DEFENCE HEALTH SERVICE BRANCH

Just the Facts . . . Asbestos

Introduction: Asbestos is a group of naturally occurring silicate minerals that can be separated into fibres. There are three common types, white, brown and blue. The fibres vary quite considerably in length and are strong, durable, and resistant to chemicals, heat and fire. Asbestos has been used in thousands of consumer, industrial, maritime, automotive, scientific and building products. Most products made today do not contain asbestos. There are strict regulations governing the labelling and use of materials containing asbestos. Until the 1970s, many types of building products and insulation materials used in homes and workplaces contained asbestos.

Forms: Asbestos was processed in two forms:

- Friable asbestos which is a powder and can be crumbled, pulverised or reduced to powder by hand pressure when dry. Lagging is an example of friable asbestos.
- Bonded asbestos may be in cement, resin or binders and cannot be crushed by hand when dry. Fibro in homes is an example of this.

Common Uses: Common products that formerly contained asbestos include:

- Asbestos paper tape or blankets used to insulate steam pipes, boilers and furnace ducts.
- Resilient floor tiles (vinyl asbestos, asphalt, and rubber), the backing on some vinyl sheet flooring and adhesives used for installing floor tile.
- Cement sheet, millboard and paper used as insulation around furnaces and wood-burning stoves.
- Soundproofing or decorative material sprayed on walls and ceilings.
- Fireproof gloves, stovetop pads, ironing board covers and certain hairdryers.
- Vehicle brake pads and linings, clutch facings and gaskets.

Health Effects: Asbestos can affect the body if fibres are inhaled. Once inhaled, the fibres settle in the airways and lung tissues. Inhaling asbestos fibres may cause pleural plaques, asbestosis, mesothelioma or lung cancer.

- **Pleural plaques**: These are small areas of thickening on the wall of the chest cavity, which may show up on a chest x-ray. They are regarded as a "marker" of past asbestos exposure. They do not develop into lung cancer, mesothelioma or other diseases and do not cause any invalidity. They are very common.
- **Asbestosis** is a lung disease caused by exposure to high concentrations of asbestos over a long period. It may develop 10 to 30 years after the exposure begins. It occurs when very fine asbestos fibres are inhaled and find their way into the smallest tubes and chambers of the lung. The fibres slowly cause a tissue reaction, which makes the normal soft and elastic lung tissue become hard and fibrous. This causes scarring of the lung tissues and shortness of breath. These effects develop slowly and may worsen as the disease progresses, even if exposure to asbestos stops. There is no known cure.
- **Mesothelioma** is a rare cancer of the outer lining of the lung or abdominal cavity. It is almost exclusively related to past asbestos exposures. Increasing exposure to asbestos increases your risk of developing mesothelioma. There is no known safe level of

exposure to asbestos below which mesothelioma may not develop. There is no cure for this disease, which is almost always fatal. Mesothelioma may develop up to 50 years after exposure to airborne asbestos fibres.

- **Lung cancer**, which may be indistinguishable from the lung cancer associated with smoking, can also be caused by exposure to asbestos. Asbestos workers who smoke are 10 times more likely to develop lung cancer than similarly exposed non-smokers.

Signs and Symptoms of asbestos-related diseases:

- ***Acute exposures*:** May rarely cause shortness of breath, chest or abdominal pain, or skin and mucous membranes irritation. Acute symptoms are caused by the irritant effects of the fibres on skin or respiratory system and may occur immediately on exposure.
- ***Chronic or delayed effects***: Shortness of breath, dry cough, broadening and thickening of the ends of the fingers, bluish discolouration of the skin. Tests may reveal reduced pulmonary function, and chest x-ray changes (pleural thickening and pleural plaques). Chronic symptoms may not develop until more than 20 years following exposure.

Prevention: Prevention depends on monitoring the condition of asbestos-containing materials and minimising the disturbance of the material to avoid releasing airborne particles of asbestos. Both encapsulation and removal are successful prevention strategies. Personal Protective Equipment (PPE), including the appropriate respirator, must be worn when exposed to, handling or coming in contact with airborne asbestos. The occupational exposure limit for airborne asbestos fibres is currently 0.1 fibres/ml. In practice, we should avoid all exposures to airborne asbestos fibres.

Prevention procedures include:

- Only appropriately licensed and trained personnel should remove or work with asbestos.
- Asbestos workers should wear a respirator until all dust is removed from their clothing.
- Asbestos workers must wear appropriate PPE to include overboots or gum boots, gloves, a hood and coveralls (preferably disposable) with elastic wrist and ankle cuffs.
- Ensuring that reusable protective clothing is vacuumed, placed in approved “Asbestos” bags, and taken to an industrial laundry with facilities for asbestos decontamination.
- Dusty protective clothing can spread asbestos fibres. Employees should not try to clean dust off by beating the clothing with their hands or using a brush or air-hose to blow it away. An approved industrial vacuum cleaner, with a HEPA filter, must be used to remove dust from protective clothes prior to their further processing. This vacuum must not be used for any other purpose, other than asbestos related work.
- Workers exposed to asbestos must not take work clothes home. This will ensure that family members are not exposed to asbestos dust from clothing.
- Asbestos workers should change and store their personal clothes in a clean area. This must be separate from the area where protective clothing used when handling asbestos is stored.
- Workers must shower before putting on their personal clothes to go home.
- Employers must provide a clean rest area so workers do not eat or drink in an area that may be contaminated with asbestos dust.
- Asbestos is best removed wet and should not usually require the use of power tools. However, if required, employers must ensure that the use of power tools (e.g., angle grinders) are kept to a minimum and used appropriately. Due to the fact that power tools can not be cleaned once used for asbestos work, they must be disposed of or sealed and used only for asbestos work in a contained environment

- Air monitoring must be conducted at all times when work is being conducted on or around asbestos.

Medical Surveillance: The purpose of medical surveillance is to ensure workers are capable of performing their jobs safely and to identify any work related illnesses or injuries at a time when intervention can prevent or reduce the likelihood of chronic illness or permanent injury.

- An initial health assessment is required at the time of employment. This initial assessment is called a baseline health assessment.
- This assessment facilitates early detection of any changes from the baseline measurements, as subsequent test results are compared with those found at the baseline health assessment. Subsequent medical examinations should be conducted every two years with a final assessment conducted and recorded at termination of employment. See NOHSC Guidelines for Health Surveillance [NOHSC: 7039 (1995)] and Reg 6.17A of the Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations 1994 for additional information.
- Asbestos-exposed workers must receive targeted counselling concerning their increased risks arising from smoking.
- CXR/lung function tests are performed if clinically indicated.
- There is no evidence that ongoing health surveillance improves health outcomes once significant asbestos related disease develops. PREVENTION IS THE KEY!

Notes: The sponsor for this Fact Sheet is the Directorate of Preventive Health within the DHSB. All comments and questions should be forward to DHSB, DPH, Campbell Park Offices (CP 2-7-154), Canberra ACT 2600 or email DPH.DHS@defence.gov.au