



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-THIRD MEETING

Montréal, 11 to 21 October 2011

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284)* for incorporation in the 2013-2014 Edition

TABLE 3-1 DANGEROUS GOODS LIST

(Presented by T. L. Muller)

SUMMARY

This paper proposes changes in the Dangerous Goods List that relate to various cross-references and entries shown as Forbidden, as well as the addition of UN numbers to all cross-references in the dangerous goods list.

Action by the DGP: The DGP is invited to:

- a) amend the cross-reference or other names entries shown in the table presented in Appendix A of this working paper as proposed in the last column of that table. For items 45 and 46 of that table, the word "stabilized" in the amended entries is placed in square brackets, since the UN Model Regulations use the word inhibited in the cross-reference names;
- b) Amend the entry for Methyl ethyl ketone peroxide(s) and add entries for tert-Amylperoxy-3,5,5-trimethylhexanoate and Disuccinic acid peroxide as shown in Appendix B of this working paper.
- c) Add the appropriate UN number(s) to the cross references that presently are shown without the UN number(s).

This working paper does not contain all of the detailed information for which cross references the UN numbers should be added. However, the index in the UN Model Regulation provides detailed information for most cross-references.

1. INTRODUCTION

1.1 The Dangerous Goods List (Table 3-1) in the Technical Instructions contains various so-called cross-references for synonyms or other names. The synonyms are followed by the word "see" and the proper shipping name in boldface characters, e.g. Acetoin, sees **Acetyl methyl carbinol**. The presenter of this working paper noted that some cross references are not in line with the UN Model Regulations, for example, cross references are made to Charges, shaped commercial while this proper shipping name for this entry has been changed many years ago to Charges, shaped.

1.2 Some of the cross-referred proper shipping names are followed by the appropriate UN number(s), e.g. Accumulators, electric, see **Batteries, etc.** (UN Nos. 2794, 2795, 2800, 3028, 3292). However, this is not the case with all cross-references, e.g. some synonyms for Ammunitions are shown with the appropriate UN numbers and some are not. Showing the UN numbers with the cross reference is more user friendly and makes it clear which possible entries for a certain synonym or other name exist in the Dangerous Goods List.

1.3 The Dangerous Goods List also contains dangerous goods that meet the description of dangerous goods forbidden on aircraft under any circumstances. These entries are listed with the word Forbidden across columns 2 and 3 of the list. Appendix B of this working paper contains an error in one of the listed Forbidden organic peroxides and a few forbidden organic peroxides that are not listed.

APPENDIX A

PROPOSED AMENDMENTS TO CROSS REFERENCES IN TABLE 3-1 OF THE TECHNICAL INSTRUCTIONS

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
1	Aldehyde, see Acetaldehyde	Aldehyde, see UN 1989	Acetaldehyde = UN 1089	Aldehyde, see Aldehydes, n.o.s. (UN No. 1989)
2	Alkyl aluminium halides, see Aluminium alkyl halides	Alkyl aluminium halides, see UN 3393, 3394	UN 3393 = Organometallic substance, solid, pyrophoric, water-reactive UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Alkyl aluminium halides, see Organometallic substance, solid, pyrophoric, water-reactive (UN No. 3393) or Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
3	-	Aluminium alkyl halides, liquid, see UN 3394		Aluminium alkyl halides, liquid, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
4	-	Aluminium alkyl halides, solid, see UN 3393		Aluminium alkyl halides, solid, see Organometallic substance, solid, pyrophoric, water-reactive (UN No. 3393)
5	-	Aluminium alkyl hydrides, see UN 3394		Aluminium alkyl hydrides, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
6	-	Aluminium alkyls see UN 3394		Aluminium alkyls, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
7	-	Asbestos, white, see UN 2590	UN 2590 = White asbestos	Asbestos, white, see White asbestos (UN No. 2590)
8	Battery, lithium, see Lithium batteries, etc.	Battery, lithium ion, see UN 3480, UN 3481 Battery, lithium metal, see UN 3090, UN 3091		Battery, lithium ion, see Lithium ion batteries, etc. (UN Nos. 3480, 3481) Battery, lithium metal, see Lithium metal batteries, etc. (UN Nos. 3090, 3091)
9	Bifluorides, n.o.s., see Hydrogendifluorides, n.o.s	Bifluorides, n.o.s., see UN 1740	UN 1740 = Hydrogendifluorides, solid, n.o.s.	Bifluorides, n.o.s., see Hydrogendifluorides, solid, n.o.s. (UN No. 1740)
10	Butyl lithium, see Lithium alkyls	Butyl lithium, see UN 3394	UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Butyl lithium, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
11	But-1-yne, see Ethyl acetylene	But-1-yne, see UN 2452	UN 2452 = Ethyl acetylene, stabilized	But-1-yne, see Ethyl acetylene, stabilized (UN No. 2452)
12	Casinghead gasoline, see Natural gasoline	Casinghead gasoline, see UN 1203	UN 1203 = Gasoline or Petrol or Motor spirit	Casinghead gasoline, see Gasoline or Petrol or Motor spirit (UN No. 1203)

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
13	Chlorotrifluoroethylene, see Trifluorochloroethylene, inhibited	Chlorotrifluoroethylene, see UN 1082	UN 1082 = Trifluorochloroethylene, stabilized	Chlorotrifluoroethylene, see Trifluorochloroethylene, stabilized (UN No. 1082)
14	-	Cupric chlorate see UN 2721	UN 2721 = Copper chlorate	Cupric chlorate, see Copper chlorate (UN No. 2721)
15	Cyanides, organic, toxic, n.o.s., see Nitriles, toxic, n.o.s.	Cyanides, organic, toxic, n.o.s., see UN 3276, UN 3439	UN 3276 = Nitriles, toxic, liquid, n.o.s. UN 3439 = Nitriles, toxic, solid, n.o.s.	Cyanides, organic, toxic, n.o.s., see Nitriles, toxic, liquid, n.o.s. (UN No. 3276) or Nitriles, toxic, solid, n.o.s. (UN No. 3439)
16	Deanol, see Dimethylethanolamine	Deanol, see UN 2051	UN 2051 = 2-Dimethylaminoethanol	Deanol, see 2-Dimethylaminoethanol (UN No. 2051)
17	2-Diethylaminoethanol, see Diethylaminoethanol		2-Diethylaminoethanol is the PSN, not Diethylaminoethanol (cross reference should be reversed)	Diethylaminoethanol, see 2-Diethylaminoethanol (UN No. 2051)
18	Diethylcarbinol, see Amyl alcohols	Diethylcarbinol, see UN 1105	UN 1105 = Pentanols	Diethylcarbinol, see Pentanols (UN No. 1105)
19	-	Diethylzinc, see UN 3394	UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Diethylzinc, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
20	-	Dimethylzinc, see UN 3394	UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Dimethylzinc, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
21	Dinitrochlorobenzenes, see Chlorodinitrobenzenes	UN refers to UN 1577 and UN 3441	UN 1577 = Chlorodinitrobenzenes, liquid UN 3441 = Chlorodinitrobenzenes, solid	Dinitrochlorobenzenes, see Chlorodinitrobenzenes, liquid (UN No. 1577) or Chlorodinitrobenzenes, solid (UN No. 3441)
22	Electric storage batteries, see Batteries, etc.	Double entry		Remove first cross reference
23	Electric storage batteries, see Batteries, etc. (UN Nos. 2794, 2795, 2800, 3028)			
24	Fertilizer with ammonium nitrate, n.o.s., see Ammonium nitrate fertilizer, n.o.s.	UN refers to UN 2067 and UN 2071	UN 2067 = Ammonium nitrate based fertilizer UN 2071 = Ammonium nitrate fertilizers	Fertilizer with ammonium nitrate, n.o.s., see Ammonium nitrate based fertilizer (UN No. 2067) or Ammonium nitrate fertilizers (UN No. 2071)
25	Fluoric acid, see Hydrofluoric acid, solution, etc.	UN refers to UN 1790	UN 1790 = Hydrofluoric acid	Fluoric acid, see Hydrofluoric acid (UN No. 1790)
26	Heavy hydrogen, see Deuterium	UN refers to UN 1957	UN 1957 = Deuterium, compressed	Heavy hydrogen, see Deuterium, compressed (UN No. 1957)
27	Isopropyl bromide, see 2-Bromopropane	UN does not have this reference	2-Bromopropane does not exist as a proper shipping name	Remove cross reference

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
28	Jet tappers, without detonator, see Charges, shaped, commercial		PSN = Charges, shaped	Jet tappers, without detonator, see Charges, shaped (UN Nos. 0059, 0439, 0440, 0441)
29	Lead (II) perchlorate, see Lead perchlorate	UN refers to UN 1470 and UN 3408	UN 1470 = Lead perchlorate, solid UN 3408 = Lead perchlorate solution	Lead (II) perchlorate, see Lead perchlorate, solid (UN No. 1470) or Lead perchlorate solution (UN No. 3408)
30	-	Lithium alkyls, liquid, see UN 3394	UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Lithium alkyls, liquid, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
31	-	Lithium alkyls, solid, see UN 3393	UN 3393 = Organometallic substance, solid, pyrophoric, water-reactive	Lithium alkyls, solid, see Organometallic substance, solid, pyrophoric, water-reactive (UN No. 3393)
32	-	Lithium alloy batteries UN 3090, UN 3091		Lithium alloy batteries, see Lithium metal batteries, etc. (UN Nos. 3090, 3091)
33	-	Lithium ion polymer batteries UN 3480, UN 3481		Lithium ion polymer batteries, see Lithium ion batteries, etc. (UN Nos. 3480, 3481)
34	-	Magnesium alkyls, see UN 3394	UN 3394 = Organometallic substance, liquid, pyrophoric, water-reactive	Magnesium alkyls, see Organometallic substance, liquid, pyrophoric, water-reactive (UN No. 3394)
35	Magnesium chloride and chlorate mixture, see Chlorate and magnesium chloride mixture	UN refers to UN 1459 and UN 3407	UN 1459 = Chlorate and magnesium chloride mixture, solid UN 3407 = Chlorate and magnesium chloride mixture solution	Magnesium chloride and chlorate mixture, see Chlorate and magnesium chloride mixture, solid (UN No. 1459) or Chlorate and magnesium chloride mixture solution (UN No. 3407)
36	-	Magnesium diphenyl, see UN 3393	UN 3393 = Organometallic substance, solid, pyrophoric, water-reactive	Magnesium diphenyl, see Organometallic substance, solid, pyrophoric, water-reactive (UN No. 3393)
37	1-Methoxy-2-nitrobenzene, see Nitroanisole	UN refers to UN 2730 and UN 3458	UN 2730 = Nitroanisoles, liquid UN 3458 = Nitroanisoles, solid	1-Methoxy-2-nitrobenzene, see Nitroanisoles, liquid (UN No. 2730) or Nitroanisoles, solid (UN No. 3458)

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
38	1-Methoxy-3-nitrobenzene, see Nitroanisole	UN refers to UN 2730 and UN 3458	UN 2730 = Nitroanisoles, liquid UN 3458 = Nitroanisoles, solid	1-Methoxy-3-nitrobenzene, see Nitroanisoles, liquid (UN No. 2730) or Nitroanisoles, solid (UN No. 3458)
39	1-Methoxy-4-nitrobenzene, see Nitroanisole	UN refers to UN 2730 and UN 3458	UN 2730 = Nitroanisoles, liquid UN 3458 = Nitroanisoles, solid	1-Methoxy-4-nitrobenzene, see Nitroanisoles, liquid (UN No. 2730) or Nitroanisoles, solid (UN No. 3458)
40	beta-Methyl acrolein, see Crotonaldehyde, stabilized	UN refers to UN 1143	UN 1143 = Crotonaldehyde or Crotonaldehyde stabilized	beta-Methyl acrolein, see Crotonaldehyde or Crotonaldehyde stabilized (UN No. 1143)
41	Methyl amyl ketone, see Amyl methyl ketone	UN refers to UN 1110	UN 1110 = n- Amyl methyl ketone	Methyl amyl ketone, see n-Amyl methyl ketone (UN No. 1110)
42	Methylene-di-(phenylene diisocyanate), see Diphenylmethane-4,4'-diisocyanate	Diphenylmethane-4,4'-diisocyanate was removed from the DGL		Remove cross reference
43	Methylene-di-(4-phenyl isocyanate), see Diphenylmethane-4,4'-diisocyanate	Diphenylmethane-4,4'-diisocyanate was removed from the DGL		Remove cross reference
44	Methyl mercaptopropionaldehyde, see 4-Thia-pentanal	UN refers to UN 2785	UN 2785 = 4-Thiapentanal	Methyl mercaptopropionaldehyde, see 4-Thiapentanal (UN No. 2785)
45	Methylstyrene, inhibited, see Vinyltoluenes, inhibited	Methylstyrene, inhibited, see UN 2618	UN 2618 = Vinyltoluenes, stabilized	Methylstyrene, [stabilized] , see Vinyltoluenes, stabilized (UN No. 2618)
46	Methyl vinyl benzene, inhibited, see Vinyltoluene, inhibited	Methyl vinyl benzene, inhibited, see UN 2618	UN 2618 = Methyl vinyl benzene, stabilized	Methyl vinyl benzene, [stabilized] , see Vinyltoluenes, stabilized (UN No. 2618)
47	Non-activated carbon, see Carbon, animal or vegetable origin	UN refers to UN 1361	PSN for UN 1361 = Carbon, (animal or vegetable origin should be shown in light type)	Non-activated carbon, see Carbon (UN No. 1361)

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
48	Non-activated charcoal, see Carbon, animal or vegetable origin	UN refers to UN 1361	PSN for UN 1361 = Carbon, (animal or vegetable origin should be shown in light type)	Non-activated charcoal, see Carbon (UN No. 1361)
49	Orthophosphoric acid, see Phosphoric acid	UN refers to UN 1805 and UN 3453	UN 1805 = Phosphoric acid, solution UN 3453 = Phosphoric acid, solid	Orthophosphoric acid, see Phosphoric acid, solution (UN No. 1805) or Phosphoric acid, solid (UN No. 3453)
50	-	3-Pentanol see UN 1105	UN 1105 = Pentanols	3-Pentanol, see Pentanols (UN No. 1105)
51	Phenylethylene, see Styrene monomer, inhibited	UN refers to UN 2055	UN 2055 = Styrene monomer, stabilized	Phenylethylene, see Styrene monomer, stabilized (UN No. 2055)
52	Picrotoxin, see Toxins, extracted from living sources, n.o.s.	UN refers to UN 3172 and UN 3462	UN 3172 = Toxins, extracted from living sources, liquid, n.o.s. UN 3462 = Toxins, extracted from living sources, solid, n.o.s.	Picrotoxin, see Toxins, extracted from living sources, liquid, n.o.s. (UN No. 3172) or Toxins, extracted from living sources, solid, n.o.s. (UN No. 3462)
53	Potassium bifluoride, see Potassium hydrogendifluoride	UN refers to UN 1811	UN 1811 = Potassium hydrogendifluoride, solid	Potassium bifluoride, see Potassium hydrogendifluoride, solid (UN No. 1811)
54	Shaped charges, see Charges, shaped, commercial	UN refers to UN 0059, 0439, 0440, 0441	Proper shipping name = Charges, shaped	Shaped charges, see Charges, shaped (UN Nos. 0059, 0439, 0440, 0441)
55	Sodium potassium alloys, see Potassium sodium alloys	UN refers to UN 1422 and UN 3404	UN 1422 = Potassium sodium alloys, liquid UN 3404 = Potassium sodium alloys, solid	Sodium potassium alloys, see Potassium sodium alloys, liquid (UN No. 1422) or Potassium sodium alloys, solid (UN No. 3404)
56	Sulphuretted hydrogen, see Hydrogen sulphide, liquefied	UN refers to UN 1053	UN 1053 = Hydrogen sulphide	Sulphuretted hydrogen, see Hydrogen sulphide (UN No. 1053)
57	Tetrafluorodichloroethane, see Dichlorotetrafluoroethane	UN refers to UN 1958	UN 1958 = 1,2-Dichloro-1,1,2,2-tetrafluoroethane or Refrigerant gas R 114	Tetrafluorodichloroethane, see 1,2-Dichloro-1,1,2,2-tetrafluoroethane or Refrigerant gas R 114 (UN No. 1958)
58	Trichloroacetaldehyde, see Chloral, anhydrous, inhibited	UN refers to UN 2075	UN 2075 = Chloral, anhydrous, stabilized	Trichloroacetaldehyde, see Chloral, anhydrous, stabilized (UN No. 2075)

	TI Edition 2011-2012	UN MR 16th edition	Explanation	Proposed change in Table 3-1
59	2,4,4-Trimethylpentene-1, see Diisobutylene, isomeric compounds	UN refers to UN 2050	UN 2050 = Diisobutylene, isomeric compound	2,4,4-Trimethylpentene-1, see Diisobutylene, isomeric compound (UN No. 2050)
60	2,4,4-Trimethylpentene-2, see Diisobutylene, isomeric compounds	UN refers to UN 2050	UN 2050 = Diisobutylene, isomeric compound	2,4,4-Trimethylpentene-2, see Diisobutylene, isomeric compound (UN No. 2050)
61	Villiaumite, see Sodium fluoride	UN refers to UN 1690	UN 1690 = Sodium fluoride, solid	Villiaumite, see Sodium fluoride, solid (UN No. 1690)

APPENDIX B

AMENDMENTS AND ADDITIONS FOR "FORBIDDEN" ITEMS IN TABLE 3-1 OF THE TECHNICAL INSTRUCTIONS

Table 3-1			Remarks	Proposed changes to Table 3-1	
Column 1	Column 2-3	Column 1		Column 2-3	
1	Methyl ethyl ketone peroxide(s), more than 50%	FORBIDDEN	Table 2-7 shows FORBIDDEN if $\geq 48\%$ and if available oxygen $>10\%$ and $\leq 10.7\%$ with or without water.	Methyl ethyl ketone peroxide(s), 48% or more if available oxygen above 10% and not more than 10.7% with or without water	FORBIDDEN
2	-	-	tert-Amylperoxy-3,5,5-trimethylhexanoate $\leq 100\%$ is shown as FORBIDDEN in Table 2-7	tert-Amylperoxy-3,5,5-trimethylhexanoate	FORBIDDEN
3	-	-	Disuccinic acid peroxide $\geq 72\%$ is shown as FORBIDDEN in Table 2-7	Disuccinic acid peroxide 72% or more	FORBIDDEN

— END —