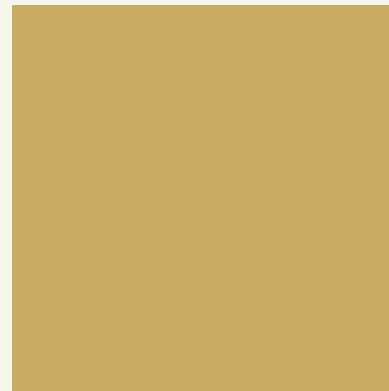




# BEIRUT ASBESTOS TRANSPORTATION GUIDELINES

International Best Practice



## 1. INTRODUCTION

### 1.1 Defining Asbestos Waste

Any asbestos product or material that is ready for disposal can be defined as asbestos waste. This may also include contaminated building materials, dust, rubble, tools that cannot be decontaminated, Personal Protective Equipment (PPE) and damp rags used for cleaning. If there is a doubt regarding asbestos waste, all waste with the potential to contain asbestos should be treated as hazardous.

#### 1.1.1 Bonded (non-friable<sup>1</sup>) Asbestos Waste

Some asbestos products may be safe to transport without being subject to the requirements detailed in this Guideline<sup>2</sup>, if they are 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. Examples include asbestos cement sheets, drainpipes or vinyl floor tiles.

However, the situation in Beirut as a result of the Port explosion means there remains a high-risk during loading, transportation or unloading of products sustaining damage or being broken up in a way which would lead to the release of asbestos fibres.

#### 1.1.2 Unbonded (friable<sup>3</sup>) Asbestos Waste

All other asbestos waste is known as fibrous, or unbonded, (for example, thermal insulation material, asbestos insulation board) and is classified as dangerous for transport.

#### 1.1.3 UN asbestos classification

Asbestos material is subject to UN Class 9 requirements and is classified as either:

**UN2212** - Asbestos, Amphibole (amosite, tremolite, actinolite, anthophyllite or crocidolite), Packing Group II. These are the most hazardous varieties; or

**UN2590** - Asbestos, Chrysotile, Packing Group III.

### 1.2 Duty of Care

Organisations arranging, undertaking or funding debris clean-up which has a risk of asbestos fibre release have a duty of care to ensure workers and the general public are not exposed to asbestos fibres as a result of this work. Appropriate levels of training and awareness should be provided for everyone coming into contact with, or potentially exposed to, asbestos fibres.

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<sup>1</sup> Materials that cannot be damaged by hand, without tools, therefore cannot be easily disturbed to release fibres

<sup>2</sup> International Carriage of Dangerous Goods by Road (ADR) Regulations, Special Provision 168

<sup>3</sup> Asbestos containing material which is likely to crumble or break due to abrasion or pressure and release asbestos fibres

This duty of care applies from the point at which an organisation plans to work with asbestos containing or potentially containing, debris through the entire period that this debris is under their control and means that they are responsible for prevention of escape of the waste whilst it is in their control.

### 1.3 Waste Management Plan

The key to working safely with asbestos is the use of a Waste Management Plan (WMP). This plan can be a simple document which describes the steps that everyone involved in the management, transportation and disposal of asbestos, or materials which have been contaminated with asbestos fibres, follow. The document should define who will be responsible for each stage of the collection, transportation, storage and disposal of materials and the standards to which they will work. The document should be communicated widely to ensure everyone involved in working with asbestos containing materials has knowledge of their responsibilities and those of all other actors.

## 2. TRANSPORTING ASBESTOS WASTE

The preparation of asbestos waste in Beirut for safe transportation to a disposal facility depends on the volume and friability of the waste to be transported.

### 2.1 Transporting small, non-friable, loads

The following applies when preparing asbestos waste which can be contained or wrapped appropriately before being prepared for transportation, for example asbestos containing roofing material, asbestos-containing pipes:

- Waste must be packed in UN-approved packaging<sup>4</sup> with a hazard label visible (see Figure 1 for an example of a hazard label)<sup>5</sup>;
- Double-wrap and label asbestos waste. Standard practice is to use a red inner bag with asbestos warnings and a clear outer bag with the hazard label (see example in Figure 3); and
- Avoid breaking up large pieces of asbestos waste, for example when large asbestos-containing roofing panels are too big for bagging. Instead double wrap in suitable polythene sheeting (1000-gauge) and label accordingly.

Any items placed in packaging marked and labelled as UN Class 9, UN2212 or UN2590 have been designated as dangerous for transport and must comply fully with the applicable transport regulations. Once asbestos waste is packaged in this way it can safely be transported to a designated facility.



Figure 1: Asbestos package warning sign

<sup>4</sup> ADR Chapter 4.1: use of packaging, including intermediate bulk containers (IBCs) and large packaging

<sup>5</sup> REACH Annex XVII, Appendix 7

## 2.2 Transporting large, friable, loads

Where possible, large waste loads containing or potentially containing asbestos materials, including loose debris, soil etc., and friable asbestos, for example thermal insulation, should be transported by carriers with a waste carrier licence. When not possible, asbestos waste should be transported in conformity with government regulation<sup>6</sup>, using a sealed skip (see example in Figure 4) or a vehicle with the following:

- Segregated compartment for asbestos;
- Easily cleanable; and
- Lockable.

If sealed skip transportation is not available, the following should be applied before and during transportation:

- Dampen all waste to be moved and continue to maintain a level of dampening throughout the process of disturbing the hazardous waste;
- Ensure everyone working with or near the waste is using appropriate PPE (see UNDP/ UNEP Health & Safety Requirements: Minimum Standards for Working with Debris Waste in Beirut); and
- Once waste is deposited in the transportation vehicles, cover the waste securely with 1000-gauge polythene sheet or minimum 80 gsm tarpaulin.

Once the waste has been transported to its final disposal facility, the above should be applied when offloading vehicles, with waste being re-dampened to contain airborne fibres, PPE worn by all operatives and non-operatives kept a safe distance from the site.

A Waste Consignment Note should be completed for each load of waste transported, copies of which should be kept on file for three years.

Vehicles transporting asbestos waste should be clearly labelled (see Figure 2 for an example of vehicle signage) and should only be operated by trained personnel.



Figure 2: example vehicle sign



Figure 3: Asbestos double-bagged or double-wrapped and with hazard warning sign



Figure 4: example locable skip

<sup>6</sup> HW Decree 5606, 2019, including Article 19 to 22

### 2.2.1 Dust suppression

As a last resort, when implementing the asbestos containment techniques described in Section 2 is not possible, those working with asbestos materials should select and use work methods that will reduce the disturbance and release of asbestos fibres to minimise the risk of spread of asbestos from the controlled work area. This can be achieved by using dust suppression techniques e.g. low-pressure water sprays (less than 3.4 bar, 50 psi), diffusers (e.g. garden-type hose and sprayer).

Note: use of high-pressure sprays could disturb fibres, releasing them to the air.

Controlled wet removal of asbestos can dramatically reduce airborne fibre levels. This then places less burden on the performance and reliability of PPE and reduces human exposure both inside and outside enclosures.

Procedure for wetting asbestos materials:

- Spraying is the preferred wetting method;
- Wet the asbestos materials before starting any work. Do not work on dry asbestos materials;
- Take special care to ensure all asbestos materials are fully wet before being moved;
- Some asbestos materials, e.g. board/sheet cannot be wetted all the way through. These materials therefore need to be monitored during the transfer process and wetting re-applied as necessary to maintain fibre suppression;
- Allow the spray to 'fall' onto the asbestos material - not hit it as a jet, which can release fibres. Spray from an appropriate distance;
- Spraying can be by hand, or through use of a mechanical sprayer (see Figure 5 and Figure 6 for examples);
- When spraying by hand, spray carefully. Use a slow backwards and forwards motion. Avoid concentrating on any one area - this can disturb the asbestos material or leave dry patches; and
- Over-wetting material can create a waste slurry which will be difficult to clean up.

Note: this procedure should be used whenever asbestos or asbestos containing materials which are too large to place in appropriate plastic bagging are to be moved. This includes transferring bulk, loose, materials which contain asbestos from their present location onto transport vehicles and transfer of these materials off transport vehicles to their final destination, or any intermediate steps in this process.



Figure 5: Manual asbestos wetting



Figure 6: Use of mechanical sprayer

### 3. SUMMARY

Table 1 shows a list of the different types of asbestos waste, with corresponding UN-approved packaging and transport requirements

Substance	UN Requirement	Transport requirements
Fibrous asbestos waste, e.g. thermal insulation and Asbestos Insulation Board	UN 2212 or 2590 Class 9	Certified packaging (double 'red and clear' polythene bags).
Large items containing fibrous asbestos, e.g. pipes or ductwork, timber from asbestos removal enclosures	UN 2212 or 2590 Class 9	Certified packaging (usually polythene 'pipe bags' or 1,000-gauge polythene sheet).
Waste rubble or soil contaminated with asbestos	UN 2212 or 2590 Class 9	Certified packaging (available in up to 2 tonnes capacity bags) Alternatively, lockable skip or freight container. Last resort: dust suppression techniques
Bonded cement products, e.g. asbestos cement panels, floor tiles	ADR SP 168 applies	Plain heavy-duty bags with asbestos warning label. Alternatively, wrapped twice and taped shut if too large

Table 1: Summary of asbestos waste classification and transportation requirements

## 4. REFERENCES

1. European Union (EU) Waste Framework Directive 2008/98/EC
2. Health and Safety Executive (HSE) UK: L143 - Managing and Working with Asbestos
3. Health and Safety Executive (HSE) UK: EM9 - Disposal of Asbestos Waste
4. UNDP/UNEP Asbestos Handling and Disposal Guidelines, International Best Practice, Jan2021
5. UN2212, Waste Asbestos, Amphibole (Amosite), 9, PG II (E)
6. UN2590, Waste Asbestos, Chrysotile, 9, PG III (E)
7. International Carriage of Dangerous Goods by Road (ADR) Regulations and Special Provision 168