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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

Fortieth session
Geneva, 28 November – 7 December 2011
Item 2 (a) of the provisional agenda
Listing, classification and packing:
proposals of amendments to the list of dangerous goods of Chapter 3.2

Listing and packing provisions: Asbestos

Submitted by the expert from Australia[1]

Introduction

1. During the thirty-ninth session (ST/SG/AC.10/C.3/2011/9), the expert from the United Kingdom drew attention to a "mistake" in the entries for asbestos in the dangerous goods list and proposed that for UN 2590 the "0" in column 7a be replaced with "5 kg". It was agreed this was an error and the secretariat undertook to correct it. However, the sub-committee made a number of comments regarding concerns with these entries, including some members commenting that the transport of asbestos packed in limited quantities should not be authorised.

2. As a result, Australia has examined all of the provisions in the UN Model Regulations as they currently apply to asbestos. Australia considers that a broader review of the UN Model Regulations should be undertaken to remove inconsistencies and possible confusion as to how the current provisions apply to the international intermodal shipment of asbestos and asbestos-containing materials.

3. Asbestos is assigned to Class 9 dangerous goods as ‘a substance which on inhalation as fine dust may endanger health’. Asbestos has been declared a proven human carcinogen by the International Agency for Research on Cancer of the World Health Organization.

[1] In accordance with the programme of work of the Sub-Committee for 2011-2012 approved by the Committee at its fifth session (refer to ST/SG/AC.10/C.3/76, para. 116 and ST/SG/AC.10/38, para. 16).

Epidemiological evidence has increasingly shown an association of all forms of asbestos (chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite) with an increased risk of lung cancer and mesothelioma. Although the potency differences with respect to lung cancer or mesothelioma for fibres of various types and dimensions are debated, the fundamental conclusion is that all forms of asbestos are “carcinogenic to humans” (Group 1). All forms of asbestos are classifiable as Category 1A carcinogens under the Globally Harmonised System for Classifying and Labelling Chemicals (GHS). There is no safe level of exposure to asbestos fibres and even small exposures have been associated with mesothelioma, although there is an increased risk with increased dose. We note that mixtures containing greater than 0.1% w/w asbestos are classifiable as hazardous according to the classification criteria in the GHS for Category 1A carcinogens and are therefore subject to the labelling and safety data sheet requirements of the GHS, as implemented in national legislation in Australia.

4. Asbestos is transported domestically and internationally as mined commercial grade asbestos, manufactured products and articles containing varying percentages of asbestos, plant and equipment containing manufactured articles (such as gaskets), analytical samples and as hazardous waste. Exposure to asbestos fibres can occur during the handling of broken or inadequate packagings that are not sift-proof during transport and at the beginning and end of the logistics chain during loading/unloading or package opening. Asbestos wastes such as wrapped asbestos sheeting, mass excavated soils with asbestos fragments and building and demolition wastes with asbestos contamination may be transported in freight or bulk containers for disposal. Despite entries in the Model Regulations and the modal codes, commercial grade mined asbestos is sometimes consigned internationally in unmarked freight containers packed with bags of asbestos fibre. Manufactured articles are transported domestically and internationally in a range of packagings, including within plant and equipment.

5. Australia has banned the mining, use and export of all types of asbestos, with very limited exceptions. Within Australia, the main activity is the removal of asbestos from buildings and equipment, and its domestic land transport to disposal sites. Only mineral ores and concentrates containing naturally occurring asbestos at trace levels, and some items of plant or equipment with asbestos articles sealed within the equipment are permitted to be exported from Australia. A common practice in Australia is for samples of goods to be sent to Australia for analysis, to determine if the goods contain asbestos. This practice is allowable through a permit scheme granting entry for research, analysis or display. However, Australia also experiences problems with products being illegally or mistakenly imported to Australia. Asbestos materials are sometimes detected at the border and post-import with no UN labelling, marking or documentation. The Australian Customs and Border Protection Service is currently undertaking a compliance campaign against illegal imports of asbestos-containing articles, including plant and equipment.

6. Australia considers it essential that the provisions of the UN Model Regulations and the modal codes are sufficiently robust to preclude the transport of any asbestos or asbestos containing material in such a way that fibres can escape, or without any labelling, marking or documentation. This is the minimum requirement to prevent accidental exposure of all transport workers and any personnel involved in load inspection and accident recovery.

7. The current dangerous goods list entries in the UN Model Regulations for asbestos are:

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provi-sions	Limited and excepted quantities		Packagings and IBCs		Portable Tanks and bulk containers	
								Packing instruction	Special packing provisions	Instruc-tions	Special provisions
2212	BLUE ASBESTOS (crocidolite) or BROWN ASBESTOS (amosite, mysorite)	9		II	168	1 kg	E2	P002 IBC08	PP37 B2, B4	T3	TP33
2590	WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)	9		III	168	[5 kg]*	E1	P002 IBC08	PP37 B2, B3	T1	TP33

* As amended at thirty-ninth session

8. Australia considers that even though UN 2590 has been considered less hazardous than UN 2212 in the past, its assignment to Packing Group III can no longer be sustained based on the history of exposure and its consequences. There should therefore be no difference in the treatment of these categories of asbestos under the model regulations. Both represent the same type of hazard during transport and both forms should therefore be consigned as Packing Group II. However, we are not proposing combining the entries at this stage.

9. Special Provision 168 currently applies to both these entries:

> *Asbestos which is immersed or fixed in a natural or artificial binder (such as cement, plastics, asphalt, resins or mineral ore) in such a way that no escape of hazardous quantities of respirable asbestos fibres can occur during transport is* ***not subject to these Regulations****. Manufactured articles containing asbestos and not meeting this provision are nevertheless* ***not subject to these Regulations*** *when packed so that no escape of hazardous quantities of respirable asbestos fibres can occur during transport.".*
>
> **NOTE:** In air transport the Special Provision 168 is reproduced without change as Special Provision A61of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air. UN2212 BLUE AND BROWN ASBESTOS is forbidden in air transport.

10. The thrust of this special provision appears to be that only friable asbestos is to be subject to the UN Model Regulations, although the reference to 'mineral ore' is confusing. This could be interpreted (or misinterpreted) as meaning that mined commercial grade asbestos is NOT subject to the UN Model Regulations. This confusion creates a loophole which consignors could exploit by failing to pack and mark commercial grade asbestos as dangerous goods. Any persons handling its packaging during transport are thus unaware of the hazard and denied visual warning or written warning in a transport document. Consignees may be unaware of the dangers of the material they have received. Exploiting this situation also reduces the ability of countries to exercise controls on the import of asbestos. Furthermore the provision means that manufactured articles comprising up to 100% asbestos are excluded. It is also not clear about asbestos articles contained within

plant and equipment. There is no mention of asbestos wastes which can contain friable asbestos and bonded material in large volumes of soil and other debris. The provision is also unclear about its application to mineral ores and concentrates containing naturally occurring asbestos at trace levels.

11. Australia considers that is unacceptable for there to be confusion about the application of the UN Model regulations to a Category 1A carcinogen, that is Class 9 dangerous goods, when it is consigned and transported and recommends that, with minimum exceptions, it should always be transported with compliant marking, labelling, and transport documentation. To that end Australia suggests that SP168 should be amended so that it applies to both friable and bonded asbestos, with some limited exceptions. This is because although asbestos in its friable state is more hazardous during transport, there is still sufficient remaining fibre exposure hazard during transport (and particularly transport incidents) involving other forms of asbestos to warrant all persons in the transport and logistics chain being made fully aware of the presence of asbestos in packagings and transport units. We note that as mixtures containing greater than 0.1% w/w asbestos are classifiable as hazardous according to the classification criteria in the GHS as 1A carcinogens, consistent coverage should be considered under the UN Model Regulations.

12. The packing provisions also require review. Packing Instruction P002 (solids) is assigned to both UN numbers. For Packing Group II or III, up to 400 kg may be transported in most of the single or combination packagings listed. P002 includes Special Packing Provision PP37. 5M1 bags (multi-wall paper bags) are permitted under PP37 and are a common packaging. Australia considers that 5M1 bags are not sufficiently robust for friable asbestos since they do not prevent fibre release, and should be replaced with 5H2 (sift-proof woven plastic bags).

13. In the Guiding Principles to the UN Model Regulations published on the UNECE website, limited quantities provisions are **not recommended** for UN 2590 WHITE ASBESTOS. There is (strangely) no mention of UN 2212 BLUE AND BROWN ASBESTOS which should more logically be prohibited as per air transport:

> 9 II 1 L - 1 kg/30 kg[m]
> 9 III 5 L - 5 kg/30 kg[n]
> [n] *UN Nos. 1845, 2216, **2590**, 3257, 3258 and 3268: not permitted.*

This would explain why the entry for UN 2590 WHITE ASBESTOS had a ‘0’ for its limited quantity entry in Column 7(a) prior to being agreed to be amended at the 39th session. The Principles do not make sense.

14. Australia considers that limited quantity provisions should apply to both groupings of asbestos to enable small analytical samples to be shipped for analysis with dangerous goods documentation. However, small articles containing asbestos being commercially transported should NOT be transported under the limited quantities rules, as limited marking and labelling requirements apply. Small articles should be subject to the UN Model Regulations. To limit the limited quantities requirements to samples, ‘500 grams’ should be included in Column 7(a) for both entries. Since analytical samples need to be transported by air, these should be permitted and E2 retained in Column 7(b). To analyse asbestos, no more than a few grams is usually required. (E2 permits 30 g / 30 ml maximum quantity per inner package and 500 g/ 500 ml maximum per outer package).

Proposals

15. Amend the dangerous goods list as follows:

(1) Apply packing group II to both entries.

(2) Align the portable tank entries of UN 2590 with UN 2212, i.e. T3. (B3 is superfluous if B4 is included as its substance is contained therein.)

(3) Place '500g' in Column 7(a) and apply E2 in Col 7(b) for both entries.

(4) Remove 'E1' from the entry for UN2590 and replace with 'E2'.

(5) In P002, amend PP37 to read: 'For UN 2590 and UN 2212, 5M2 Bags must not be used. All bags shall be transported in closed cargo transport units or be placed in closed rigid overpacks'. (so that paper bags are not permitted and woven sift-proof plastic bags are required).

Revised dangerous goods list entries:

UN No.	Name and description	Class or division	Subsi-diary risk	UN packing group	Special provi-sions	Limited and excepted quantities		Packagings and IBCs		Portable Tanks and bulk containers	
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16. Replace SP168 with the following:

All naturally occurring asbestos in its unmilled or milled state, asbestos containing wastes, manufactured articles or substances containing asbestos fibre are covered by the UN Model Regulations, whether the asbestos fibres in the substance are in a friable or bonded state. Mineral ores and concentrates containing naturally occurring asbestos at trace levels are not subject to the Regulations. Analytical samples may be transported under limited quantity and excepted quantity provisions. Manufactured articles contained within plant and equipment such that no exposure to fibres is possible during transport are not subject to the Regulations.

***NOTE**: Many countries prohibit or restrict the importation of asbestos-containing materials or apply to them additional regulatory controls including the labelling and safety data sheet requirements of the Globally Harmonised System for Classifying and Labelling Chemicals, which may also require display of the chronic health pictogram. Many countries also impose additional environmental or workplace regulatory controls on asbestos containing materials. Check regulations of importing country.*

17 In SP168 add the following definitions:

ASBESTOS

Asbestos is a generic name for naturally occurring mineral silicate fibres of the Serpentine and Amphibole series. In the Serpentine series is Chrysotile, commonly known as white asbestos. In the Amphibole series are Actinolite, Amosite or Mysorite (commonly known as brown asbestos), Anthophyllite, Crocidolite

(commonly known as blue asbestos) and Tremolite. All types of asbestos are hazardous to health and may cause asbestosis, lung cancer or mesothelioma with no safe level of exposure.

ASBESTOS CONTAINING MATERIAL

Any natural or man-made material containing asbestos. Common examples of asbestos containing material (ACM) include but are not limited to: mined commercial grade asbestos, asbestos containing wastes, pipe and boiler insulation, sprayed on fireproofing, troweled on acoustic plaster, floor tiles and linoleum, roof shingles, roofing materials, asbestos cement products, wall and ceiling plaster, ceiling tiles, gasket materials and similar manufactured articles, and manufactured articles contained within plant and equipment.

18. Amend Portable Tank and Bulk Container Special Provision TP33 so that it "… applies for granular, powdered **and fibrous** solids …".

19. Delete the reference to UN2590 in the Guiding Principles.