

ASBESTOS INFORMATION ASSOCIATION/
North America
1835 K Street, N. W. Suite 402
Washington, D. C. 20006

Asbestos today

modern health controls are effective

The health of asbestos workers has been a matter of concern to governments and industry alike, and some legislation has been in effect for over 30 years to control working conditions. There are some hazards to health caused by exposure to asbestos fibres, but the effects usually become observable only after many years. Hence sickness may occur today in people who worked with asbestos in the 1930s, and the positive preventive results of recent and current controls may not be apparent for some years in the future. At a recent meeting of the Vancouver branch of CIM, a talk about asbestos today was given by Peter Steen, president of Cassiar Asbestos Corporation. It is summarized here.

In recent years there has been a frantic rush to publicize man's growing array of environmental problems. Asbestos has become one of the prime targets. The asbestos industry is aware of the health hazards that can arise, has done a lot to ensure safety for its workers, and welcomes constructive well-researched and documented information.

The industry rejects broad and generalized statements about asbestos and health made by unqualified people who masquerade unsponsored opinion as fact — and sensationalism as honest comment.

Asbestos is the generic name for a group of hydrated silicate minerals that can be separated into relatively soft silky fibres which have great tensile strength. It is classified into six types of two groups, pyroxenes and amphibole, ac-

cording to molecular structure and physical characteristics.

Chrysotile asbestos (pyroxene group) accounts for over 90% of world asbestos production, and 97% of all asbestos used in Canada and the United States. Canada and the USSR are the leading producers of this type of asbestos.

Amphibole types make up the remaining 10% of world production. Amosite is mined commercially only in the Eastern Transvaal area of South Africa, and is used mainly to make heat insulating materials. Crocidolite (a ferrous sodium silicate) comes mainly from the North West Cape Province and Eastern Transvaal in South Africa; it has high acid-resistance.

Asbestos is fire-proof, rot-proof, and impervious to water; it can be made into types of textiles or paper, and is used daily in an estimated 3000 products. It was known for nearly 2000 years before its properties were first seriously investigated in 1873.

HEALTH

Like many materials in common use, asbestos is quite safe if it is handled properly, which means with certain precautions. Dr H C Lewinsohn, a world authority on occupational health, has stated 'Asbestos dust, like the dust of many other basic industrial materials, can be a hazard to health of people exposed to it in high concentrations. It is important that the risk should be clearly understood and that proper controls be exercised over the mining, manufacture and industrial use of the material'.

There are three diseases associated with exposure to asbestos fibre: asbestosis, lung cancer, and mesothelioma.

Asbestosis is a type of pulmonary fibrosis, the result of inhaling high concentrations of fibrous asbestos dust, usually over many years.

Lung cancer incidence may be increased in workers who have asbestosis associated with excessive asbestos exposure. The cause is not known, and asbestos is the subject of much medical research, along with other carcinogens, including coal tar, benzidine, tobacco, vinyl chloride, x-rays, and even sunshine. However, few (if any) asbestos-related lung cancers have been found in otherwise healthy asbestos workers who do not smoke. Cigarette smoking combined with asbestos exposure can produce an effect in which the risk is multiplied as much as 90 times.

Mesothelioma, a rare and newly recognized disease, is a malignant tumour in the lining membrane of the chest and abdominal cavity. By no means are all such tumours asbestos-related, but where there is a relationship it has been found mainly with crocidolite fibre. Far fewer cases have been found where the exposure has been limited to chrysotile fibre — the type mined in Canada.

FACING THE FACTS

Recently, some unions, media, government bodies, and even medical authorities have dwelt at length on asbestos and health. Unfortunately these often well-meaning people failed to balance the story. To give just one side of the story is at best thoughtless and at worst downright dishonest.

Discussing 139 new cases of asbestosis in the year 1974, H.M. Chief Inspector of Factories, in the United Kingdom, stated: 'These continued to reflect conditions in past years when the long term effects of asbestos dust on health of asbestos workers was not fully appreciated. The latent period for this disease is such that annual figures cannot yet be expected to reflect improved conditions following the introduction of new legislation in 1970.'

People in industry are responsible and concerned for the health of employees and their families. Neither employees nor management will reach their respective environmental goals if they waste their time, money, and resources indulging in labour-management standoffs on how environmental goals are to be achieved — and when.

Nobody knows the final answers about asbestos and health; only that excessive asbestos inhalation over a long time can be linked to respiratory diseases. Many of the statistics which are being quoted today pertain to cases initiated in the early part of the century, when working conditions were radically different from those of today.

Since those days there have been tremendous advances in almost every field of human endeavour, including the mining, milling, and processing of asbestos. But, like everything else, it took time and it took its toll in suffering and human life.

EARLY PRECAUTIONS

Asbestos was first suspected of being hazardous back in the 1920s, in Great Britain, when some of the first asbestosis cases in history were recognized. Legislation was passed in the 1920s and 1930s to define dust concentrations in asbestos processing factories, and asbestosis was made a compensable disease, much like silicosis in the mining industry.

Though the legislation applied only to asbestos processing plants (there were no asbestos mines in Britain), it did focus attention on possible hazards in other areas, and tended to improve conditions in the mining and milling phase of the industry. As a result, the frequency of asbestos-related disease started to decline; however, the effects of exposure experienced before the 1930s are still to be seen today.

In the early 1930s British factories processing or using asbestos found signs of asbestosis in some 80% of employees with twenty or more years of exposure. In 1957 at the same factory, but after installation of dust controls, the prevalence of asbestosis had dropped to 3% among workers with 20 years or more exposure. Lung cancer under pre-1933 conditions was ten times that of the general population; in 1968, in men not exposed before 1933, lung cancer was reported at the same level as the general population.

The Canadian asbestos industry has one of the lowest disease rates in the world. Industry, unions, and government are vigilant to ensure dust limits are maintained or that workers are properly protected should higher dust rates occur for technical or other reasons.

A Canadian study of fatal malignant mesotheliomas (1959-68) concluded that high risk was in the field of commercial manufacture and industrial application, and not in mining and milling.

A three-year survey by McGill University reported: 'that even 30 years exposure to present levels of dust in modern asbestos mills would probably not carry any measurable risk of lung cancer. A sample group of 10,421 past and present production workers in Quebec were found to have a mortality rate from all causes lower than the level expected in the general Quebec population'.

In over 22 years of operations at Cassiar mine there has not been one reported case of asbestos-related disease. Records of employees' health and of dust concentrations have been kept at Cassiar since operations first started.

From August 1953 to May 1967 the Workers' Compensation Board of BC did regular dust sampling; since 1967 the program is handled by the BC Department of Mines and Petroleum Resources. Regular surveys of dust concentrations are carried out by the company, and regular chest x-ray records are kept.

Through all the years of Cassiar operations to early 1975 average dust readings were within permissible limits, and continued to decline as a result of company-initiated programs. However, early in 1975 when average dust samples all met the criteria, the criteria themselves and the method of sampling were altered. The sudden change led to a period of intense turmoil, misunderstanding, a work stoppage, and a tremendous waste of time, effort, and money.

Cassiar welcomes government concern and clear sensible legislation. In this case it would have welcomed an invitation to participate, with the union, in setting new standards and arriving at a reasonable timetable for implementing them. Long before the new rules were introduced in 1975, Cassiar had a five-year plan to equip the mines with the latest and best protective devices.

Now, average dust levels meet the new criteria, though some specific areas do not; but they will when the continuing program to upgrade the total environment is completed.

ENVIRONMENTAL PROGRAM

From a study made before 1975, design engineering is under way for installation of a new air filtration system, which should be on stream by 1978. Other equipment is to be upgraded, and an additional 480,000 ft³/min capacity provided. A new change house is being designed; a central vacuum-cleaning system is nearly complete. Small portable vacuum units are used to supplement the central system. Some of these programs were already under way before the changes to standards were announced.

Protective clothing and other dust control precautions are available for asbestos workers and their families, which includes members of management who also work and live in the same areas — a fact that is sometimes ignored by critics of industrial management.

In the open pit mines, mobile equipment operators are protected in pressurized cabs, with filters to keep the dust out; dust from drills is also filtered and extracted, to keep it from the atmosphere.

In the crushing, drying, and milling areas, ducts and control areas extract dust from working places. The contaminated air is filtered to remove dust. Ore-drying exhausts are fitted with high-temperature fabric filters. Fine milling wastes and collected dusts are wetted and agglomerated before they are

discharged from the mill; the tailings pile today is virtually dustless.

In comparison to asbestos processing techniques that once existed decades ago, the industry has advanced a long way in recent years. Today's asbestos worker has little to fear from dust hazards when proper care is exercised in handling this important mineral.

Responsibility for ensuring employee safety and health is willingly shared by industry with government, unions, and the individual. There is still room for improvement, and this can best be achieved through mutual concern and respect, and a desire to increase co-operation and reduce confrontation.