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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

Twenty-ninth session
Geneva, 3-12 (a.m.) July 2006
Item 6 of the provisional agenda

LISTING, CLASSIFICATION AND PACKING

Provisions for the transport of solid substances in bulk containers - Revised rationalised approach -

Transmitted by the International Council of Chemical Associations (ICCA)

Background

1. Provisions for the use of bulk containers for the transport of solid substances in bulk were included in a new Chapter 4.3 of the thirteenth revised edition of the UN Model Regulations. At the same time two new bulk container codes (BK1 for transport in sheeted bulk containers and BK2 for transport in closed bulk containers) were added in column 10 of the Dangerous Goods List for some 25 UN entries.

2. These provisions were the result of a series of discussions, which started with document ST/SG/AC.10/C.3/1999/92 (Germany), followed by documents ST/SG/AC.10/C.3/2001/37 (United Kingdom and Germany) and ST/SG/AC.10/C.3/2002/29 (United Kingdom and Germany) (and informal document UN/SCETDG/21/INF.66) before they were finally adopted at the 21st session in July 2002.

3. During these discussions, ICCA promised to present in future a proposal for a rationalised approach for the assignment of bulk container codes. Since then ICCA has made two proposals (ST/SG/AC.10/C.3/2004/42 and UN/SCETDG/27/INF.24) which were not received favourably.

Introduction

4. As a result of the discussion ICCA took into consideration the solid substances that are currently being allowed to be transported in bulk in the different modes and regulations.

5. As a basis, all solid substances were considered that are currently allowed to be transported in bulk by road/rail in Europe according to ADR (Road) and RID (Rail). These are identified by the presence of a special provision for the carriage in bulk (VVx in ADR and similarly with WWx in RID) in column (17) of the Dangerous Goods List in ADR and RID. The meaning of these special provisions can be found in the Annex 2 at the end of this document (reproduction of Chapter 7.3 of ADR 2005 – RID has an identical chapter).

6. In order to provide a general overview this list of substances (see Annex 1) has been completed by indicating an eventual reference to:

- § 173.240 in column (8c) of the Hazardous Material Table in CFR 49 of United States of America, authorising the use of “closed bulk bins” (see item c of § 173.240);
- BK2 in column (13) of the Dangerous Goods List of the IMO IMDG Code. Note that sheeted bulk containers (BK1) are not allowed for sea transport;
- Listing of the substance in the IMO Code of Practice for Solid Bulk Cargoes (BC Code). Group B refers to cargoes with chemical hazards.

7. In addition to all entries with a BK code in the Dangerous Goods List of the 14th revised Edition of the UN Model Regulations, ADR/RID have assigned a VV/WW special provision to many more solid substances and this is the case also, albeit to a lesser extent, for CFR 49.

8. The IMDG Code has assigned BK2 to a number of solids, which have no BK code in the UN Model Regulations. In most, but not all cases, this corresponds to solids, which have been listed in the BC Code.

Proposal

9. The table below provides a summary of the findings and proposed amendments:

Class	Subrisk	PG	CFR 49 (§ 173.240)	ADR/RID (VV/WW)	Number of UN entries	UN numbers already with BK-provision: Assign- ments to be kept: see (a)	Proposal for adding	
							BK1	BK2
4.1		II	x	VV3	1	3175 (BK1-BK2)		
		III	x (except UN 1338)	VV1 - VV2	28	1334 -1350-2213 (all BK1-BK2)	(b)	(b)
4.2		III	-	VV4	19	1376 (BK2)		
	4.3	III	-	VV4	1			
4.3		I	-	-	1			
		II	-	VV3 - VV5 - VV7	4	3170 (BK1-BK2)		
	6.1	II	-	-	1			
		III	-	VV1 - VV5 - VV7	10	2950 (BK2) - 3170 (BK1-BK2)		
	4.2	III	-	VV5	3			
	6.1	III	x	VV1	1	1408 (BK2)		
5.1		II	- -/x	VV8	25	1495 - 3378 (all BK1-BK2)	(b)	(b)
	6.1	II	-	-	2			
		III	x	VV8	31	1438 - 1454 - 1474 - 1486 - 1498 - 1499 - 1942 - 2067 - 3377 - 3378 (all BK1-BK2)	(b)	(b)
6.1		II	x	VV10	1	3243 (BK1-BK2)		
		III	x (except UN 3249-3462)	VV9a - VV9b	87			(b)
6.2		-	-	-	2	2900 (BK1-BK2) - 3291 (BK2)		
8		II	x	VV9a - VV10	4	3244 (BK1-BK2)		
		III	x	VV9b	34			(b)
		-	-	VV14	4			
	6.1	III	x	VV9b	1			(b)
9		II	-/x	VV3 - VV15	3	2969 (BK1-BK2)		
		III	-/x	VV3	8		(b)	(b)

(a) Current assignments of BK1 or BK2 to solid substances should be maintained

(b) Assignment of BK1 and/or BK2 (marked b) is proposed to substances, listed in the Annex, with the following classification
- Class 4.1 – PG III: assign BK1 and BK2
- Class 5.1 – PG II – no subrisk: assign BK1 and BK2
- Class 5.1 – PG III: assign BK1 and BK2
- Class 6.1 – PG III: assign BK2

- Class 8 – PG III: assign BK2
- *Class 9 – PG III: assign BK1 and BK2 (limited to UN 1841-1931)

(c) of BK1 and/or BK2 could be added to individual substances, not covered by a) or b), based on e.g. current assignments by IMO such as UN 1363, UN 1386, etc.

No indication for assignment is given in the table above for the moment.

10. The proposed assignments per UN number can be found in the last column of the list in the Annex: they reflect both the maintenance of current assignments (see (a) above) as well as the proposed new assignments according to the rationalised approach (see (b)). No indication in the last column means that it is proposed not to assign a BK code for the moment to this substance, unless this could be justified (see (c)).

11. ICCA is not requesting UNSCETDG to make a decision on the proposal at this meeting but invites comments from delegates, in order to allow ICCA to make a revised proposal at the December meeting, taking into account the comments made.

Justification

12. There is no need to amend the current assignment of BK codes to substances, which are currently already allowed to be transported in bulk as they are permitted by the various regulations, as there is a demonstrated industry need for them and because of practical reasons e.g. UN 3175, UN 3243 and UN 3244 to deal with wastes following spillages.

13. For those substances for which now the assignment of BK1 and/or BK2 is proposed, it is believed that the extension to similar substances of the same class can be made because their carriage in bulk containers is generally already allowed in land modes whereby

(a) The provisions for the use of bulk containers (Chapter 4.3 of UN Model Regulations) are adequately covered by the special provisions VVx/WWx of ADR/RID (Chapter 7.3 of ADR/RID) and to a large extent also CFR 49;
(b) The requirements for the design, construction, inspection and testing of bulk containers (Chapter 6.8 of the UN Model Regulations), nearly integrally taken over by ADR/RID (Chapter 6.11) and IMDG (Chapter 6.9) remain applicable.

14. Therefore ICCA is of the opinion that the list of solid substances, transported in bulk containers, could be extended in a rationalised way, without jeopardising safety.

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Annex 1 (ENGLISH ONLY)

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
3175	SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.	4.1		II	T3 BK1 BK2	TP33	VV3	X	BK2		BK1 BK2
1309	ALUMINIUM POWDER, COATED	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1312	BORNEOL	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1313	CALCIUM RESINATE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1314	CALCIUM RESINATE, FUSED	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1318	COBALT RESINATE, PRECIPITATED	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1325	FLAMMABLE SOLID, ORGANIC, N.O.S.	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1328	HEXAMETHYLENE-TETRAMINE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1330	MANGANESE RESINATE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1332	METALDEHYDE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1334	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED	4.1		III	T1 BK1 BK2	TP33	VV2	X	BK2		BK1 BK2
1338	PHOSPHORUS, AMORPHOUS	4.1		III	T1	TP33	VV1	-			**BK1 BK2**
1346	SILICON POWDER, AMORPHOUS	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1350	SULPHUR	4.1		III	T1 BK1 BK2	TP33	VV1	X	BK2	B	BK1 BK2
1869	MAGNESIUM or MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2001	COBALT NAPHTHENATES, POWDER	4.1		III	T1	TP33	VV1	X			**BK1 BK2**

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UN No.	Name and description	Class or division	Subsi diary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
2213	PARAFORM-ALDEHYDE	4.1		III	T1 BK1 BK2	TP33	VV1	X	BK2		BK1 BK2
2538	NITRONAPHTHALENE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2687	DICYCLOHEXYL-AMMONIUM NITRITE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2714	ZINC RESINATE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2715	ALUMINIUM RESINATE	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2717	CAMPHOR, synthetic	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2858	ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	4.1		III			VV1	X			**BK1 BK2**
2878	TITANIUM SPONGE GRANULES or TITANIUM SPONGE POWDERS	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
2989	LEAD PHOSPHITE, DIBASIC	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
3089	METAL POWDER, FLAMMABLE, N.O.S.	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
3178	FLAMMABLE SOLID, INORGANIC, N.O.S.	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
3182	METAL HYDRIDES, FLAMMABLE, N.O.S.	4.1		III	T1	TP33	VV1	X			**BK1 BK2**
1361	CARBON, animal or vegetable origin	4.2		III	T1	TP33	VV4	-			
1362	CARBON, ACTIVATED	4.2		III	T1	TP33	VV4	-			
1363	COPRA	4.2		III			VV4	-	BK2	B	
1364	COTTON WASTE, OILY	4.2		III			VV4	-			
1365	COTTON, WET	4.2		III			VV4	-			
1373	FIBRES or FABRICS, ANIMAL or VEGE-TABLE or SYNTHETIC, N.O.S. with oil	4.2		III	T1	TP33	VV4	-			

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UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1376	IRON OXIDE, SPENT or IRON SPONGE, SPENT obtained from coal gas purification	4.2		III	T1 BK2	TP33	VV4	X	BK2	B	BK2
1379	PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)	4.2		III			VV4	-			
1386	SEED CAKE with more than 1.5% oil and not more than 11% moisture	4.2		III			VV4	-	BK2	B	
1932	ZIRCONIUM SCRAP	4.2		III	T1	TP33	VV4	X			
2008	ZIRCONIUM POWDER, DRY	4.2		III	T1	TP33	VV4	-			
2009	ZIRCONIUM, DRY, finished sheets, strip or coiled wire	4.2		III			VV4	X			
2210	MANEB or MANEB PREPARATION with not less than 60% maneb	4.2	4.3	III	T1	TP33	VV4	-			
2217	SEED CAKE with not more than 1.5% oil and not more than 11% moisture	4.2		III			VV4	-	BK2	B	
2545	HAFNIUM POWDER, DRY	4.2		III	T1	TP33	VV4	-			
2546	TITANIUM POWDER, DRY	4.2		III	T1	TP33	VV4	-			
2793	FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating	4.2		III			VV4	-	BK2	B	
2881	METAL CATALYST, DRY	4.2		III	T1	TP33	VV4	-			
3189	METAL POWDER, SELF-HEATING, N.O.S.	4.2		III	T1	TP33	VV4	-			
3190	SELF-HEATING SOLID, INORGANIC, N.O.S.	4.2		III	T1	TP33	VV4	-			
1402	CALCIUM CARBIDE	4.3		I	T9	TP7 TP33	-	-	BK2		
1394	ALUMINIUM CARBIDE	4.3		II	T3	TP33	VV5	-			
1395	ALUMINIUM FERROSILICON POWDER	4.3	6.1	II	T3	TP33	-	-	BK2	B	
1402	CALCIUM CARBIDE	4.3		II	T3	TP33	VV5	-	BK2		

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					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1405	CALCIUM SILICIDE	4.3		II	T3	TP33	VV7	-			
3170	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS	4.3		II	T3 BK1 BK2	TP33	VV3	-	BK2	B	BK1 BK2
1396	ALUMINIUM POWDER, UNCOATED	4.3		III	T1	TP33	VV5	-			
1398	ALUMINIUM SILICON POWDER, UNCOATED	4.3		III	T1	TP33	VV5	-	BK2	B	
1405	CALCIUM SILICIDE	4.3		III	T1	TP33	VV5 VV7	-			
1408	FERROSILICON with 30% or more but less than 90% silicon	4.3	6.1	III	T1 BK2	TP33	VV1	X	BK2	B	BK2
1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER	4.3	4.2	III	T1	TP33	VV5	-			
1435	ZINC ASHES	4.3		III	T1	TP33	VV5	-	BK2	B	
1436	ZINC POWDER or ZINC DUST	4.3	4.2	III	T1	TP33	VV5	-			
2813	WATER-REACTIVE SOLID, N.O.S.	4.3		III	T1	TP33	VV5	-			
2844	CALCIUM MANGANESE SILICON	4.3		III	T1	TP33	VV5 VV7	-			
2950	MAGNESIUM GRANULES, COATED, particle size not less than 149 microns	4.3		III	T1 BK2	TP33	VV5	X	BK2		BK2
2968	MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating	4.3		III	T1	TP33	VV5	-			
3170	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS	4.3		III	T1 BK1 BK2	TP33	VV1 VV5	-	BK2	B	BK1 BK2
3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	4.3		III	T1	TP33	VV5	-			
3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	4.3	4.2	III	T1	TP33	VV5	-			

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					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1442	AMMONIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1446	BARIUM NITRATE	5.1	6.1	II	T3	TP33	-	-	BK2	B	
1450	BROMATES, INORGANIC, N.O.S.	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1452	CALCIUM CHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1455	CALCIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1458	CHLORATE AND BORATE MIXTURE	5.1		II	T3	TP33	VV8	X			**BK1 BK2**
1459	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE, SOLID	5.1		II	T3	TP33	VV8	X			**BK1 BK2**
1461	CHLORATES, INORGANIC, N.O.S.	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1469	LEAD NITRATE	5.1	6.1	II	T3	TP33	-	-	BK2	B	
1473	MAGNESIUM BROMATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1475	MAGNESIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1481	PERCHLORATES, INORGANIC, N.O.S.	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1484	POTASSIUM BROMATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1485	POTASSIUM CHLORATE	5.1		II	T3	TP33	VV8	-	BK2		**BK1 BK2**
1487	POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE	5.1		II	T3	TP33	VV8	X			**BK1 BK2**
1488	POTASSIUM NITRITE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1489	POTASSIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1493	SILVER NITRATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1494	SODIUM BROMATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1495	SODIUM CHLORATE	5.1		II	T3 BK1 BK2	TP33	VV8	X	BK2		BK1 BK2

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UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1502	SODIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1506	STRONTIUM CHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1508	STRONTIUM PERCHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
1513	ZINC CHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
2721	COPPER CHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
2723	MAGNESIUM CHLORATE	5.1		II	T3	TP33	VV8	-			**BK1 BK2**
3378	SODIUM CARBONATE PEROXYHYDRATE	5.1		II	T3 BK1 BK2	TP33	VV8	X	BK2		BK1 BK2
1438	ALUMINIUM NITRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1444	AMMONIUM PERSULPHATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1451	CAESIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1454	CALCIUM NITRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1458	CHLORATE AND BORATE MIXTURE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1459	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE, SOLID	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1465	DIDYMIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1466	FERRIC NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1467	GUANIDINE NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1474	MAGNESIUM NITRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1477	NITRATES, INORGANIC, N.O.S.	5.1		III	T1	TP33	VV8	X			**BK1 BK2**

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					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1481	PERCHLORATES, INORGANIC, N.O.S.	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1486	POTASSIUM NITRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1492	POTASSIUM PERSULPHATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1498	SODIUM NITRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1499	SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
1505	SODIUM PERSULPHATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1507	STRONTIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
1942	AMMONIUM NITRATE with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
2067	AMMONIUM NITRATE BASED FERTILIZER	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2	B	BK1 BK2
2469	ZINC BROMATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2720	CHROMIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2722	LITHIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2724	MANGANESE NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2725	NICKEL NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2726	NICKEL NITRITE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
2728	ZIRCONIUM NITRATE	5.1		III	T1	TP33	VV8	X			**BK1 BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
2880	CALCIUM HYPOCHLORITE, HYDRATED, or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, with not less than 5.5% but not more than 16% water	5.1		III			VV8	X			**BK1 BK2**
3215	PERSULPHATES, INORGANIC, N.O.S.	5.1		III	T1	TP33	VV8	X			**BK1 BK2**
3377	SODIUM PERBORATE MONOHYDRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2		BK1 BK2
3378	SODIUM CARBONATE PEROXYHYDRATE	5.1		III	T1 BK1 BK2	TP33	VV8	X	BK2		BK1 BK2
3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.	6.1		II	T3 BK1 BK2	TP33	VV10	X	BK2		BK1 BK2
1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1548	ANILINE HYDROCHLORIDE	6.1		III	T1	TP33	VV9b	X			**BK2**
1549	ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1550	ANTIMONY LACTATE	6.1		III	T1	TP33	VV9b	X			**BK2**
1551	ANTIMONY POTASSIUM TARTRATE	6.1		III	T1	TP33	VV9b	X			**BK2**
1557	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1		III	T1	TP33	VV9b	X			**BK2**
1564	BARIUM COMPOUND, N.O.S.	6.1		III	T1	TP33	VV9a	X			**BK2**
1566	BERYLLIUM COMPOUND, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1579	4-CHLORO-o-TOLUIDINE HYDROCHLORIDE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1588	CYANIDES, INORGANIC, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1601	DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1616	LEAD ACETATE	6.1		III	T1	TP33	VV9b	X			**BK2**
1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
1663	NITROPHENOLS (o-, m-, p-)	6.1		III	T1	TP33	VV9b	X			**BK2**
1673	PHENYLENE-DIAMINES (o-, m-, p-)	6.1		III	T1	TP33	VV9b	X			**BK2**
1690	SODIUM FLUORIDE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
1709	2,4-TOLUYLENE-DIAMINE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
1812	POTASSIUM FLUORIDE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
1884	BARIUM OXIDE	6.1		III	T1	TP33	VV9a	X			**BK2**
2020	CHLOROPHENOLS, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
2025	MERCURY COMPOUND, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2026	PHENYLMERCURIC COMPOUND, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2074	ACRYLAMIDE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
2077	alpha-NAPHTHYLAMINE	6.1		III	T1	TP33	VV9b	X			**BK2**
2233	CHLOROANISIDINES	6.1		III	T1	TP33	VV9b	X			**BK2**
2237	CHLORONITRO-ANILINES	6.1		III	T1	TP33	VV9b	X			**BK2**
2239	CHLOROTOLUIDINES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
2291	LEAD COMPOUND, SOLUBLE, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2446	NITROCRESOLS, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
2473	SODIUM ARSANILATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2505	AMMONIUM FLUORIDE	6.1		III	T1	TP33	VV9b	X			**BK2**
2512	AMINOPHENOLS (o-, m-, p-)	6.1		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
2516	CARBON TETRABROMIDE	6.1		III	T1	TP33	VV9b	X			**BK2**
2570	CADMIUM COMPOUND	6.1		III	T1	TP33	VV9b	X			**BK2**
2588	PESTICIDE, SOLID, TOXIC, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2651	4,4'-DIAMINO-DIPHENYL-METHANE	6.1		III	T1	TP33	VV9b	X			**BK2**
2655	POTASSIUM FLUOROSILICATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2659	SODIUM CHLOROACETATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2660	NITROTOLUIDINES (MONO)	6.1		III	T1	TP33	VV9b	X			**BK2**
2662	HYDROQUINONE, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
2674	SODIUM FLUOROSILICATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2713	ACRIDINE	6.1		III	T1	TP33	VV9b	X			**BK2**
2716	1,4-BUTYNEDIOL	6.1		III	T1	TP33	VV9b	X			**BK2**
2729	HEXACHLOROBENZENE	6.1		III	T1	TP33	VV9b	X			**BK2**
2757	CARBAMATE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2759	ARSENICAL PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2763	TRIAZINE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2775	COPPER BASED PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2777	MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsi diary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2783	ORGANOPHOS-PHORUS PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2786	ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
2811	TOXIC SOLID, ORGANIC, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2853	MAGNESIUM FLUOROSILICATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2854	AMMONIUM FLUOROSILICATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2855	ZINC FLUOROSILICATE	6.1		III	T1	TP33	VV9b	X			**BK2**
2856	FLUOROSILICATES, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
2862	VANADIUM PENTOXIDE, non-fused form	6.1		III	T1	TP33	VV9b	X			**BK2**
2871	ANTIMONY POWDER	6.1		III	T1	TP33	VV9b	X			**BK2**
2875	HEXACHLOROPHENE	6.1		III	T1	TP33	VV9b	X			**BK2**
2876	RESORCINOL	6.1		III	T1	TP33	VV9b	X			**BK2**
3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3146	ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3249	MEDICINE, SOLID, TOXIC, N.O.S.	6.1		III	T1	TP33	VV9b	-			**BK2**
3283	SELENIUM COMPOUND, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3284	TELLURIUM COMPOUND, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3285	VANADIUM COMPOUND, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3288	TOXIC SOLID, INORGANIC, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
3349	PYRETHROID PESTICIDE, SOLID, TOXIC	6.1		III	T1	TP33	VV9b	X			**BK2**
3427	CHLOROBENZYL CHLORIDES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3438	alpha-METHYLBENZYL ALCOHOL, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3439	NITRILES, TOXIC, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3457	CHLORONITRO-TOLUENES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3458	NITROANISOLES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3459	NITROBROMO-BENZENES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3460	N-ETHYLBENZYL-TOLUIDINES, SOLID	6.1		III	T1	TP33	VV9b	X			**BK2**
3462	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	-			**BK2**
3464	ORGANOPHOS-PHORUS COMPOUND, TOXIC, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3465	ORGANOARSENIC COMPOUND, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3466	METAL CARBONYLS, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3467	ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S.	6.1		III	T1	TP33	VV9b	X			**BK2**
3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.	6.2		II	BK2 (in ADR in 2007)		VV11	-			BK2
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only	6.2			BK1 BK2		-	-	BK2		BK1 BK2

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Proposal
UN No.	Name and description	Class or division	Subsidiary risk	Packing group	Portable tanks and bulk containers						
					Instructions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
1794	LEAD SULPHATE with more than 3% free acid	8		II	T3	TP33	VV9a	X			
2506	AMMONIUM HYDROGEN SULPHATE	8		II	T3	TP33	VV9a	X			
2509	POTASSIUM HYDROGEN SULPHATE	8		II	T3	TP33	VV9a	X			
3244	SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.	8		II	T3 BK1 BK2	TP33	VV10	X	BK2		BK1 BK2
1740	HYDROGENDI-FLUORIDES, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
1759	CORROSIVE SOLID, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
1773	FERRIC CHLORIDE, ANHYDROUS	8		III	T1	TP33	VV9b	X			**BK2**
1907	SODA LIME with more than 4% sodium hydroxide	8		III	T1	TP33	VV9b	X			**BK2**
2214	PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride	8		III	T1	TP33	VV9b	X			**BK2**
2215	MALEIC ANHYDRIDE	8		III	T4	TP1	VV9b	X			**BK2**
2280	HEXAMETHYLENE-DIAMINE, SOLID	8		III	T1	TP33	VV9b	X			**BK2**
2331	ZINC CHLORIDE, ANHYDROUS	8		III	T1	TP33	VV9b	X			**BK2**
2430	ALKYLPHENOLS, SOLID, N.O.S. (including C_2-C_{12} homologues)	8		III	T1	TP33	VV9b	X			**BK2**
2440	STANNIC CHLORIDE PENTAHYDRATE	8		III	T1	TP33	VV9b	X			**BK2**
2475	VANADIUM TRICHLORIDE	8		III	T1	TP33	VV9b	X			**BK2**
2503	ZIRCONIUM TETRACHLORIDE	8		III	T1	TP33	VV9b	X			**BK2**
2507	CHLOROPLATINIC ACID, SOLID	8		III	T1	TP33	VV9b	X			**BK2**
2508	MOLYBDENUM PENTACHLORIDE	8		III	T1	TP33	VV9b	X			**BK2**
2578	PHOSPHORUS TRIOXIDE	8		III	T1	TP33	VV9b	X			**BK2**
2579	PIPERAZINE	8		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsi diary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
2585	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	8		III	T1	TP33	VV9b	X			**BK2**
2698	TETRAHYDRO-PHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride	8		III	T1	TP33	VV9b	X			**BK2**
2802	COPPER CHLORIDE	8		III	T1	TP33	VV9b	X			**BK2**
2803	GALLIUM	8		III			VV9b	X			**BK2**
2823	CROTONIC ACID	8		III	T1	TP33	VV9b	X			**BK2**
2834	PHOSPHOROUS ACID	8		III	T1	TP33	VV9b	X			**BK2**
2865	HYDROXYLAMINE SULPHATE	8		III	T1	TP33	VV9b	X			**BK2**
2869	TITANIUM TRICHLORIDE MIXTURE	8		III	T1	TP33	VV9b	X			**BK2**
2905	CHLOROPHENO-LATES, SOLID or PHENOLATES, SOLID	8		III	T1	TP33	VV9b	X			**BK2**
2923	CORROSIVE SOLID, TOXIC, N.O.S.	8	6.1	III	T1	TP33	VV9b	X			**BK2**
2967	SULPHAMIC ACID	8		III	T1	TP33	VV9b	X			**BK2**
3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
3253	DISODIUM TRIOXOSILICATE	8		III	T1	TP33	VV9b	X			**BK2**
3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**
3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8		III	T1	TP33	VV9b	X			**BK2**

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsi diary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
3453	PHOSPHORIC ACID, SOLID	8		III	T1	TP33	VV9b	X			**BK2**
2794	BATTERIES, WET, FILLED WITH ACID, electric storage	8					VV14	-			
2795	BATTERIES, WET, FILLED WITH ALKALI, electric storage	8					VV14	-			
2800	BATTERIES, WET, NON-SPILLABLE, electric storage	8					VV14	-			
3028	BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage	8					VV14	-			
2969	CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE	9		II	T3 BK1 BK2	TP33	VV3	X	BK2	B	BK1 BK2
3152	POLYHALOGENATED BIPHENYLS, SOLID or POLYHALOGENATED TERPHENYLS, SOLID	9		II	T3	TP33	VV15	-			
3432	POLYCHLORINATED BIPHENYLS, SOLID	9		II	T3	TP33	VV15	X			
1841	ACETALDEHYDE AMMONIA	9		III	T1	TP33	VV3	X			**BK1 BK2**
1931	ZINC DITHIONITE (ZINC HYDROSULPHITE)	9		III	T1	TP33	VV3	X			**BK1 BK2**
2071	AMMONIUM NITRATE BASED FERTILIZER	9		III			Not subject to ADR	X	BK2	B	
2211	POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour	9		III	T1	TP33	VV3	-	BK2		
2216	FISH MEAL (FISH SCRAP), STABILISED	9		III			Not subject to ADR	-	BK2	B	
3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	9		III	T1	TP33	VV3	X			

Provisions for bulk transport of solids in UN - ADR - CFR 49 - IMO

UN Model Regulations							ADR	CFR 49	IMO IMDG Code	IMO BC Code	Propo-sal
UN No.	Name and description	Class or division	Subsi diary risk	Packing group	Portable tanks and bulk containers						
					Instruc-tions	Special provisions	Bulk Special prov (7.3.3)	Bulk (173. 240)	BK2	Group	
(1)	(2)	(3)	(4)	(5)	(10)	(11)					
3258	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C	9		III			VV13	-			
3314	PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	9		III			VV3	-			

Annex 2

(ADR 2005) CHAPTER 7.3

PROVISIONS CONCERNING CARRIAGE IN BULK

7.3.1 General provisions

7.3.1.1 Goods may not be carried in bulk in vehicles or containers unless:

(a) either a special provision, identified by the code BK, explicitly authorizing this mode of carriage is indicated in column (10) of Table A of Chapter 3.2 and the relevant conditions of 7.3.2 are satisfied in addition to those of this section; or

(b) a special provision, identified by the code VV, explicitly authorizing this mode of carriage is indicated in column (17) of Table A of Chapter 3.2 and the conditions of this special provision, as laid down in 7.3.3 are satisfied in addition to those of this section.

Nevertheless, empty packagings, uncleaned, may be carried in bulk if this mode of carriage is not explicitly prohibited by other provisions of ADR.

***NOTE**: For carriage in tanks, see Chapters 4.2 and 4.3.*

7.3.1.2 Substances which may become liquid at temperatures likely to be encountered during carriage, are not permitted for carriage in bulk.

7.3.1.3 Containers or bodies of vehicles shall be siftproof and shall be so closed that none of the contents can escape under normal conditions of carriage including the effect of vibration, or by changes of temperature, humidity or pressure.

7.3.1.4 Bulk solids shall be loaded and evenly distributed in a manner that minimises movement that could result in damage to the container or vehicle or leakage of the dangerous goods.

7.3.1.5 Where venting devices are fitted they shall be kept clear and operable.

7.3.1.6 Bulk solids shall not react dangerously with the material of the container, vehicle, gaskets, equipment including lids and tarpaulins and with protective coatings which are in contact with the contents or significantly weaken them. Containers or vehicles shall be so constructed or adapted that the goods cannot penetrate between wooden floor coverings or come into contact with those parts of the container or vehicle that may be affected by the materials or residues thereof.

7.3.1.7 Before being filled and offered for carriage, each container or vehicle shall be inspected and cleaned to ensure that it does not contain any residue on the interior or exterior of the container or vehicle that could:

- cause a dangerous reaction with the substance intended for carriage;
- detrimentally affect the structural integrity of the container or vehicle; or
- affect the dangerous goods retention capabilities of the container or vehicle.

7.3.1.8 During carriage, no dangerous residues shall adhere to the outer surfaces of containers or of the bodies of vehicles.

7.3.1.9 If several closure systems are fitted in series, the system which is located nearest to the substance to be carried shall be closed first before filling.

7.3.1.10 Empty containers or vehicles which have carried a dangerous solid substance in bulk shall be treated in the same manner as is required by ADR for a filled container or vehicle, unless adequate measures have been taken to nullify any hazard.

7.3.1.11 If containers or vehicles are used for the carriage in bulk of goods liable to cause a dust explosion, or evolve flammable vapours (e. g. for certain wastes) measures shall be taken to exclude sources of ignition and prevent dangerous electrostatic discharge during carriage, filling or discharge of the substance.

7.3.1.12 Substances, for example wastes, which may react dangerously with one another and substances of different classes and goods not subject to ADR, which are liable to react dangerously with one another shall not be mixed together in the same container or vehicle. Dangerous reactions are:

(a) combustion and/or evolution of considerable heat;

(b) emission of flammable and/or toxic gases;

(c) formation of corrosive liquids; or

(d) formation of unstable substances.

7.3.1.13 Before a container or vehicle is filled it shall be visually examined to ensure it is structurally serviceable, its interior walls, ceiling and floors are free from protrusions or damage and that any inner liners or substance retaining equipment are free from rips, tears or any damage that would compromise its cargo retention capabilities. Structurally serviceable means the container or vehicle does not have major defects in its structural components, such as top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a container. Major defects include:

(a) bends, cracks or breaks in the structural or supporting members that affect the integrity of the container or of the body of the vehicle;

(b) more than one splice or an improper splice (such as a lapped splice) in top or bottom end rails or door headers;

(c) more than two splices in any one top or bottom side rail;

(d) any splice in a door sill or corner post;

(e) door hinges and hardware that are seized, twisted, broken, missing, or otherwise inoperative;

(f) gaskets and seals that do not seal;

(g) any distortion of the overall configuration of a container great enough to prevent proper alignment of handling equipment, mounting and securing on a chassis or vehicle;

(h) any damage to lifting attachments or handling equipment interface features; or

(i) any damage to service or operational equipment.

7.3.3 Special provisions for the carriage in bulk when the provisions of 7.3.1.1 (b) are applied

When they are shown under an entry in Column (17) of Table A of Chapter 3.2, the following special provisions apply:

VV1 Carriage in bulk in closed or sheeted vehicles, in closed containers or in large sheeted containers is permitted.

VV2 Carriage in bulk is permitted in closed vehicles with a metal body, closed metal containers and in sheeted vehicles and sheeted large containers covered with a non-combustible sheet and having a metal body or having floor and walls protected from the load.

VV3 Carriage in bulk is permitted in sheeted vehicles and sheeted large containers with adequate ventilation.

VV4 Carriage in bulk is permitted in closed or sheeted vehicles with a metal body, and in closed metal containers or in sheeted large metal containers. For UN Nos. 2008, 2009, 2210, 2545, 2546, 2881, 3189 and 3190, only carriage in bulk of solid waste is permitted.

VV5 Carriage in bulk is permitted in specially equipped vehicles and containers.

The openings used for loading and unloading shall be capable of being closed hermetically.

VV6 *(Reserved)*

VV7 Carriage in bulk in closed or sheeted vehicles, in closed containers or in large sheeted containers is permitted only if the substance is in pieces.

VV8 Carriage in bulk is permitted, as a full load, in closed vehicles, closed containers or sheeted vehicles or large containers covered with an impermeable, non-combustible sheet.

Vehicles and containers shall be so constructed either that the substances contained cannot come into contact with wood or any other combustible material, or that the entire surface of the floor and walls, if made of wood or another combustible material has been provided with an impermeable surfacing resistant to combustion or has been coated with sodium silicate or a similar substance.

VV9a Carriage in bulk is permitted, as a full load, in sheeted vehicles, closed containers or in sheeted large containers with complete walls.

For substances of Class 8, the body of the vehicle or container shall be equipped with a suitable and sufficiently stout inner lining.

VV9b Carriage in bulk of full loads (if Class 8, only for wastes) is permitted in closed containers or in sheeted large containers with complete walls. For wastes of Class 8, containers shall be equipped with a suitable and sufficiently stout inner lining.

Note: in ADR 2007 VV9b will be replaced by VV9a and VV9a becomes VV9

VV10 Carriage in bulk is permitted, as a full load, in sheeted vehicles, closed containers or sheeted large containers with complete walls.

The body of vehicles or containers shall be leakproof or rendered leakproof, for example by means of a suitable and sufficiently stout inner lining.

VV11 Carriage in bulk is permitted in specially equipped vehicles and containers in a manner which avoids risks to humans, animals and the environment, e.g. by loading the wastes in bags or by airtight connections.

VV12 Substances for which carriage in tank-vehicles, in portable tanks or in tank-containers is unsuitable because of the high temperature and density of the substance may be carried in special vehicles or containers in accordance with standards specified by the competent authority of the country of origin. If the country of origin is not a contracting party to ADR, the conditions laid down shall be recognized by the competent authority of the first country contracting party to ADR reached by the consignment.

VV13 Carriage in bulk is permitted in specially equipped vehicles or containers in accordance with standards specified by the competent authority of the country of origin. If the country of origin is not a contracting party to ADR, the conditions laid down shall be recognized by the competent authority of the first country contracting party to ADR reached by the consignment.

VV14 (1) Used batteries may be carried in bulk in specially equipped vehicles or containers. Large plastics containers shall not be permitted. Small plastics containers shall be capable of withstanding, when fully loaded, a drop from a height of 0.8 m onto a hard surface at -18 °C, without breakage.

(2) The load compartments of vehicles or containers shall be of steel resistant to the corrosive substances contained in the batteries. Less resistant steels may be used when there is a sufficiently great wall thickness or a plastics lining/layer resistant to the corrosive substances.

The design of the load compartments of vehicles or containers shall take account of any residual currents and impact from the batteries.

***NOTE**: Steel exhibiting a maximum rate of progressive reduction of 0.1 mm per year under the effects of the corrosive substances may be considered as resistant.*

(3) It shall be ensured by means of constructional measures that there will be no leakage of corrosive substances from the load compartments of vehicles or containers during carriage. Open load compartments shall be covered. The cover shall be resistant to the corrosive substances.

(4) Before loading, the load compartments of vehicles or containers, including their equipment, shall be inspected for damage. Vehicles or containers with damaged load compartments shall not be loaded.

The load compartments of vehicles or containers shall not be loaded above the top of their walls.

(5) No batteries containing different substances and no other goods liable to react dangerously with each other shall be present in the load compartments of vehicles or containers (see "*Dangerous reaction*" in 1.2.1).

During carriage no dangerous residue of the corrosive substances contained in the batteries shall adhere to the outer surface of the load compartments of vehicles or containers.

VV15 Carriage in bulk is permitted in closed or sheeted vehicles, closed containers or sheeted large containers with complete walls for substances or mixtures (such as preparations or wastes) containing not more than 1000 mg/kg of substance to which this UN No is assigned.

The bodies of vehicles or containers shall be leakproof or rendered leakproof, for example by means of a suitable and sufficiently stout inner lining.

VV16 Carriage in bulk is permitted in accordance with the provisions of 4.1.9.2.3.

VV17 Carriage in bulk of SCO-I is permitted in accordance with the provisions of 4.1.9.2.3.

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