

Mineral and chemical hazards discussed here: asbestos, lead, dust, detergents and cleaning products, and pesticides.

Asbestos

Asbestos is a fibrous material that was once used in many products because it added strength as well as heat and chemical resistance. Until the late 1970s, more than 3000 products containing asbestos were used in building construction. Although few products containing asbestos are used in construction today, the materials used in older buildings still very likely contain asbestos.

Today the many hazards of asbestos are well known. If you do not take proper precautions when you work around asbestos, you may develop serious health problems years from now.

Asbestos is most hazardous when it is “friable” (dry and easily crumbled or powdered by hand). Once crumbled, asbestos releases fibres into the air. When you inhale those fibres, they get into the deepest regions of your lungs—the alveoli—and stay there forever because asbestos is not easily broken down by the body. The accumulation of asbestos in the lungs could cause lung cancer or other serious diseases many years from now.

It is, however, important to use caution even when working with non-friable materials that contain asbestos (such as vinyl-asbestos floor tile or asbestos cement products), because they have the potential to become friable if they are handled in an aggressive manner (e.g., sanded with a power sander).

Some asbestos-containing materials that were once commonly used in residential construction:

- Pipe insulation
- Door gaskets
- Furnace insulation
- Vinyl, asphalt, or rubber floor tiles
- Acoustical tile

Health Problems Associated with Exposure to Asbestos

The health effects associated with exposure to asbestos are very serious and many are fatal.

- Asbestosis is a lung disease that results from prolonged exposure to asbestos dust. Once the fibres get into the alveoli—the very small part of the lungs—they stay there. Gradually the lungs become scarred and stiff, and this makes it difficult for a person to breathe.
- Lung cancer may be caused by asbestos fibres in the lung. The combination of exposure to asbestos and smoking dramatically increases the likelihood of developing lung cancer.
- Mesothelioma is a rare but very deadly form of cancer that is caused by exposure to asbestos. Mesothelioma affects the lining of the chest or the abdominal cavity.

Protection Practices

To control asbestos exposure, you must be aware of the work processes that put you at risk of asbestos exposure, and you must take the proper steps to reduce or eliminate exposure.

Jobs that could expose a worker to asbestos:

- Removing asbestos-containing pipe insulation
- Removing asbestos-containing vermiculite insulation

- Cleaning up renovation sites where asbestos-containing building materials have been removed
- Sawing, scraping or sanding old building materials that contain asbestos (such as old dry-wall that contains asbestos)
- Removing old plumbing fixtures

If you have to do work that could expose you to asbestos, it is your employer's responsibility to make sure you are trained properly on how to protect yourself from exposure to asbestos. It is your responsibility to follow safe work practices that are established by your employer for your protection.

For more information

- WCB publication *Safe Work Practices for Handling Asbestos*:
http://www.worksafebc.com/publications/Health_and_Safety_Information/by_topic/assets/pdf/asbestos.pdf

Lead

The paint used in older buildings often contained lead. If you have to do work in a building or on another type of structure that was built before 1975, you could be exposed to lead when you are removing lead-based paint.

There are two ways that lead can enter your body:

- You can breathe in lead dust or fumes while you are sanding painting; or
- You can drink or eat food contaminated with lead, or transfer lead dust from your skin to your food.

Once lead is in your bloodstream, it is carried throughout the body and stored in various body tissues, mostly in your bones. The body can naturally get rid of lead over time; however, if lead enters your body faster than your body can get rid of it, it may build up or accumulate.

Health Problems Associated with Lead Exposure

A person suffering high lead levels may experience a general feeling of tiredness and weakness, general aches and pains, headaches, loss of weight, abdominal pain, and possible constipation. These and other symptoms of lead exposure may take a long time to develop. As well, workers with similar exposures to lead may experience different symptoms, or the same symptom but at different severity.

Possible health effects an adult may experience as a result of lead exposure include:

- Anemia
- Nerve damage causing muscle weakness
- Kidney damage
- High blood pressure
- Reproductive problems in both men and women

A developing fetus, when the mother is exposed to even fairly low levels of lead, may experience low birth weight and developmental delays. If a woman has been exposed before pregnancy to a significant amount of lead, then during pregnancy the lead may come out of the body tissues where it is stored and enter the blood and the fetus. Lead is also excreted in breast milk.

Protection Practices

Health problems from lead exposure can be prevented. The solution is to minimize the amount of lead your body absorbs through being breathed in and ingested.

Be aware of the work processes you are doing that increase your risk of being exposed to lead and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much lead.

If there is lead exposure in your workplace, make sure you remove your work clothing and shower before going home! The other members of your family—and especially children and pregnant women—will be exposed if you take lead dust home on your work clothes, foot wear, skin, or hair.

For more information

- http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/lead.pdf
- <http://www.cdc.gov/niosh/topics/lead/>

WCB regulations

- Part 5 of the Occupational Health and Safety Regulation, governing exposure to chemical and biological substances: <http://regulation.healthandsafetycentre.org/s/Part5.asp>
- Part 6 of the Occupational Health and Safety Regulation, governing exposure to lead: <http://regulation.healthandsafetycentre.org/s/Part6.asp>

Dust

Dust can be produced from a whole range of work-related activities including sanding, sawing, paint removal, and sweeping.

Depending on its content, can be simply a nuisance, or it can actually cause harm. When dust is in the air you breathe, it gets inhaled into your respiratory tract. Very small particles of dust can make their way into the alveolar region of your lungs where, depending on the particles' chemical characteristics, they can cause diseases. Even dust from “natural” sources—such as dust from wood or flour—can be harmful to your health.

Health Problems Associated with Exposure to Dust

A person exposed to dust may experience eye, nose, throat, and respiratory tract irritation, coughing, and phlegm production. If the dust you are working with contains substances such as asbestos, lead, silica, western red cedar, or other hazardous substances, you could also develop long-term health problems such as breathing difficulties, asthma, or lung cancer. Smoking increases the risk of developing these health conditions.

Protection Practices

- Do not sweep dry dust. To prevent dust from becoming airborne, clean dusty surfaces with water, wet mops, wet rags, and vacuums that have high-efficiency particulate air filters.
- Do not use compressed air to clean up dust.
- Know what is in the dust you are working with!

To control your exposure in the workplace to dust that may contain a hazardous substance, be aware of the work processes you are doing that create dust and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much dust that may contain a hazardous substance.

For more information

- WCB publication *Breathe Safer*:
http://www.worksafefbc.com/publications/Health_and_Safety_Information/by_topic/assets/pdf/breathe_safer.pdf

WCB regulations

- Part 5 of the Occupational Health and Safety Regulation, governing exposure to chemical and biological substances including dust:
<http://regulation.healthandsafetycentre.org/s/Part5.asp>
- Part 8 of the Occupational Health and Safety Regulation, outlining the legal requirements covering personal protective equipment and clothing, including respirators:
<http://regulation.healthandsafetycentre.org/s/Part8.asp>

Detergents and Cleaning Products

Substances that are used for cleaning in a variety of jobs (e.g., hotels, restaurants, construction, retail) are often hazardous.

Make sure you know the risks of the cleaning products you are using. Cleaning products in the workplace should be labelled with information about the safe use of the product. They should also come with a Material Safety Data Sheet (MSDS). The MSDS will give you information on the hazards that may be presented by the product and steps you can take to protect yourself from any risks associated with the product.

Health Problems Associated with Exposure to Detergents and Cleaning Products

One of the most common health effects associated with working with detergents or other cleaning products is dermatitis. Many detergents and cleaning products irritate or attack the body's protective organ—the skin—and weaken its job as a barrier.

Pesticides

Insecticides are a type of pesticide used to kill or control insects. When *organo-phosphate insecticides*—commonly called OPs—enter the human body, they impair the body's ability to control normal nerve and muscle function.

OPs are used:

- On farms and in orchards to control insects that damage crops
- On farms and ranches to control pests that infest animals and farm buildings
- In veterinary products used to control pests that infest livestock and pets
- In nurseries to control pests that attack greenhouse crops and bedding and ornamental plants
- In the forest industry to protect trees and tree seedlings
- In warehouses, retail stores, schools, office towers, and other buildings to control termites, carpenter ants, and other pests

Most OPs have strong odours that smell like garlic. They are very toxic and can enter the body:

- Through the skin—The skin is the most likely way for OPs to enter the body. They can be absorbed not only through skin that is cut or scraped, but also through intact skin. Exposure through the skin often occurs with spills or splashes during mixing or spraying. Eyes and genital areas absorb pesticides more easily than hands and forearms.
- Through the lungs—The risk of inhaling OPs is higher if they tend to remain in the air after application. Inhalation of vapours, fine dusts, and fogs are the main concerns. The risk of inhaling OPs may be very high in greenhouses, mushroom barns, warehouses, or other enclosed areas where ventilation is poor.
- By swallowing—The most severe poisonings often result when OPs are swallowed. The stomach and intestines absorb pesticides easily. You can ingest OPs if you eat, drink, or smoke in a contaminated area, or don't wash your hands before doing any of these things.

Protection Practices

You must wear personal protective equipment to use OPs safely. What you need depends on how toxic the OP is, the type of formulation (solid, liquid, or gas), and the risk of exposure. For example:

- If you are working with concentrated OPs as a mixer or a loader, you need goggles, gloves, a respirator, and protective clothing to guard against splashes, spills, and vapours.
- If you are working as a flagger involved in aerial applications, you could be exposed to spray drift and should protect your eyes and all of your skin.

No one material provides protection against all types of OPs. Check the OP product label for the type of glove recommended for use when handling the product. If the label doesn't tell you, ask your boss or contact the supplier. How often you need to replace your gloves depends on the gloves' thickness, how well they have been taken care of, and their amount of use. Check gloves regularly for wear and tear. Don't use a glove that has a hole or worn spots.

Wear 100 percent cotton coveralls and other clothing, or an outer rain or spray suit. (Rain or spray suits worn during pesticide applications should be waterproof, tear-resistant, and resistant to the solvent used in the OP.) Pesticides pass through polyester; cotton absorbs them. Check the labels on your clothing to be sure that they are 100 percent cotton, not a cotton-polyester blend.

When using any OP, you should at minimum wear a long-sleeved shirt, long-legged trousers, socks, waterproof boots, and gloves.

In addition to wearing personal protective equipment, you should also practise good hygiene, including washing your hands:

- After handling OPs
- Before eating, drinking, or using the toilet
- Before going home

For more information

- Part 6 of the Occupational Health and Safety Regulation, governing exposure to pesticides: <http://regulation.healthandsafetycentre.org/s/Part6.asp>
- British Health and Safety Executive: <http://www.hse.gov.uk/>
- U.S. Occupational Safety and Health Administration: <http://www.osha.gov/>
- U.S. National Institute for Occupational Safety and Health: <http://www.cdc.gov/niosh/homepage.html>
- European Agency for Safety and Health at Work: <http://europe.osha.eu.int/>
- International Labour Organization: <http://www.ilo.org/public/english/protection/safework/index.htm>