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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-fifth session, 5-14 July 2004
Item 6 of the provisional agenda

LISTING, CLASSIFICATION AND PACKING

Expression of percentage in the Dangerous Goods List

Transmitted by the expert from South Africa

Background

At the 24th session (3-10 December 2003) of the Sub-Committee of Experts on the Transport of Dangerous Goods, the expert from South Africa said that, where percentages were applicable, as defined in 1.2.2.4 of the UN Recommendations, most of the entries in the dangerous goods list indicated "by mass" against such entries. The expert also said that this protocol was not consistently applied and this caused confusion for users not familiar with the different clauses of the Model Regulations. For the sake of consistency and user friendliness it was proposed that "by mass" be added to entries in the dangerous goods list, where applicable.

Unfortunately the number of entries involved in such an amendment could not be presented.

During the discussions that followed a number of experts expressed the opinion that the meaning of "%" was clearly explained in 1.2.2.4, and rather than adding "by mass" after the expression of percentage, it would be preferable to delete these words from the dangerous goods list, except in the expression of "by dry mass".

The expert from South Africa was invited to prepare a list of entries where the words "by mass" should be deleted.

Discussion

In consequence of this two lists were prepared:

a) Annex 1 for entries that indicate “by mass” after the expression of percentage; and

b) Annex 2 for entries that only indicate “%”.

It was found that 86 entries expressed percentage “by mass” while 76 entries indicated only “%”.

Ethanol solutions (UN 1170) and alcoholic beverages (UN 3065) were the only entries found where percentage was expressed “by volume”.

Request

Although the meaning of percentage is clearly explained in 1.2.2.4, South Africa maintains that it would be beneficial for user friendliness if “by mass” be added to the entries given in Annex 2 where applicable.

Furthermore, it seems from the number of entries in Annex 1 and Annex 2 that the amount of work that would be involved to delete “% by mass” and to add “by mass” would be much the same.

In view of this the Sub-Committee is requested to reconsider the deletion of “by mass” to the entries given in Annex 1 in favour of the addition of “by mass” to the entries in Annex 2.

Annex 1

Entries that indicate “by mass” after the expression of percentage

UN No.	Name and description
0004	AMMONIUM PICRATE dry or wetted with <10% water, by mass
0072	CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX), WETTED with =15% water, by mass
0074	DIAZODINITROPHENOL, WETTED with =40% water, or mixture of alcohol and water, by mass
0075	DIETHYLENEGLYCOL DINITRATE, DESENSITIZED with =25% non-volatile, water-insoluble phlegmatizer, by mass
0076	DINITROPHENOL, dry or wetted with <15% water, by mass
0077	DINITROPHENOLATES, alkali metals, dry or wetted with <15% water, by mass
0078	DINITRORESORCINOL, dry or wetted with <15% water, by mass
0113	GUANYL NITROSAMINOGUANYLIDENE HYDRAZINE, WETTED with =30% water, by mass
0114	GUANYL NITROSAMINOGUANYLTETRAZENE (TETRAZENE), WETTED with =30% water, or mixture of alcohol and water, by mass
0118	HEXOLITE, dry or wetted, with <15% water, by mass
0129	LEAD AZIDE, WETTED with =20% water, or mixture of alcohol and water, by mass
0130	LEAD STYPHNATE (LEAD TRINITRORESORCINATE), WETTED with =20% water, or mixture of alcohol and water, by mass
0133	MANNITOL HEXANITRATE, WETTED with =40% water, or mixture of alcohol and water, by mass
0133	NITROMANNITE, WETTED with =40% water, or mixture of alcohol and water, by mass
0135	MERCURY FULMINATE, WETTED with =20% water, or mixture of alcohol and water, by mass
0143	NITROGLYCERIN, DESENSITIZED with =40% non-volatile water-insoluble phlegmatizer, by mass
0146	NITROSTARCH, dry or wetted with <20% water, by mass
0150	PENTAERYTHRITOL TETRANITRATE, DESENSITIZED with =15% phlegmatizer, by mass
0150	PENTAERYTHRITE TETRANITRATE, WETTED, with =25% water, by mass
0150	PENTAERYTHRITE TETRANITRATE, DESENSITIZED with =15% phlegmatizer, by mass
0150	PENTAERYTHRITOL TETRANITRATE, WETTED with =25% water, by mass
0151	PENTOLITE, dry or wetted with <15% water, by mass
0154	TRINITROPHENOL (PICRIC ACID), dry or wetted with <30% water, by mass
0159	POWDER CAKE (POWDER PASTE), WETTED with =25% water, by mass
0209	TRINITROTOLUENE (TNT), dry or wetted with <30% water, by mass
0214	TRINITROBENZENE, dry or wetted with <30% water, by mass
0215	TRINITROBENZOIC ACID, dry or wetted with <30% water, by mass
0219	TRINITRORESORCINOL (STYPHNIC ACID), dry or wetted with <20% water, or mixture of alcohol and water, by mass
0220	UREA NITRATE, dry or wetted with <20% water, by mass
0224	BARIUM AZIDE, dry or wetted with <50% water, by mass
0226	CYCLOTETRAMETHYLENETETRANITRAMINE (HMX; OCTOGEN), WETTED with =15% water, by mass
0234	SODIUM DINITRO-ortho-CRESOLATE, dry or wetted with <15% water, by mass
0235	SODIUM PICRAMATE, dry or wetted with <20% water, by mass
0236	ZIRCONIUM PICRAMATE, dry or wetted with <20% water, by mass

UN No.	Name and description
0266	OCTOLITE (OCTOL), dry or wetted with <15% water, by mass
0282	NITROGUANIDINE (PICRITE), dry or wetted with <20% water, by mass
0340	NITROCELLULOSE, dry or wetted with <25% water (or alcohol), by mass
0341	NITROCELLULOSE, unmodified or plasticized with <18% plasticizing substance, by mass
0342	NITROCELLULOSE, WETTED with =25% alcohol, by mass
0343	NITROCELLULOSE, PLASTICIZED with =18% plasticizing substance, by mass
0391	CYCLOTRIMETHYLENETRINITRAMINE AND CYCLOTETRAMETHYLENETETRA-NITRAMINE MIXTURE, DESENSITIZED with =10% phlegmatizer, by mass
0391	CYCLOTRIMETHYLENETRINITRAMINE AND CYCLOTETRAMETHYLENETETRA-NITRAMINE MIXTURE, WETTED with =15% water, by mass
0394	TRINITRORESORCINOL (STYPHNIC ACID), WETTED with =20% water, or mixture of alcohol and water, by mass
0401	DIPICRYL SULFIDE, dry or wetted with <10% water, by mass
0411	PENTAERYTHRITE TETRANITRATE (PETN) with =7% wax, by mass
0411	PENTAERYTHRITOL TETRANITRATE with =7% wax, by mass
0433	POWDER CAKE (POWDER PASTE), WETTED with =17% alcohol, by mass
1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, =50% trimethylamine, by mass
1310	AMMONIUM PICRATE, WETTED with =10% water, by mass
1320	DINITROPHENOL, WETTED with =15% water, by mass
1321	DINITROPHENOLATES, WETTED with =15% water, by mass
1322	DINITRORESORCINOL, WETTED with =15% water, by mass
1336	NITROGUANIDINE (PICRITE), WETTED with =20% water, by mass
1337	NITROSTARCH, WETTED with =20% water, by mass
1344	TRINITROPHENOL, WETTED with =30% water, by mass
1347	SILVER PICRATE, WETTED with =30% water, by mass
1348	SODIUM DINITRO-ortho-CRESOLATE, WETTED with =15% water, by mass
1349	SODIUM PICRAMATE, WETTED with =20% water, by mass
1354	TRINITROBENZENE, WETTED with =30% water, by mass
1355	TRINITROBENZOIC ACID, WETTED with =30% water, by mass
1356	TRINITROTOLUENE, WETTED with =30% water, by mass
1357	UREA NITRATE, WETTED with =20% water, by mass
1517	ZIRCONIUM PICRAMATE, WETTED with =20% water, by mass
1571	BARIUM AZIDE, WETTED with =50% water, by mass
1802	PERCHLORIC ACID with =50% acid, by mass
1873	PERCHLORIC ACID with >50% but=72% acid, by mass
2030	HYDRAZINE AQUEOUS SOLUTION, with >37% hydrazine, by mass
2555	NITROCELLULOSE WITH WATER with =25% water, by mass
2789	ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, >80% acid, by mass
2790	ACETIC ACID, SOLUTION, >10% <50% acid, by mass
	ACETIC ACID, SOLUTION, =50% =80% acid, by mass
2852	DIPICRYL SULFIDE, WETTED with =10% water, by mass
3293	HYDRAZINE AQUEOUS SOLUTION with =37% hydrazine, by mass
3317	2-AMINO-4,6-DINITROPHENOL, WETTED with =20% water, by mass

UN No.	Name and description
3319	NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with >2% but =10% nitroglycerin, by mass
3320	SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with =12% sodium borohydride and =40% sodium hydroxide by mass
3343	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with =30% nitroglycerin, by mass
3344	PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S., with >10% =20% PETN, by mass
3357	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S., with =30% nitroglycerin, by mass
3364	TRINITROPHENOL (PICRIC ACID), WETTED, with =10% water by mass
3365	TRINITROCHLOROBENZENE (PICRYL CHLORIDE), WETTED, with =10% water by mass
3366	TRINITROTOLUENE (TNT), WETTED, with =10% water by mass
3367	TRINITROBENZENE, WETTED, with =10% water by mass
3368	TRINITROBENZOIC ACID, WETTED, with =10% water by mass
3369	SODIUM DINITRO-ortho-CRESOLATE, WETTED, with =10% water by mass
3370	UREA NITRATE, WETTED, with =10% water by mass
3376	4-NITROPHENYLHYDRAZINE, with =30% water, by mass

Annex 2

Entries that only indicate "%"

UN No.	Name and description
0144	NITROGLYCERIN SOLUTION IN ALCOHOL with >1% but =10% nitroglycerin
0222	AMMONIUM NITRATE with >0,2% combustible substances, including any organic substance, calculated as carbon, to the exclusion of any other added substance
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing > than 40% butadienes
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with >9% but =87% ethylene oxide
1051	HYDROGEN CYANIDE, STABILIZED containing <3% water
1062	METHYL BROMIDE with =2% chloropicrin
1204	NITROGLYCERIN SOLUTION IN ALCOHOL with =1% nitroglycerin
1326	HAFNIUM POWDER, WETTED with =25% water (a visible excess of water must be present) (a) mechanically produced, particle size <53 microns; or (b) chemically produced, p article size <840 microns
1345	RUBBER SCRAP or RUBBER SHODDY, powdered or granulated, =840 microns and rubber content >45%
1352	TITANIUM POWDER, WETTED with =25% water (a visible excess of water must be present) (a) mechanically produced: particle size <53 microns; (b) chemically produced: particle size <840 microns
1358	ZIRCONIUM POWDER, WETTED with =25% water (a visible excess of water must be present) (a) mechanically produced: particle size <53 microns; (b) chemically produced: particle size <840 microns
1382	POTASSIUM SULFIDE with <30% water of crystallization
1385	SODIUM SULFIDE with <30% water of crystallization
1386	SEED CAKE with >1,5% oil and =11% moisture
1403	CALCIUM CYANAMIDE with >0,1% calcium carbide
1408	FERROSILICON with =30% but <90% silicon
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with >2% chloropicrin
1613	HYDROCYANIC ACID, AQUEOUS SOLUTION (HYDROGEN CYANIDE, AQUEOUS SOLUTION) with =20% hydrogen cyanide
1614	HYDROGEN CYANIDE, STABILIZED, containing <3% water and absorbed in a porous inert material
1748	CALCIUM HYPOCHLORITE MIXTURE, DRY with >39% available chlorine (8,8% available oxygen)
1789	HYDROCHLORIC ACID, concentration =5% =15% hydrochloric acid
	HYDROCHLORIC ACID, concentration >15% hydrochloric acid
1790	HYDROFLUORIC ACID, with =60% hydrofluoric acid
	HYDROFLUORIC ACID, with >60% hydrofluoric acid
1791	HYPOCHLORITE SOLUTION with >5% but <16% available chlorine
	HYPOCHLORITE SOLUTION with =16% available chlorine
1794	LEAD SULFATE with >3% free acid
1796	NITRATING ACID MIXTURE with =50% nitric acid
1796	NITRATING ACID MIXTURE with >50% nitric acid
1805	PHOSPHORIC ACID, LIQUID, concentration >20% phosphoric acid
1824	SODIUM HYDROXIDE SOLUTION, concentration =3% =10% sodium hydroxide
	SODIUM HYDROXIDE SOLUTION, concentration >10% sodium hydroxide
1826	NITRATING ACID MIXTURE, SPENT with =50% nitric acid
	NITRATING ACID MIXTURE, SPENT with >50% nitric acid

UN No.	Name and description
1830	SULFURIC ACID with >51% acid
1847	POTASSIUM SULFIDE, HYDRATED with =30% water of crystallization
1849	SODIUM SULFIDE, HYDRATED with =30% water
1869	MAGNESIUM ALLOYS with >50% magnesium in pellets, turnings or ribbons
1907	SODA LIME with >4% sodium hydroxide
1942	AMMONIUM NITRATE with =0,2% total combustible material, including any organic substance, calculated as carbon, to the exclusion of any other added substance
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with =9% ethylene oxide
1973	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE with fixed boiling point, with ±49% chlorodifluoromethane (REFRIGERANT GAS R 502)
2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with =20% and =60% hydrogen peroxide (stabilized as necessary)
2015	HYDROGEN PEROXIDE, STABILIZED or HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with >60% hydrogen peroxide
2031	NITRIC ACID, other than red fuming, with =70% nitric acid
	NITRIC ACID, other than red fuming, with >70% nitric acid
2073	AMMONIA SOLUTION, relative density <0,880 at 15 °C in water, with >35% =50% ammonia
2208	CALCIUM HYPOCHLORITE MIXTURE, DRY with >10% but =39% available chlorine
2209	FORMALDEHYDE SOLUTION with =25% formaldehyde
2210	MANEB PREPARATION with =60% maneb
2214	PHTHALIC ANHYDRIDE with >0,05% maleic anhydride
2217	SEED CAKE with =1,5% oil and =11% moisture
2270	ETHYLAMINE, AQUEOUS SOLUTION with =50% and =70% ethylamine
2318	SODIUM HYDROSULFIDE with <25% water of crystallization
2574	TRICRESYL PHOSPHATE with >3% ortho isomer
2583	ALKYLSULFONIC ACIDS, SOLID or ARYLSULFONIC ACIDS, SOLID with >5% free sulfuric acid
2584	ALKYLSULFONIC ACIDS, LIQUID or ARYLSULFONIC ACIDS, LIQUID with >5% free sulfuric acid
2585	ALKYLSULFONIC ACIDS, SOLID or ARYLSULFONIC ACIDS, SOLID with =5% free sulfuric acid
2586	ALKYLSULFONIC ACIDS, LIQUID or ARYLSULFONIC ACIDS, LIQUID with =5% free sulfuric acid
2599	CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with ±60% chlorotrifluoromethane (REFRIGERANT GAS R 503)
2602	DICHLORODIFLUOROMETHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with ±74% dichlorodifluoromethane (REFRIGERANT GAS R 500)
2626	CHLORIC ACID, AQUEOUS SOLUTION with =10% chloric acid
2672	AMMONIA SOLUTION, relative density =0,880 =0,957 at 15 °C in water, with >10 % =35% ammonia
2698	TETRAHYDROPHTHALIC ANHYDRIDES with >0,05% of maleic anhydride
2741	BARIUM HYPOCHLORITE with >22% available chlorine
2796	SULFURIC ACID with =51% acid
2880	CALCIUM HYPOCHLORITE, HYDRATED or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, with =5,5% and =16% water
2907	ISOSORBIDE DINITRATE MIXTURE with =60% lactose, mannose, starch or calcium hydrogen phosphate
2949	SODIUM HYDROSULFIDE with =25% water of crystallization
2983	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, with =30% ethylene oxide
2984	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with =8% and <20% hydrogen peroxide (stabilized as necessary)

UN No.	Name and description
3064	NITROGLYCERIN, SOLUTION IN ALCOHOL with >1% but =5% nitroglycerin
3070	ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with =12,5% ethylene oxide
3138	ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID, containing at least 71,5% ethylene with =22,5% acetylene and =6% propylene
3149	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and =5% peroxyacetic acid, STABILIZED
3294	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with =45% hydrogen cyanide
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with =8,8% ethylene oxide
3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with =7,9% ethylene oxide
3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with =5,6% ethylene oxide
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with >87% ethylene oxide
3318	AMMONIA SOLUTION, relative density <0,880 at 15 °C in water, with >50% ammonia

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