

(7)

P.N. ARW. 892
113373

THE WORKING GROUP ON ASBESTOS:

PAPER I. GENERAL INFORMATION, AND A SYNTHESIS
OF THE CONTENTS OF THE EUROPEAN UNION DIRECTIVES

1.0 The Background

This paper is the first in a series produced for/by the *Working Group on Asbestos* in Romania. Section 2.0 reviews the common uses of asbestos. Section 3.0 covers the health-related impacts of asbestos. Section 4.0 includes comment on all the relevant requirements of the various EU Directives concerning asbestos and its effects.

2.0 The Common Uses of Asbestos

Asbestos is a naturally occurring fibrous silicate mineral which is mined. Asbestos-containing rock is crushed and milled to produce raw asbestos. Asbestos fibre is mechanically strong and is highly resistant to heat and chemical attack. Because of its fibrous nature, it can be woven into fabrics and used as a reinforcement for cement and plastics.

Asbestos is produced in various forms. The most frequently occurring types are:

- ◆ Chrysotile (white) asbestos;
- ◆ Amosite (brown) asbestos; and
- ◆ Crocidolite (blue) asbestos.

The uses of asbestos are numerous. The most frequent uses include:

- *Sprayed coating and lagging* - Used for heat insulation. Found on pipe sections, tape, corrugated asbestos paper, felts, blankets and plastered cement.
- *Insulating boards* - Used for fire resistance, but also for heat resistance, sound insulation, partition walls and as a non-flammable core or lining for other products.
- *Ropes, yarns and cloth* - Yarns are used in jointing and packing materials, gaskets, and also in brickwork. Ropes are widely used for the thermal insulation of pipes. Asbestos cloth is used in fire protective clothing, such as overalls, gloves, aprons and in fire blankets.
- *Millboard, paper and paper products* - Used for the insulation of electrical equipment, and for thermal insulation.
- *Asbestos-cement products* - Corrugated asbestos-cement sheets are used mainly as roofing and wall cladding.

- *Bitumen felts and coated metal* - Some roofing felts and other building materials may contain asbestos.
- *Flooring materials* - Asbestos has been added to some PVC and plastic floor tiles.
- *Textured coatings and paints* - textured coatings or paints commonly contain asbestos.

2.0 The Health Effects of Asbestos

Fine asbestos fibres are invisible to the naked eye. Asbestos is not harmful when it is present in undamaged materials and/or is well-contained. However, when fibres are released these are subject to inhalation by humans. Asbestos fibres may penetrate deep into the lung, and it is this (and their refractory nature in the lung) which causes severe health effects. Asbestos is much less hazardous in media other than air (e.g. in water, or through dermal contact).

The principal diseases known to be caused by exposure to asbestos are asbestosis, lung cancer and malignant mesothelioma. Brief details on these follow:

- ◆ **Asbestosis** is a scarring of the lung, which makes the lung tissue less elastic. It is irreversible and may progress even after the cessation of any exposure to asbestos.
- ◆ **Lung cancer** associated with exposure to asbestos is difficult to quantify (due to the existence of other causes of the disease). However, such a link has been established, and it is also known that the risk connected to asbestos exposure is much greater for smokers than for non-smokers.
- ◆ **Mesothelioma** is a cancer of the lining of the lung. It is a relatively rare type of cancer, and is normally only associated with exposure to asbestos.

There is no known safe level of exposure to asbestos. The inhalation of asbestos fibres should therefore be avoided. The more fibres inhaled, the more a person is likely to contract an asbestos-related disease. There is usually a long latent period (typically 20 years, but up to 40 or even 50 years) between an exposure to the mineral and the onset of asbestos-related diseases.

4.0 The Requirements of the EU Directives

4.1 General

In order to control exposure to asbestos-containing materials, the EU has passed a number of Directives which control the use of asbestos under different circumstances. Key items of asbestos legislation in the EU include:

- ◆ **Directive 83/477/EEC (as amended by Directive 91/382/EEC)** refers to activities where workers may be exposed to asbestos dust. Many detailed requirements are placed on employers, and the following review provides details of the key points only.

- ◆ **Directive 87/217/EEC** seeks to minimize pollution of the environment from activities involving asbestos. It particularly applies to processes which use more than 100kg of raw materials per year, and restricts emissions of asbestos to air, water or land. In addition, all demolition projects must minimize the release of asbestos to atmosphere as far as practicably possible.
- ◆ **Directive 91/659/EEC** bans the marketing and use of all asbestos products, apart from Chrysotile (white) asbestos. It also places significant restrictions on the use of Chrysotile asbestos for a wide variety of purposes. Some EU Member States (but not all) have banned the use of all types of asbestos, including Chrysotile.

The EU Directives require that a simple risk assessment must be carried out before any activities involving asbestos are started. If it appears likely that atmospheric exposures will be above a given Threshold Value then an employer must:

- notify the 'regulatory authority' (competent authority, in Romania) of the work;
- conduct air sampling to ensure that exposures are acceptable;
- reduce asbestos exposures to levels which are as low as possible;
- ensure that waste asbestos is removed as quickly as possible and disposed of in an appropriate fashion; and
- ensure that all staff understand the nature of the work, and possible risks.

If a second value (the Limit Value) is exceeded, personal protective equipment must be provided, at least unless no other way can be found to reduce exposures. In most instances, this is the case.

4.2 Risk Assessments; a Registration System for Work on Asbestos-Containing Materials

A licensing scheme for asbestos work is one of the requirements of EU Directive 83/477 on worker protection. Under this Directive, a risk assessment must be carried out before starting any asbestos work. If this indicates that asbestos fibres may occur above a threshold level and the works will take place for more than a short period of time, the works must be registered with the relevant regulatory organization.

4.2.1 Risk Assessments

The key questions in a risk assessment concerning asbestos are as follows:

- ◆ Is it possible to avoid exposure to asbestos altogether, by using a substitute material?
- ◆ If work must be carried out on asbestos-containing materials, what fibre levels are likely to be released during the work?

The principal items to consider in relation to the above matters include:

<i>Damage Factors</i>	What is the state of the material?
	What type of asbestos is present?

What is the asbestos content of the material?
What is the potential for contact/damage during the works?

Exposure Factors

What quantity of the material is present?
Is the material encapsulated, or do physical barriers exist to prevent contact?
Is there ventilation nearby?
How many people could be exposed to asbestos which is released?
How old are the individuals who may be exposed?

4.2.2 Registration

A registration system constitutes a valuable means of regulating works involving asbestos-containing materials. However, a number of potential problems may exist, and these will need to be addressed in detail to ensure that a programme of works is practicable, but yet is not too difficult to run or to enforce.

Key areas to identify in this respect are as follows:

- *Who should run the registration system?* In most instances, this will be under the control of the regulatory (competent) authority, but there should be a municipal authority involved, such that on-site inspection is possible.
- *How should a registration system be organized?* Many types of works involving asbestos-containing materials will require rapid registration if the activities are not to be delayed. This is particularly the case if asbestos-containing materials are initially not suspected to be present, but are found during the works. There is a need to generate a streamlined system, such that contractors undertaking works are encouraged to apply for the registration (rather than to attempt to avoid registering).
- *How can the authorities be sure that all projects are registered?* This involves the creation of an active inspectorate at municipal level, and also close links between certain Ministries and at the executive levels of Government.

4.3 Practical Aspects of Asbestos Remediation

If asbestos-containing materials are in good condition and are well-contained, there is usually no need to remove the asbestos. However, all asbestos-containing materials may eventually become aged or damaged, and this increases the likelihood that fibres will be released. When fibres are released above given levels, significant health hazards eventuate and a need exists for the remediation of the materials.

It is a critical requirement that when asbestos-containing materials are removed, the remediation works must be well-managed. Great care should be taken to ensure that asbestos fibres are not inhaled by workers removing the materials, nor by other individuals who may be exposed in or around the area of the works.

In most of the EU Member States, this has been taken to imply the need for a licensing system for contractors wishing to undertake remediation works involving asbestos. In almost all cases, the licensing system is run by the health authorities.

Asbestos removal operations can lead to high fibre levels, well above the current European standards for exposure. To minimize the release of fibres, almost all work involving friable materials requires control measures. The control measures required are related to the levels of risk. They include:

- a need for the effective enclosure or sheeting of the works;
- the use of air locks to control fibre migration and to permit the entry/exit of workers;
- the checking of control measures to ensure that the working practices are appropriate;
- the use of negative pressure units to prevent leakage of fibres outside the enclosure; and
- the use of decontamination units to clean staff who have been exposed in the enclosures.

Air monitoring may be required outside the enclosure, to check the efficiency of the controls. In addition, the monitoring of decontaminated staff may be considered.

4.4 The Use of Personal Protective Equipment

Respiratory Protective Equipment (RPE) is often used in asbestos disposal, to prevent workers inhaling large numbers of fibres. Different types of RPE provide distinct levels of protection. Positive Pressure RPE provides the highest level of safety. Ideally, all RPE used for asbestos removal should be approved by the regulatory authorities. RPE should be fitted with the appropriate high-efficiency filters.

It is critical that all operatives must be trained how to use RPE correctly. In addition, the equipment used should be regularly inspected and checked.

Other types of Personal Protective Equipment (PPE) include clothing. It is important that any clothing does not have pockets on the outside (where fibres can accumulate). Care must be taken to clean PPE correctly. It is not appropriate to take contaminated clothing home, since the worker's family may be exposed to fibres.

4.5 Fibre Monitoring, Analysis and Interpretation

The monitoring of fibres in air is important in many of the control activities noted previously. Air is generally drawn by a small pump through a high-efficiency filter, for a given period of time. The numbers of fibres on the filter are then counted, and the fibre concentrations in a given volume of air are calculated. A European Reference Method for fibre monitoring and analysis is included in the European Union Directives.

dpc2437RomPCBs