University of Saskatchewan

Asbestos awareness

What is Asbestos?

Asbestos is the common name for a variety of naturally occurring minerals. Asbestos minerals are divided into two groups - serpentine and amphibole.

Serpentine minerals have a sheet or layered structure while **amphibole minerals** have a chain-like crystal structure. Chrysotile is the only mineral in the serpentine group and accounts for 95% of the asbestos found in buildings and building material in North America.

Five types of asbestos are found in the amphibole group. Amosite, the second most likely type to be found in buildings is referred to as brown asbestos. Crocidolite or blue asbestos is also an amphibole used in high temperature insulation applications. The remaining 3 types are anthophyllite, tremolite and actinolite. These varieties are of little commercial value but occasionally are found as contaminants in asbestos containing material.

Health Hazards and Asbestos Exposure

As early as the mid-1940's, the link between exposure to asbestos fibres and a condition called asbestosis was evident, especially in workers who openly mined asbestos without knowing the health hazards and utilizing personal protection.

Products made from mined asbestos were prevalent in the milling, construction, shipbuilding and manufacturing industries.

For those workers a lack of information, training, engineered controls and personal protection were all contributing factors to a rise in one condition called asbestosis.

Asbestosis is a scarring (fibrosis) of the lung that impairs its elasticity and hampers its ability to exchange gases.

The mining, milling and manufacturing of asbestos continued, with peak use (in tonnage) in the mid-1970's. It wasn't until the 1980's that medical surveillance established a link between exposure to asbestos and certain forms of cancer. The most common type is mesothelioma, a cancer in the lining around the lungs.

The risk of developing illnesses from exposure to asbestos is directly related to the identification and labelling of asbestos containing material, training of workers and implementation of all the elements of a asbestos management program prescribing how asbestos in occupied buildings is managed. The Asbestos Management Program (AMP) prescribes how asbestos at the university is identified, labelled, assessed, abated as well as what level of training is required for our staff and contractors that do work at the university.

Non-friable asbestos in good condition poses no risk or health hazard to people unless it is damaged or disturbed intentionally or unintentionally.

What is USask doing about asbestos?

As part of the university's AMP, in all USask-owned buildings asbestos is identified, clearly labelled and managed. Based on the results of the asbestos audit, priorities are established for asbestos abatement.

Labelling

Identified asbestos-containing material (ACM) in or near a work-space is labeled by a sticker placed between the top two door hinges on the inside of the nearest door frame and/or 1.7 metres from floor. Where the door frame isn't wide enough for a label, it is placed to the right of the door frame. On double doors, the sticker is on both door frames. In hallways, labels are placed at both ends and on both sides, about 1.7 metres above the floor.

Identification

At the University of Saskatchewan, the bulk of our asbestos is found in insulating wraps around steam pipes, in mechanical rooms, and in fire retardant sprays on structural steel. It is also present in older laboratory fume hoods and smaller apparatus like heating pads. Asbestos can be present in various areas and unless you are properly trained, have all the personal protective equipment, have had a respiratory fit test and have a written safe work procedure, you should never work directly with any asbestos or potentially containing materials.

Pipe Labels

All pipes wrapped in asbestos containing insulation will be identified with the word "**ASBESTOS**" stenciled on them using red spray paint. As well, pipe fitting connections at corners or elbows that contain asbestos will be identified with a red dot spray painted on them.

Piping where asbestos containing material connects to non-asbestos material will have "**RED**" arrows or termination lines for asbestos and "green" where non-asbestos material begins.

Friable vs non-friable

If asbestos containing material (ACM) can be crumbled, pulverized or reduced to powder by hand pressure when dry, it is considered friable.

If the ACM cannot be crumbled, pulverized or reduced to powder by hand pressure when dry, it is considered Non-Friable.

Non-friable ACM has the potential to become friable if disturbed in the following ways:

- **THROUGH DIRECT PHYSICAL CONTACT** – high traffic public areas, contractors or service workers in mechanical rooms.
- **THROUGH VIBRATION** – loud motors in fan rooms, backup generator engines, proximity to airports or hi-ways.
- **THROUGH AIR EROSION** – elevator shafts, fan rooms, air plenum, ducting.

Common Asbestos Containing Materials

- Fireproofing or thermal spray
- Rigid pipe insulation (batt or block)
- Textiles (pipe covering, felts, fire blankets)
- Cementitiuos products (drain pipes, transite panels)
- Paper products (millboard, high temperature corrugated)

Colour Code

The location numbers are used with the colours yellow and red, which indicate what condition the ACM is in.

Area contains friable asbestos
APPROVAL OF ENTRY REQUIRED

Area contains non-friable asbestos
REPORT DAMAGE TO SAFETY RESOURCES

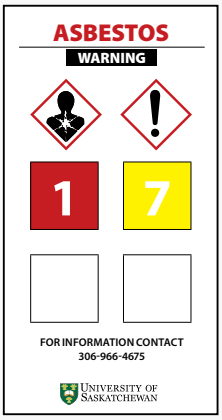
In special instances where asbestos is present but not easily described by this system, there is an ACM label and hand written a description of the ACM.

Identification Numbering System

The location of the asbestos is identified on stickers using the following numbering system.

1. **Asbestos in ceiling spaces (incl. fireproofing, piping)**
2. **Asbestos on ceiling surfaces (incl. ceiling tile)**
3. **Asbestos on wall surfaces and/or windows**
4. **Asbestos below the flooring material**
5. **Asbestos on visible piping and or ducting (incl. mastic)**
6. **Asbestos in flooring material (floor tile, mastic, leveling compound)**
7. **Asbestos fire doors**
8. **Asbestos transite board (fumehoods, benches etc.)**
9. **Asbestos in duct damper/air diffuser**
10. **Asbestos in heat shield**
11. **Residual or enclosed asbestos fireproofing and/or ceiling texture**
12. **Vermiculite (loose)**
13. **Asbestos in ceiling, wall and/or floor penetrations**
14. **Asbestos insulation (mechanical, boiler, tank etc.)**
15. **Miscellaneous (contact Safety Resources for details)**

DOOR FRAME LABEL EXAMPLE



HEALTH HAZARD

HARMFUL/ IRRITANT

1 **Asbestos in ceiling spaces**
Area contains friable asbestos
APPROVAL OF ENTRY REQUIRED

7 **Asbestos fire doors**
Area contains non friable asbestos
REPORT DAMAGE TO SAFETY RESOURCES

Where can I get more information?

If you have questions or concerns about asbestos or would like more information, please contact Safety Resources.

Safety Resources
150 Research Annex, 105 Maintenance Road
University of Saskatchewan
Saskatoon SK S7N 5C5

(306) 966-4675
(306) 966-8394
safetyresources@usask.ca
safetyresources.usask.ca