



HEALTH AND SAFETY **FACT SHEET**

Moulds

What are moulds?

Moulds are hazards that affect the health and safety of CUPE members. Moulds are biological matter that produces tiny particles called spores that can become airborne. When workers breathe in spores, their health can be affected.

Mould can grow on wood, drywall, upholstery, fabric, ceiling tiles, carpeting, in ventilation systems and on other surfaces. Moulds exist indoors and outdoors but are most harmful when they are inside poorly ventilated, airtight buildings with high humidity and low levels of fresh air.

Actively growing mould looks woolly or slimy. It can be red, brown, green, black or white. Moulds need moisture to grow. Without enough moisture mould becomes inactive and looks powdery or crusty. If air movement or contact disturbs inactive mould, spores are sent into the air, distributed onto other surfaces and breathed in by workers. Mould can stay inactive for many years but will start to grow again when there is enough moisture.

There are over 100,000 mould species with about 1,000 species commonly found in Canada. Many moulds produce toxic spores that affect the health of CUPE members by creating new health problems or making existing health conditions worse.

Many moulds produce mycotoxins, a by-product that is toxic to humans. Mycotoxins can cause allergic reactions, respiratory illnesses and can harm the immune system.

The following are just a few of the most common toxic moulds:

- *Stachybotrys chartarum* (also known as *stachybotrys atra*) is black and dark green in colour. It grows on drywall, wood, paper and ceiling tiles. This mould produces mycotoxins that irritate the throat, nose and eyes, causing a runny nose and watery eyes.
- *Toxigenic aspergillus* is a large family of moulds that can cause asthma, eye and ear infections. *Aspergillus* is found in stored foods, soils and plants. *Aspergillus flavus* and *Aspergillus parasiticus* produce a mycotoxin called aflatoxin, a known carcinogen that can cause liver cancer and lung cancer. *Aspergillus fumigatus* grows on organic matter and causes infections in people with weak immune systems.
- *Fusarium* is a mould that causes vomiting, nausea, sinusitis and in some cases, colon infections. *Fusarium* mycotoxins are potential carcinogens and can be found in poorly maintained humidifiers.

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- *Penicillium* is a mould that triggers a variety of allergic reactions. It's known to cause hypersensitivity pneumonitis and is commonly found in carpets, wallpaper and fibreglass duct insulation.

Other common moulds include *Trichoderma*, *Memmoniella*, *Cladosporum* and *Alternaria*.

What causes mould hazards?

Moulds can be a hazard in workplaces where there is a lack of maintenance workers, poor ventilation and excessive moisture. Energy conservation measures have led to airtight buildings that trap moisture, promoting mould growth. The combination of high moisture and inadequate maintenance of heating, ventilation and air conditioning (HVAC) systems, contributes to mould growth. This situation exposes CUPE members to the toxic effects of mould.

Causes of mould hazards:

- No HVAC maintenance workers or maintenance program in place due to cutbacks.
- Lack of fresh air intake into HVAC systems.
- Improper temperature and humidity levels.
- Plumbing leaks and other sources of water leaks from faulty roofs or windows.
- Inadequate exhaust ventilation in high moisture areas.
- Windows that don't open.
- Renovations that alter workplace space without adjustments to HVAC system capacity.

- Lack of mould remediation procedures and a general lack of understanding about mould problems.
- Excessive moisture that causes mould growth on upholstery, carpets, drywall, wood, draperies, ceiling tiles and fabric.

What are the health hazards of moulds?

Moulds can affect the physical and psychological health of workers. For those who suffer from asthma, moulds can worsen their asthmatic symptoms. Workers with chronic lung illnesses may develop mould infections in their lungs after exposure to certain moulds.

Major outcomes of mould exposure:

- Eye, nose and throat irritation.
- Aggravation of asthma and allergic reactions.
- Runny nose, congestion and cough.
- Fatigue, nausea and fever.
- Headaches and difficulty concentrating.
- Nosebleeds and shortness of breath.
- Eye, ear and lung infections.
- Impairment of the immune system.
- Lung and liver cancer from exposure to aflatoxin.

The International Agency for Research on Cancer (IARC) has deemed aflatoxin a Group 2B carcinogen. This means that aflatoxin is a possible cancer-causing agent for humans. Aflatoxin is a mycotoxin (a toxic by-product of moulds) produced by *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxin is associated with liver and lung cancer. It has been found in contaminated corn, peanuts and other

grains and foodstuffs. *Aspergillus flavus* and *Aspergillus parasiticus* are not commonly found indoors or on building materials. *Aspergillus flavus* and *Aspergillus fumigatus* are also known to cause aspergilliosis, an infection of the lungs that causes severe cough, chest pains, breathing difficulties, fever, sinus pain and facial swelling.

Negative physical effects of mould exposure can contribute to workplace stress. This stress can be made worse when members face undue pressure from misinformed employers. Employers often dismiss complaints about mould hazards and workers' symptoms, or say the symptoms are caused by colds or seasonal allergies. But mould hazards are serious and employers must take action.

What can be done about moulds?

1. Identify the problem

First, recognize that moulds are a health and safety hazard. Surveys and mapping techniques are excellent tools to identify mould hazards in your workplace. A mould hazard survey can be done in co-operation with the employer, in which case the union approves the survey and is involved in collecting and assessing the information generated. The union should conduct its own mould hazard survey if the employer resists the idea or denies that mould hazards cause health problems for workers. Body mapping and hazard mapping techniques can be used, in addition to surveys, to identify mould hazards.

Workplace inspections by CUPE members are a crucial tool to identify moulds and mould hazards. Inspections should be carried out regularly to expose and eliminate these hazards. Immediate attention should be given to conditions that promote mould growth: excessive moisture and dampness, poor HVAC maintenance and improper humidity levels.

When conducting inspections look for signs of water damage. Stains and discolouration of drywall, ceiling tiles and carpeting can indicate water damage. Moulds will usually appear as dark spots, stains or patches.

When conducting an inspection look at:

- Carpeting and floor coverings.
- Fabric on furniture (including underneath furniture).
- Behind filing cabinets, book shelves, desks, etc.
- Ceiling tiles and drywall.
- Insulation and behind walls and ductwork if possible.
- Areas where there is standing water (e.g., sinks, dehumidifiers, air conditioners, kitchens, etc.).

Wear personal protective equipment for your hands and eyes and wear a HEPA (high efficiency particulate air) filter respirator when conducting inspections for mould hazards. It might be necessary to conduct surface and air sampling. Professionals who deal with mould removal usually carry out sampling procedures.

2. Actions

Mould hazards largely involve issues of control, cutbacks and employer neglect. Taking action on mould hazards means members exercising control at work.

The following actions can help combat moulds:

- Refuse unsafe working conditions caused by moulds.
- Report mould hazards immediately.
- Put moulds on the health and safety committee agenda.
- Keep relative humidity in the workplace between 30 per cent and 60 per cent.
- Conduct extra inspections and be diligent in sewage treatment plants and composting facilities.
- Demand employers take action on testing and inspecting for moulds.
- Demand employers take action to fix mould hazards and improve indoor air quality.
- Insist employers safely remove moulds from the workplace by hiring professionals.
- Ask that employers have mould remediation (removal) programs in place.
- Make sure landscaping and eavestrough downspouts direct water away from buildings.
- Ensure any high moisture areas are properly ventilated with local exhaust ventilation.
- Get employers to insulate cold surfaces to prevent condensation on pipes, windows, walls, roofs and floors.
- Call for regular maintenance and cleaning of HVAC systems.

- Call for regular maintenance of buildings, especially roofs, basements and other locations where leaks occur.
- Insist on extra staff to conduct maintenance procedures such as fixing and maintaining plumbing systems and fixing building leaks to prevent mould growth and other workplace hazards.
- Conduct regular workplace inspections to uncover moulds and mould hazards.

Trained professionals should carry out mould remediation. Some workplaces have procedures that involve CUPE members removing mould. Mould remediation by CUPE members should be highly regulated and done only by members with proper training and access to personal protective equipment (PPE).

3. Strategies for change

The strategies outlined below go with the actions listed above. Moulds can be eliminated through the following:

- Keep mould and indoor air quality issues on the health and safety committee agenda until they are resolved.
- Ensure that reports of mould sampling are provided to the union and the joint health and safety committee.
- Demand regularly scheduled maintenance on plumbing systems, HVAC systems and on work areas where high moisture exists.
- Demand employers obey health and safety laws and regulations pertaining to mould hazards.
- Lobby government for mould and indoor air quality regulations.
- Put the issue of moulds on the bargaining table.

- Negotiate contract language where legislation does not provide for specific controls, monitoring, or access to information about moulds.
- Sponsor CUPE education around the issue of moulds and their effects.
- Create a mould policy for CUPE workplaces starting with the premise that moulds are a health and safety hazard and that all steps should be taken to prevent the hazard.
- Organize collective job action around the issue of moulds.

Employers have the responsibility to provide a healthy and safe workplace. This legal responsibility is known as the general duty clause. Getting rid of moulds is an important part of a healthy workplace. Eliminating mould hazards requires the participation of our CUPE membership. Through education and action, we can make our workplaces safe and healthy.

This fact sheet provides some information to address the hazard. Look for related information in the CUPE health and safety fact sheets, *Indoor Air Quality and Ventilation*.

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Glossary

Aspergilliosis (also spelled aspergillosis): An infection of the lungs caused by *aspergillus*. Aspergilliosis causes severe cough (sometimes with blood), chest pains, breathing difficulties, fever, sinus pain, weight loss and facial swelling.

Aspergillus: A family of toxic moulds, of which 15 are commonly found in Canadian buildings.

Aspergillus flavus: A toxic mould that is found in soils and stored foods. It produces the cancer causing agent, aflatoxin.

Aspergillus fumigatus: A fast-growing toxic mould that can cause infections in people with weak immune systems. It can also cause hypersensitivity pneumonitis in those who experience long-term exposure. It grows on compost, dung and other organic matter.

Aspergillus parasiticus: A toxic mould that produces the cancer causing agent, aflatoxin.

CFU (Colony-forming units): The term of measurement used to describe mould growth.

Fungus (plural is Fungi): A group of organisms that are usually parasitic (live off of organic matter) and can cause indoor air quality problems and ill health. Examples of fungi include moulds, yeasts and mushrooms.

Fusarium: A toxic mould that causes colon infections and is a potential cancer-causing agent. It is commonly found in humidifiers and humidification systems.

HEPA (High-efficiency particulate air filter): Air filters that assure the removal of 99.97 per cent of particles 0.3 micrometres in size (you could fit 1000 micrometres on the head of a pin). HEPA filters should be used in respirators and vacuums when cleaning up moulds.

HVAC: Heating, ventilation and air conditioning. HVAC systems control the temperature, volume and ventilation rate of air in a building.

Hypersensitivity pneumonitis: A chronic respiratory illness that can be triggered by certain moulds. People suffering from hypersensitivity pneumonitis experience an inflammation of the lungs causing cough, fever, and shortness of breath and loss of appetite.

Mould: Refers to fungi with fuzzy or woolly textures. Moulds produce spores (also called conidia) that usually become airborne and allow for widespread distribution.

Mycotoxin: A toxic by-product of moulds that can cause illness in animals and humans.

Penicillium: A toxic mould found in carpets, wallpaper and fibreglass insulation. It triggers many allergic reactions and can cause hypersensitivity pneumonitis.

Stachybotrys: A type of toxic mould that is usually black or dark green. It lives on damp cellulose (found growing on fibres, cotton, wood, paper, drywall, ceiling tiles and certain insulation materials). The toxins produced by *Stachybotrys chartarum* (also known as *Stachybotrys atra*) are potent and cause allergic-like reactions.

Toxicogenic: The ability to produce toxins that harm people or animals. For example, *Stachybotrys chartarum* is toxicogenic.