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मानक

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Mazdoor Kisan Shakti Sangathan

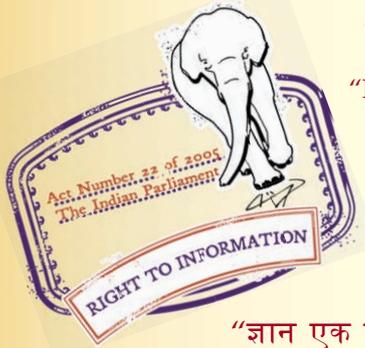
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“Step Out From the Old to the New”

IS 12079 (1987): Recommendations for packaging, transport and storage of asbestos [CED 53: Cement Matrix Products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

RECOMMENDATIONS FOR
PACKAGING, TRANSPORT AND
STORAGE OF ASBESTOS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

RECOMMENDATIONS FOR PACKAGING, TRANSPORT AND STORAGE OF ASBESTOS

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Indian Standard

RECOMMENDATIONS FOR PACKAGING, TRANSPORT AND STORAGE OF ASBESTOS

0. FOREWORD

0.1 This Indian Standard was adopted by the Bureau of Indian Standards on 30 July 1987, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 In recent years there has been a growing awareness that exposure to asbestos dust can have harmful effects on the health of workers. In order to give guidance on how the risk of exposure to asbestos dust can be prevented, controlled or minimized, it was felt necessary to lay down some standards regarding safe use of different products containing asbestos, improving conditions in workplaces, preventive measures, protection and supervision of health of workers, packaging, transport and disposal of asbestos and asbestos waste, etc. This standard lays down the recommendations for packaging, transport and storage of asbestos.

0.3 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from 'ILO Codes of practice: Safety in the Use of Asbestos, 1984' published by the International Labour Office, Geneva.

0.4 This standard is one of a series of Indian Standards on safety in handling and use of asbestos. Other standards in the series already formulated and under preparation are as follows:

IS : 11450-1986 Method for determination of airborne asbestos fibre concentration in work environment by light microscopy (membrane filter method)

IS : 11451-1986 Recommendations for safety and health requirements relating to occupational exposure to asbestos

IS : 11767-1986 Recommendations for cleaning of premises and plants using asbestos fibres

IS : 11768-1986 Recommendations for disposal of asbestos waste material

- IS : 11769 (Part 1)-1987 Guidelines for safe use of products containing asbestos: Part 1 Asbestos cement products
- IS : 11769 (Part 2)-1986 Guidelines for safe use of products containing asbestos: Part 2 Friction materials
- IS : 11769 (Part 3)-1986 Guidelines for safe use of products containing asbestos: Part 3 Non-cement asbestos products other than friction materials
- IS : 11770 (Part 1)-1987 Recommendations for control of emission of asbestos dust in premises manufacturing products containing asbestos: Part 1 Asbestos cement products
- IS : 11770 (Part 2)-1986 Recommendations for control of emission of asbestos dust in premises manufacturing products containing asbestos: Part 2 Friction materials
- IS : 11770 (Part 3)-1987 Recommendations for control of emission of asbestos dust in premises manufacturing products containing asbestos: Part 3 Non-cement asbestos products other than friction materials
- IS : 12078-1978 Recommendations for personal protection of workers engaged in handling asbestos
- IS : 12080-1987 Recommendations for local exhaust ventilation systems in premises manufacturing products containing asbestos
- IS : 12081 (Part 1)-1987 Recommendations for pictorial warning signs and precautionary notices for asbestos and products containing asbestos: Part 1 Workplaces
- IS : 12081 (Part 2)-1987 Recommendations for pictorial warning signs and precautionary notices for asbestos and products containing asbestos: Part 2 Asbestos and its products
- IS : 12082 (Part 1)-1987 Recommendations for control of asbestos emission: Part 1 Mining of asbestos ore
- IS : 12082 (Part 2) Recommendations for control of asbestos emission: Part 2 Milling of asbestos (*under preparation*)
- Method for determination of asbestos concentration in water (*under preparation*)
-

1. SCOPE

1.1 This standard lays down the recommendations for packaging, transport and storage of asbestos fibres so as to prevent the release of airborne asbestos fibre during these operations.

2. OBJECT

2.1 The objects of this standard are as follows:

- a) To prevent the generation of airborne asbestos dust and its release to the environment in the process of handling of asbestos fibre during transit and at storage;
- b) To ensure safe arrival of asbestos fibre at its final destination without any spillage; and
- c) To reduce the exposure of workers to airborne asbestos fibres.

3. INITIAL PACKING OF FIBRE IN BAGS

3.1 **Type of Bag** — Asbestos fibres shall always be packed in impermeable woven and coated or lined polyethylene or polypropylene bags.

3.1.1 Plastic material used for bags shall incorporate an ultra-violet inhibitor to protect the bags from sunlight and thus prevent deterioration during trans-shipment.

3.2 Packing

3.2.1 The bags shall be closed by either stitching or heat-sealing. Stitching shall be not less than two stitches per centimetre. Where plastic bags are recycled, polyethylene tape or rayon cord shall be used for sewing, if heat-sealing is not possible.

3.2.2 All bags shall be printed with the pictorial warning sign and precautionary notice as given in IS : 12081 (Part 2)-1987*.

4. PACKAGING FOR TRANSPORTATION

4.1 General

4.1.1 Packaging for transport shall eliminate the handling of individual bags.

4.1.2 All packed bags shall be unitized in an interlocked fashion for the transport of small tonnages in break bulk.

4.1.3 The bags shall be securely unitized by using such techniques as strapping, glue locking, and shrink or stretch wrapping.

4.1.4 The size and design of the units shall be made to suit the asbestos bags and the type of consignment involved. The actual dimensions of the unit shall be such that the bags slightly overhang the wooden pallet on all sides.

*Recommendations for pictorial warning signs and precautionary notices for asbestos and products containing asbestos: Part 2 Asbestos and its products.

4.1.5 The gross height of two units one over another shall not exceed 2.2 m.

4.1.6 The pallet shall be a 4-way entry pallet (see Fig. 1) and shall be integrated with the unit with 4-way strapping or any other effective method.

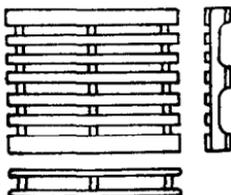


FIG. 1 4-WAY ENTRY PALLET

4.2 Packaging in Preslung Units

4.2.1 This mode of packing shall apply to all pressure packed asbestos bags which can form a stable and firm base on their own.

4.2.2 One tonne of preslung unit shall contain 20 bags of 50 kg each and 4 rows of 5 bags pattern (see Fig. 2).

4.2.3 Layer to layer gluing of bags shall be done by palletizing adhesive followed by 2 layers of stretch wrap around four sides of unit.

4.2.4 The unit shall be slinged after top cover, bottom card-board and bottom cover are added. Finally, the unit shall be stretch wrapped over slings by another 2 to 3 layers of stretch wrap.

4.2.5 The four sling loops at four top corners of units shall be retained on top of unit with an interconnecting elastic band to avoid fetching of sling loops by workers. The over lapping of stretch wrapping on top 4 edges also keeps the sling loops on top of unit without dropping on to sides of unit (see Fig. 2).

NOTE — The preslung units are placed on pallets for further handling by forklift truck.

4.2.6 The sling shall have a minimum lift web of 3.75 cm wide and breaking load 1 450 kg and clinch web of 1.87 cm wide and breaking load 450 kg. Lift and clinch webs shall be made of industrial grade polyester or nylon. The lift capacity of sling shall be 2.0 tonnes at factor of safety of 5.

4.2.7 To protect the bags from damage and bring stability to the unit, a plastic cover shall be used over the unit. This shall be applied as shrink or stretch wrapping or shall be strapped into position. The plastic cover shall incorporate an ultra-violet inhibitor.

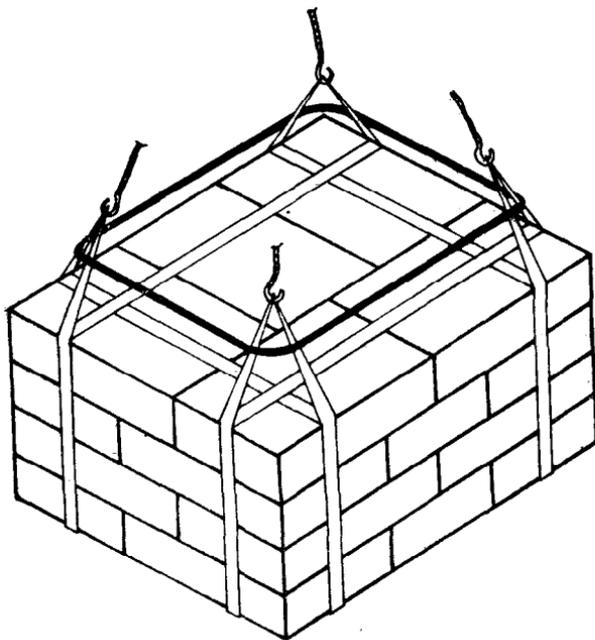


FIG. 2 ONE TONNE PRESLUNG UNIT

4.3 Palletized Packaging

4.3.1 This mode of packing shall apply to all semi-pressure packed asbestos bags where the bags on their own are not able to provide a stable and firm base.

4.3.2 The bags shall be palletized in an interlocked fashion and the bags shall be securely attached to the pallet by using such techniques as strapping, glue locking, and shrink or stretch wrapping.

4.3.3 The pallet shall be a 4-way entry pallet and shall be integrated with the unit with 4-way strapping. The size of the pallet shall be such that the bags overhang on all sides to prevent adjacent bags from being damaged during the course of handling.

4.3.4 Ten-bag bale (depending on bag size and stability) shall be made of 2-way strapping taking care that strapping does not cut into the bags. These bales shall be arranged to form one tonne unit with 20 bags.

4.3.5 The bales are 4-way strapped through the pallet, again taking care that the strapping does not cut into the bags.

4.3.6 A plastic cover shall be placed covering top and sides from top and shrunk to hold the bags firmly. The plastic cover shall incorporate an ultra-violet inhibitor.

4.3.7 When such packing has to be transported, they shall also be preslung to avoid handling damages.

5. CONTAINERIZED SHIPMENTS

5.1 For containerized shipments preslung units described in **4.2** or palletized units described in **4.3** shall be followed.

5.2 When preslung units are shipped in containers, every two units stacked one over another shall have one 4-way entry pallet below the bottom unit to facilitate destuffing.

6. TRANSPORTATION

6.1 Where practicable, unit loads other than in very large shipments shall be stacked on pallets and carried in closed road vehicles or railway wagons for overland shipment and in closed containers for overseas shipment.

6.1.1 For inland transport from mines to factories, impermeable bags (*see 3.1*) with non-pressure packing may be individually handled and carried in covered vehicles.

6.2 Loading and unloading shall be carried out by forklift truck or by some other equally effective method, to prevent the handling of single bag and, therefore, the risk of damaging the bags.

6.3 Hooks and other sharp equipment shall not be used on bags or unit loads.

6.4 Loads carried in containers shall be so stacked as to reduce the risk of damage to bags from the wooden pallets.

6.5 All vehicles used for the transport of asbestos shall be properly cleaned after they have been unloaded.

6.6 A vacuum cleaner shall be used for cleaning. Where this is not practicable surfaces shall be thoroughly wetted before being swept.

6.7 When the wrapping of a bag is damaged and spillage of asbestos is likely, suitable protective clothing and respiratory equipment shall be provided and worn.

7. DAMAGED LOADS AND BAGS

7.1 Suitable adhesive tape shall be available for repair of damaged loads.

7.2 Damaged loads shall be repaired immediately.

7.3 Damaged bags, which are not part of unit loads, shall be repaired with tape; and where this is considered inadequate, the bags shall be placed in another impermeable bag which shall be sealed and clearly identified, before being forwarded.

8. STORAGE

8.1 Before final storage, all units shall be carefully inspected for cleanliness and for damage.

8.2 All bags shall be stacked on pallets.

8.3 All damaged bags shall be repaired immediately.

8.4 All units having loose asbestos or other debris on them shall be cleared as soon as possible by vacuum equipment or by some other means which causes no secondary dust generation. The workers shall be provided with appropriate protective clothing and respiratory equipment where required (*see* IS : 12078-1987*).

8.5 Final storage shall be in a warehouse. In case of outside storage under unavoidable circumstances, units shall be protected by tarpaulins, black plastic sheeting or other suitable covering.

8.6 Receptacles/pallets containing raw fibre received into the workplace shall be transferred to a suitable storage area without delay. Such storage areas should be positioned or arranged to ensure that the receptacles containing the raw fibres are not liable to damage.

9. DISPOSAL OF PACKING MATERIAL

9.1 Packing materials shall be disposed of in accordance with the provisions given in IS : 11768-1968†.

*Recommendations for personal protection of workers engaged in handling asbestos.
†Recommendations for disposal of asbestos waste material.

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²