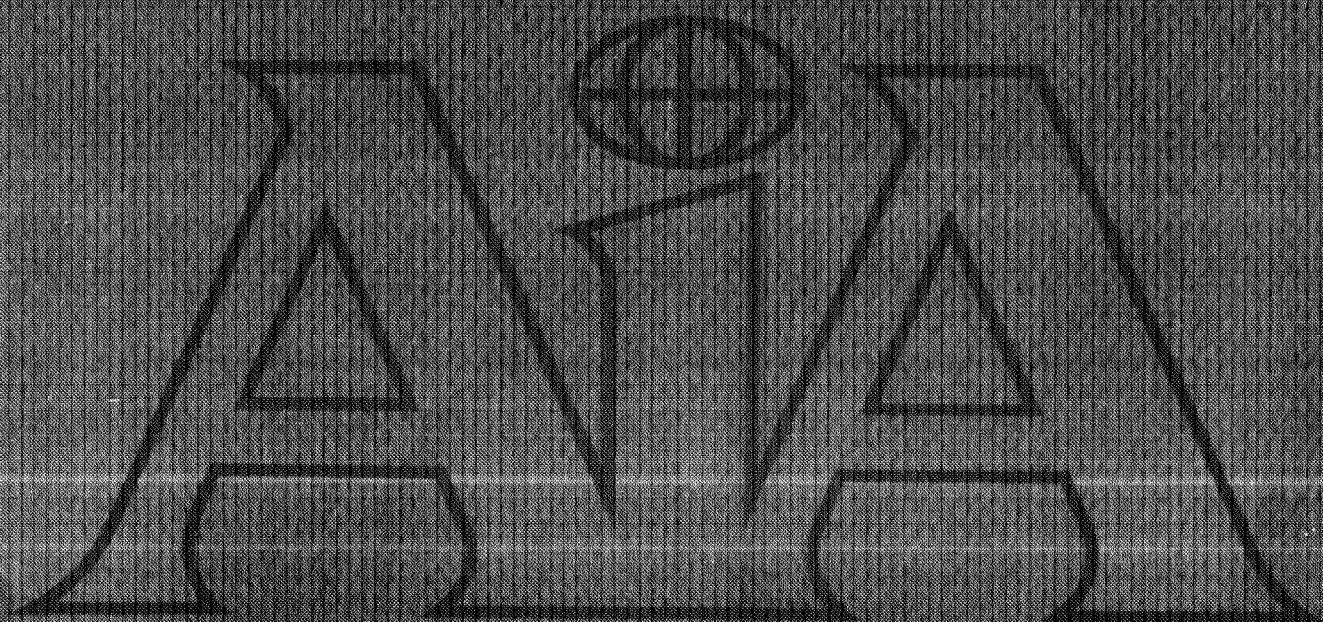


Health and Safety Publication
Control Procedure No. 5 (RCP5)

ASBESTOS FIBRES

Bag Opening





INTRODUCTION

The prime object of this Association is to encourage and facilitate the endeavours of its members to eliminate risks to health, occupational and environmental, arising from the use of asbestos.

Many countries have official regulations and guidelines which producers, manufacturers and consumers are required to observe in order to prevent such risks occurring, and progressively the standards stipulated are being achieved. In the course of applying these requirements much practical experience has been acquired, and the interchange of such knowledge and the maximising of control techniques is seen as the principal means by which our members can attain our prime objective.

There are still areas where official guidance has not been provided, and others where the problems of applying statutory requirements are new and may appear formidable. The Asbestos International Association believes that it has an opportunity and a responsibility to provide what help it can to those concerned with this problem from the wide experience of its members, and has decided therefore to produce a series of advisory publications for this purpose.

We wish to remind readers of two important points. First, in considering any recommendations in the AIA publications these should be related to the specific legal requirements in the country concerned. It is clearly not possible in such publications to relate the recommendations in every respect to the specific detailed regulations in each state. Nevertheless, the greater part of existing laws on the subject calls for similar forms of control and where no official regulation exists we advise that action should be based on the recommendation of the ILO meeting of experts on the safe use of asbestos, December 1973.

Secondly, the development of techniques of control is a continuous process, and we hope that the efforts we are undertaking will help to accelerate the process. Techniques which are recommended have reached their present stage as a result of interchange of ideas and practical experience between international experts in the asbestos industry, plant manufacturers, government agencies and many others. It will certainly be necessary regularly to up-date and amend these publications in the light of new ideas and criticisms. All such will be welcomed and will be given full consideration during revision stages.

Asbestos International Association
68 Gloucester Place,
London W1H 3HL, England
Telephone: 01-486 3528
Telex: 298618 INTA G

24 May 1981

ASBESTOS FIBRES

Bag Opening

Asbestos Fibres — Bag Opening

CONTENTS

1. Products and operations covered by these recommendations
2. Basic requirements
3. Removal of outer protective packaging
4. Transport to bag-opening station
5. Mechanical bag-opening stations
6. Manual bag-opening stations
7. Conveyors for loose asbestos fibre
8. Empty bags
9. High-density block packaging
10. General

1. Products and operations covered by these recommendations

- 1.1 Chrysotile asbestos fibre
- 1.2 Amosite asbestos fibre
- 1.3 Crocidolite asbestos fibre
- 1.4 Any other asbestos fibre or mixture thereof

These recommendations cover the machinery, equipment and work practices to be employed for removing asbestos fibre from the packages in which it is delivered into the manufacturing process. The recommendations will ensure the controlled handling of raw asbestos and particularly should prevent:

- (a) The freeing of respirable fine dust (generally less than 1 per cent of raw asbestos).
- (b) Generating respirable fine dust:
 - (1) through spillage;
 - (2) from emptied asbestos bags.

2. Basic requirements

2.1 Today it is known that the inhalation of respirable fine asbestos dust may — under certain circumstances — cause serious bodily harm. Many asbestos fibre producers therefore prominently display warning labels on the packages of asbestos to signify that careful methods should be employed when using the asbestos fibre.

2.2 Asbestos fibre producers have developed a number of methods of packaging to ensure safe and spillage-free arrival of asbestos fibre at the final destination, i.e. the asbestos-using plant. These methods of packaging are designed to permit various techniques of handling, transportation and storage which minimise the possibility of damage to bags and consequent spillage (see RCP4) and the creation of respirable fine asbestos dust.

2.3 Consumers of asbestos fibre (i.e. manufacturers of asbestos-containing products) become responsible for the control of harmful asbestos dust emission as soon as the asbestos fibre comes into their possession. One of the most critical times when dust emission can occur is during the removal of asbestos fibre from the packages and introducing it into the manufacturing process. However, this phase can be controlled through the use of proper equipment and work practices. Furthermore, these means can readily be implemented because they are fully within the control of the asbestos consumer.

2.4 The recommendations in the following sections are designed to enable the consumer of asbestos to handle the fibres safely

3. Removal of outer protective packaging

3.1 Chrysotile asbestos is generally packaged in woven and coated plastic bags or multiwall paper bags. These are stacked in an interlocked manner, either strapped on a pallet, or in a marino sling held firmly in place by the use of plastic stretch- or shrink-wrapping. These outer protective materials should be left intact until the asbestos is to be used. After the unit of asbestos bags has been transported to the location where it is to be sorted or used, the plastic cover or strapping should be carefully removed in a manner to avoid damaging the asbestos bags and creating dust. There are special tools available for slitting the plastic cover, and/or cutting the strapping, without cutting into the asbestos bags. Any bags found to be torn or damaged must be repaired immediately. Spillage should be promptly vacuum cleaned.

3.2 In the case of amphibole asbestos, which is generally packaged in woven and coated plastic bags, approximately six bags are stacked and compressed together. They are held in the compressed state with heavy wire ties. These bales are then placed on pallets two bales per layer, either two or three layers high. They are held firmly in place by the use of plastic covers and strapping. All of these protective materials should be left intact until the unit is removed from storage and is being prepared for final use.

Carefully cut the outer strapping and remove the plastic cover so as to avoid damaging the asbestos bags and creating dust. Each bale should then be removed from the pallet and placed adjacent to the asbestos-using station. This can be done efficiently by using a fork-lift truck equipped with squeeze clamps. Once in place, the bale wires can be cut by using 600mm long blunt-nosed bolt cutters. It is important always to cut the wires on the side of the bale opposite to the wire clips, or if the bale wire clips are facing the operator then the bale wire must be cut above the retaining clip. (See Fig. 1.) The reason for these precautions is to protect the operator from the possibility of being struck by the bale wire.

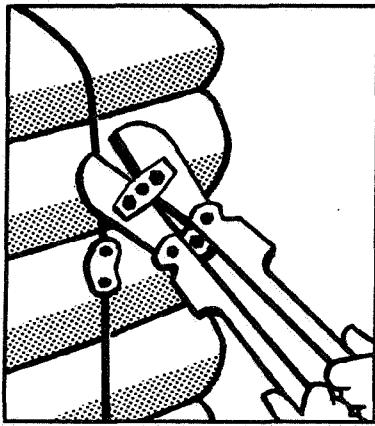


Fig. 1

4. Transport of individual bags to the bag-opening station

The asbestos bags should be left in the original pallet loads and transported by fork-lift or crane to the closest point adjacent to the bag-opening station. After removal of the outer packaging, as outlined in Item 3, the individual bags may be transported to the bag-opening station by:

- (a) Chute or U-shaped channels.
- (b) Conveyor belt.
- (c) Mechanical lifting device.
- (d) Manual handling.

4.1 Chute or U-shaped channel

These methods require sufficient height to allow the operator and asbestos bags to be located above the bag-opening station. They also require the operator to be present to feed each bag into the system at the time it is needed.

4.2 Conveyor belt

Greater flexibility and automation can be achieved by using belt conveyors. They can be of a length to allow loading a complete batch of asbestos bags on the conveyor at one time. In addition an electronic programming device can be incorporated which allows the operator to be doing other things while the conveyor automatically feeds the asbestos bags into the bag-opener. If different types of asbestos are required in the same batch it is possible to use electronic programming to mix bags on the conveyor or to use multiple conveyors, each conveyor being loaded with a different type of asbestos. The programming device can be set to activate each conveyor and feed the required number of bags. With this type of installation the worker is only required to maintain adequate stocks of the correct asbestos bags on each conveyor.

4.3 Mechanical lifting device

The transfer of bags from the pallet to the bag-opening station (or conveyor belt, etc.) can be done with mechanical lifting devices. This procedure eliminates the need for the worker actually to handle the asbestos bags.

However, it is important that these devices do not create respirable dust, for example, by the use of compressed air.

4.4 Manual handling

If for various reasons it is not possible to use the systems named above, the bags may be handled manually. This can be accomplished by the use of, for example, hand trolleys. However, it is important that hooks or other tools which can cause damage to the asbestos bags are not used.

In general, the transportation areas should be cleaned periodically using an approved method such as vacuuming.

5. Mechanical bag-opening stations

Mechanical bag-opening machines are now available which operate successfully with bags of asbestos fibre. They can be combined with various other pieces of equipment to create partially automated systems. This in turn eliminates the need for workers to be involved with opened bags or loose asbestos fibre.

There are many different plant layouts where asbestos is used. The specific design of a mechanical bag-opening installation will therefore vary to suit any particular plant operation. Consequently, no specific system can be recommended here. However, it is important that any system includes the following components:

- (a) Bag-opening machine.
- (b) Totally enclosed system to convey the loose asbestos when it is discharged from the bag-opener to the next stage of the process.
- (c) Totally enclosed system to handle the empty bags.
- (d) Dust control ventilation on all equipment.

6. Manual bag-opening stations

If it is not possible to use bag-opening machines as described above, it is important that proper care be taken to ensure that the manual bag opening is done in a safe and dust-free manner.

6.1 Each station where asbestos bags are to be opened manually must be designed to include these features:

- (a) An enclosure inside which the asbestos bags are opened and emptied.
- (b) An enclosure equipped with air suction to ensure control of all dust emissions during bag opening.
- (c) The disposal of empty bags into a dust-controlled receptacle.

6.2 An example of a manual bag-opening station is shown at Fig. 2. Other designs are available upon request.

The asbestos bag must be put in the bag-opening chamber before it is slit to remove the contents. An air flow volume of approximately 60 square metres per minute must be entering through the opening at the front of the chamber to ensure that dust does not escape. This is maintained by suction at the dust pipe. Once the asbestos has been discharged, the empty bag must be disposed of immediately in a safe, dust-free manner. This is accomplished by having a large discharge spout affixed to one side of the chamber with the final bag-disposal system attached to it.

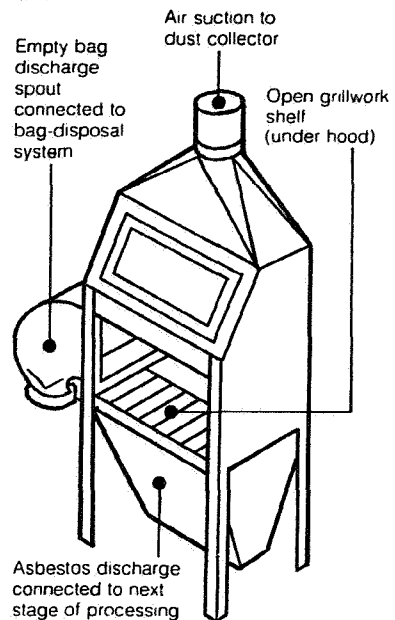


Fig. 2

6.3 Whichever bag-opening system is used, mechanical or manual, it is recommended that the dust control air filter be positioned in such a way that the collected dust falling from the filter during the cleaning cycle is reintroduced immediately into the process.

7. Conveyors for loose asbestos fibre

When loose asbestos is discharged from the bag-opening machine it must be conveyed to the next stage of processing in a totally enclosed system. The least complex method is direct by gravity. For example, the bag-opener is positioned immediately above the mixer and discharges directly into it. If this is not possible other methods include screw conveyors, belt conveyors, bucket elevators and pneumatic conveyors of the vacuum type. It is imperative with each type that the system is totally enclosed and equipped with air suction to ensure that no dust can be emitted. Pressurised pneumatic systems are not recommended because any leaks will cause dust to be expelled into the atmosphere.

8. Empty bags

The empty bags discharged from the bag-opener generally contain a slight residue of asbestos fibre. Hence, they must be treated with the same precautions as the asbestos itself. This means conveying them by direct means to the bag-disposal system. The least complex method is by gravity through a totally enclosed system. If this is not feasible, screw conveyors or belt conveyors can be employed. They too must be totally enclosed and equipped with air suction to ensure that no dust can be emitted. It is recommended that bag disposal be done by grinding or melting devices or by using a clean plastic bag to collect the empties. Refer to RCP4 — Section 9 — Disposal of Packing Materials.

9. High-density block packaging

One Canadian asbestos producer has developed 'high-density block packaging'. This consists of compressing the fibre into a solid block (about half the volume of a normal pressure-packed bag). This producer has also developed a block-breaker which is capable of crushing the blocks as well as pressure-packed fibre. This means that both pressure-packed and high-density block fibre can be treated in the same block-breaker to render the fibre suitable for onward processing.

10. General

Further information on the names and addresses of the equipment manufacturers or any aspect of the safe opening of asbestos bags will gladly be supplied by the Asbestos International Association or by any of the Association Members whose addresses are contained elsewhere in this publication.

NOTES

Asbestos International Association

Member Associations

AUSTRALIA

South Pacific Asbestos Association,*
Suite 610, Challis House,
10 Martin Place,
Sydney 2000, NSW.
Telephone: 232 7004
Telex: 22467
*Includes Indonesia, Malaysia,
New Zealand and Singapore

AUSTRIA

Verein der Oesterreichischen
Faserzementfabrikanten,
c/o Eternit-Werke Ludwig Hatschek,
Postfach 50, 4840 Vöcklabruck.
Telephone: 07672/25 01
Telex: 026/608 or 026/500

BENELUX

(Belgium-Netherlands-Luxembourg)
Benelux Asbestos Information Committee
(CIAB/CVAB),
Boite 32, Boulevard E. Jacquain 162,
B 1000 Brussels.
Telephone: (02) 218-6329
Telex: 21 696

CANADA

Institute of Occupational &
Environmental Health (Association),
AMAQ, Suite 320,
580 est, Grande Allée,
Québec, Qué., G1R 2K2.
Telephone: (418) 529-8168
Telex: 556 0565

CYPRUS

Cyprus Asbestos Association,
c/o Cyprus Asbestos Mines Ltd.,
P.O.B. 118, Limassol.
Telephone: 053-15-355
Telex: 2083

DENMARK

Danish Asbestos Information Group,
c/o Dansk Eternit Fabrik A/S,
P.O. Box 763, DK-9100 Aalborg.
Telephone: (8) 12 11 22
Telex: 69724

FINLAND

Finnish Asbestos Information Group,
c/o Oy Partek Ab, Covering Materials,
SF. 08680, Muijala.
Telex: 1415

FRANCE

Association Française de l'Amiante,
9 Rue de Téhéran, 75008 Paris.
Telephone: 562.88.27

GERMANY

Wirtschaftsverband Asbestzement e.V.,
Postfach 110620, 1000 Berlin 11.
Telephone: 030-3485-250
Telex: 018-1640
Wirtschaftsverband Asbest e.V.,
Oberschelder Weg 2-4,
6000 Frankfurt/Main 50.
Telephone: (0611) 58 20 77

GREECE

Hellenic Asbestos & Asbestos Cement
Association,
8 Omirou Street, Athens (133).
Telephone: 32 31 244
Telex: 215871

INDIA

Asbestos Information Centre,
Ashok Bhavan, 6-7 floors,
93, Nehru Place,
New Delhi.

IRELAND

Irish Asbestos Council,
6 South Leinster Street, Dublin 2.
Telephone: 01-763974
Telex: 24281 and 25369

ISRAEL

Israeli Asbestos Users Association,
P.O. Box 32, Nahariya 22100.
Telephone: 04-924141
Telex: 46294

ITALY

Associazione Nazionale degli Industriali
Amiantieri,
Unione Industriale,
Via Fanti 17, 10128 Turin.
Telephone: 571 6239
Telex: 221247
Assocemento,
via di S. Teresa 23, 00198 Rome.
Telephone: 864.314-865.068

JAPAN

AIA Committee,
Japan Asbestos Association,
8-10-7 Ginza, Chuo-ku, Tokyo.
Telephone: 03-571-8509

NIGERIA

Nigerian Asbestos Association,
c/o Nigerite Ltd., PMB 21032,
Ikeja, Lagos State.
Telephone: 900602
Telex: 26243

NORWAY

Norwegian Asbestos Information Group,
c/o C. Bagge's Asbestkompani AS,
Industriveien 15, Postboks 146,
2020 Skedsmokorset.
Telephone: 02-7467 10
Telex: 16278

REPUBLIC OF SOUTH AFRICA

South African Asbestos Producers
Advisory Committee,
P.O. Box 10505,
Johannesburg 2000.
Telephone: 395458
Telex: 422514 and 422420

SPAIN

Asociacion Española de Fabricantes
de Productos de Amianto,
M^a Diaz de Haro 38,
Apartado 558, Bilbao (10).
Telephone: 437 37 05
Telex: 32125
Asociacion de Fabricantes de
Productos de Amianto-Cemento,
Rafael Calvo 18, Madrid (10).
Telephone: 4197 488
Telex: 44295

SWEDEN

Swedish Asbestos Information Group,
Svenska Bromsbandsfabriken AB.,
880 20 Langsele.
Telephone: 0620-217 50
Telex: 6151

SWITZERLAND

Arbeitskreis Asbest,
c/o Stiffler & Nater,
Dufour Strasse 101, 8034 Zurich.

UNITED KINGDOM

Asbestos Information Centre,
Sackville House, 40 Piccadilly,
London W1V 9PA.
Telephone: 01-439 9231/2/3
Telex: 21120 ref. 2526

U.S.A.

Asbestos Information Association/NA,
1745 Jefferson Davis Highway,
Crystal Square, Suite 509,
Arlington, Virginia 22202.
Telephone: (703) 979 1150

Asbestos International Association
68 Gloucester Place,
London, England, W1H 3HL.
Telephone: 01-486 3528
Telex: 298618 INTA G



2 June 1981

**Publications by the American
International Association**

Recommended Reading Procedures

1. The Council of American Cars

2. The Council of American Cars

3. The Council of American Cars

4. The Council of American Cars

5. The Council of American Cars

6. The Council of American Cars

7. The Council of American Cars

8. The Council of American Cars

9. The Council of American Cars

10. The Council of American Cars

