.3/2002/33)**
- **List of solid substances (see Annex 2 of document ST/SG/AC.10/C.3/2002/33)**

the experts from Germany and the Netherlands came to the conclusion that these items need a more careful study before being adopted.

2. Proposals

A. Substances not considered appropriate or not practical for the transport in portable tanks

Amendments and/or items which need discussions

(a) First dash

In the first dash self-reactive substances except type F should be inserted for exclusion. Furthermore the UN-Nos. 2956, 3241, 3242 and 3251 should be inserted, too.

Reasoning

The group of self-reactive substances reacts very dangerously, comparable to substances of division 5.2. Some self-reactive substances are only allowed if being transported under temperature control. The exclusion of the UN-Nos. 2956, 3241, 3242 and 3251 is justified, because these substances require special transport conditions.

- (b) **A new dash should be inserted between the second and the third dash**
The proposed new dash should explain that Division 5.2 except type F should also be considered as not appropriate.

Reasoning

See explanation under a.).

- (c) **A new dash should be inserted between the third and the fourth dash**

The proposed new dash should explain that class 7 should be excluded.

Reasoning

This class reflects a very special class of dangerous substances which require special transport conditions.

- (d) **Fourth dash**

Under this dash the entire set of hypochlorites “dry” or “wetted” should be excluded (UN-Nos. 1471, 1748, 2208, 2880).

Reasoning

These substances are very dangerous, if being transported in higher amounts and/or at high ambient temperatures (severe exothermic decompositions).

- (e) **Sixth dash**

In this dash the proposed list of substances being not practical for transport in portable tanks is not sufficiently justified. In the opinion of the experts of Germany and the Netherlands some additional substances may be transported in portable tanks.

- (f) **Harmonization of requirements for the transport of solid substances in portable tanks with ADR and/or IMDG Code**

It should be justified why in the proposed list of substances (see Annex 2 of document ST/SG/AC.10/C.3/2002/33) some substances which presently are allowed to be transported in portable tanks according to ADR and/or to the IMDG Code have not been taken into account.

B. Provisions applicable to the transport of elevated temperature substances and solid substances being transported above their melting point but below 100° C. List of substances being authorized for transport in portable tanks. Amendments to the proposed new sections 4.2.1.18, 4.2.1.18.1 and 4.2.1.18.2

Amendments and/or items which need discussions

- (a) **In 4.2.1.18** it should be explained why the transport temperature should be limited to below 100° C.
- (b) **In 4.2.1.18.1** For substances which may become liquid at temperatures likely to be encountered during transport or solid substances being transported above their melting point but below 100° C an explanation should be given why only the substances mentioned under (a), (b) and (c) are allowed to be transported under elevated temperature requirements or above their melting point, but below 100° C. According to the opinion of the experts from Germany and the Netherlands molten or heated solid substances of divisions 4.1, 4.2, 4.3 and 5.1 may be transported under these transport conditions.
- (c) **In 4.2.1.18.2** any reference to protection against explosion is missing. The proposed requirements for 4.2.1.18 should be aligned with the provisions of the IMDG Code para 4.2.1.18.2 up to 4.2.1.18.4

C. The proposed rationalized approach for the assignment of tank instructions for solids (Annex 1)

Proposed new rationalized approach for the assignment of tank instructions for solids

The following is a proposed rationalized approach for the assignment of solids to portable tanks:

Tank Instructions for Solids – Rationalized Approach			
Class/SR	PG	TI	TP
4.1	I	<i>Not Authorized</i>	
	II	T3*	TPXX
	III	T1*	TPXX
4.2	I	<i>Not Authorized</i>	
	II	T3	TP7 TPXX
	III	T1	TP7 TPXX
4.3	I	<i>Not Authorized</i>	
	II	T3	TP7 TPXX
	III	T1	TP7 TPXX
5.1	I	<i>Not Authorized</i>	
	II	T3	TPXX
	III	T1	TPXX
5.2	II	T23**	TPXX
6.1	I	T6	TPXX
	II	T3	TPXX
	III	T1	TPXX
8	I	T6	TPXX
	II	T3	TPXX
	III	T1	TPXX
9	II	T3	TPXX
	III	T1	TPXX

* Solid desensitized explosives, self-reactive substances except type F and substances of UN-Nos. 2956, 3241, 3242 and 3251 are not authorized.

** Only Type F organic peroxides are authorized.

Reasoning

- (a) Pyrophoric substances of Division 4.2, PG I are substances which even in small quantities ignite within 5 minutes of coming in contact with air. They are the most liable to spontaneous combustion. According to Section 2.0.3.1 their characteristics take precedence over Division 4.3, PG I. In practice pyrophoric substances are transported in small amounts and in dedicated packagings (see packing instruction P400). The transport of large amounts in portable tanks is not practical and from the safety point of view very dangerous.
- (b) Substances of Division 4.3, PG I ignite spontaneously in contact with humidity/water emitting flammable gases. In practice they are transported in small amounts and in dedicated packagings. If substances of Division 4.3, primary risk Division 4.3 and subsidiary risk 6.1 are excluded, then according to the opinion of the experts of Germany and the Netherlands the substances of Division 4.3 without subsidiary risk(s) should be excluded as well.
- (c) For Division 5.2 PG I is not valid.
- (d) The experts of Germany and the Netherlands are of the opinion that the TP-Code “TP7” for Divisions 4.2, PG II or III and 4.3, PG II or III should be used. Portable tanks being cooled down during storage and/or transport show a decreased internal pressure and therefore suck in air and/or humidity. This may lead to exothermic reactions inside the tank.

The proposed rationalized approach (see Annex 1 of document ST/SG/AC.10/C.3/2002/33)

- (e) Additionally in the case in which a packing instruction P099, IBC99 and/or LP99 is prescribed for the IMDG Code (mostly N.O.S.-entries) the transport in portable tanks should not be permitted without approval of the competent authority. This applies particularly to UN-Nos. 3127, 3132, 3133, 3135, 3200,3372 etc. According to the experts from Germany and the Netherlands for the above mentioned substances a T-Code instruction “T99” should be inserted.
- (f) If the transport of substances in IBC is prohibited in ADR or in the IMDG Code **because of special hazards of the substance** (e. g. see UN-No. 1471 “LITHIUM HYPOCHLORITE, DRY” or “LITHIUM HYPOCHLORITE MIXTURE” as well as UN-No. 2880 “CALCIUM HYPOCHLORITE, HYDRATED” or “CALCIUM HYPOCHLORITE, HYDRATED MIXTURE” with not less than 5.5 % but not more than 10 % water), the transport in portable tanks should also be forbidden under the requirements of the UN-Recommendations.

D. List of solid substances (see Annex 2 of document ST/SG/AC.10/C.3/2002/33)

According to the experts from Germany and the Netherlands the substances proposed in Annex 2 of document ST/SG/AC.10/C.3/2002/33 should be reconsidered in detail by a working group taking into account the above mentioned principles.

3. Consequentials

Proposals to amend part 4, chapter 4.2 and part 6, chapter 6.2 are missing.
