

Asbestos Information **Public Health Departments**

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Asbestos Background Information

- Asbestos is a naturally occurring mineral (rock)
- Chrysotile (white) is the most common form
- Amosite (brown) most dangerous form
- Crocidolite (blue, green) high temperature applications
- Other forms anthophalite, actinolite, tremolite
- Asbestos is an excellent for fire proofing, thermal insulator, sound absorption, high tensile strength(binder).
- Asbestos containing materials are those which contain > 1% asbestos by volume.
- Asbestos is regulated because it is a known human carcinogen.

Types of materials which can contain asbestos

- Fire proofing
- Pipe insulation
- Floor tile
- Ceiling tile
- Linoleum
- Plaster
- House siding (transite)
- Window glazing
- Caulks
- Dry wall joint compound
- Floor tile adhesives
- High temperature gloves
- Lab tables / sinks
- Fire blankets / stage curtains
- Heat shields on light fixtures
- Seam tape on furnaces/ ducts
- Transite pipes (especially municipal sewer pipes)
- Electrical wire insulation
- Break shoes (vehicles)
- Gaskets (still used)
- Exterior gypsum stamped stone/brick
- Roofing tars (still available)
- Contaminant in vermiculite insulation common in attics
- Roofing paints (silver) product name Galbestos

Classifications of Asbestos Materials

- **Friable**

- Crush under hand pressure
- Easily rendered airborne
- Examples- pipe insulation, fire proofing, paper,

- **Non-Friable**

- Category I & II Materials
- Cannot be pulverized under hand pressure
- Examples - Floor tile
Roofing, transite *
(slate siding)

Asbestos Issues related to building Demolition/Renovations

- **Any renovation or demolition projects** - must have an asbestos inspection conducted prior to work commencing.
- **Mechanical Demolition** – All friable and Category II asbestos containing materials must be removed prior to demolition. Category I may remain in place as long as the material will not become friable during demolition or is in very poor condition prior to demolition. Example metal back hoe tracks running over floor tile.
- **Renovation**- Any asbestos containing material which will be disturbed or has the potential to be disturbed as a result of renovation activities must be removed prior to work.

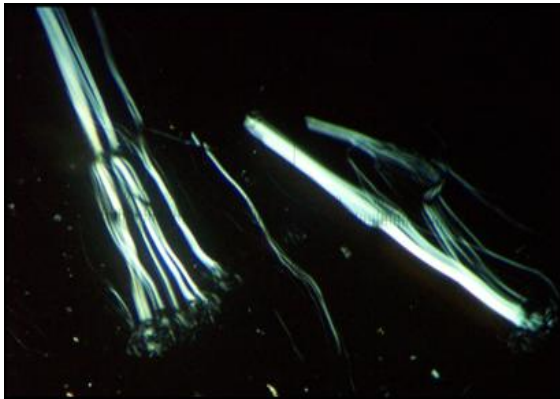
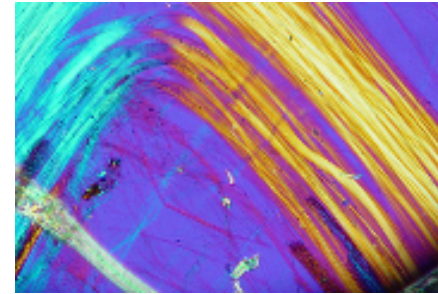
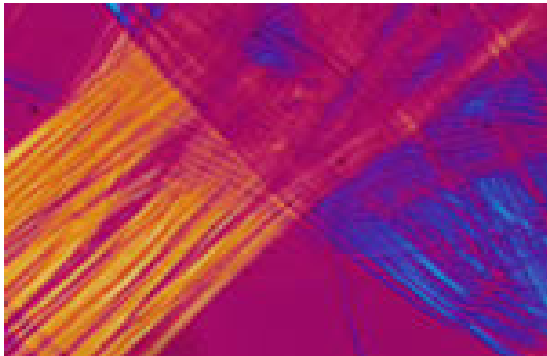
Fire Department Training Burns

- Building must be inspected for the presence of asbestos containing materials.
- Notice of intent Form 4500-113 must be filled for all burns regardless if asbestos is present or not.
- All friable, Cat I & II materials must be removed prior to training burn.
- Burns must be conducted on intact structures with training value. Buildings cannot be burned for the purpose of waste reduction. Buildings must be burned intact. Fire Department must be on-site and set the burn.
- Cold ash and debris must be removed and disposed of at a Wisconsin Licensed Landfill.

Asbestos Analysis

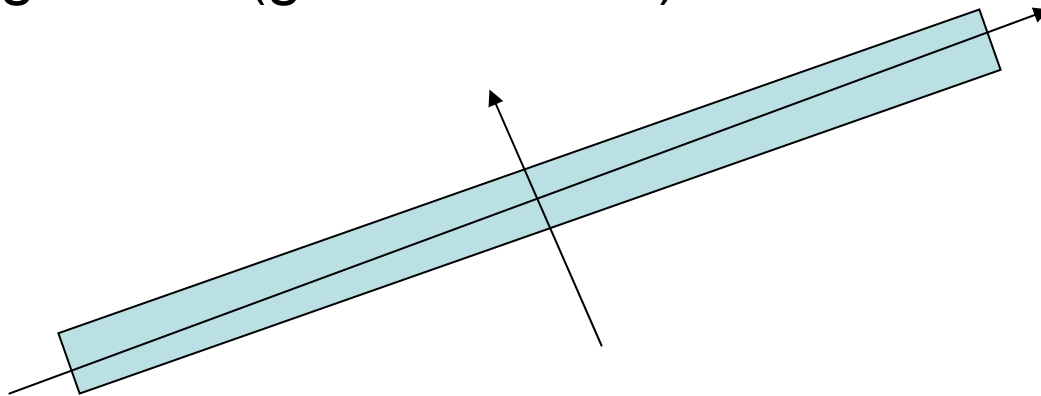
- Asbestos analysis is conducted using Polarized Light Microscopy with dispersion staining.
- Percentage of asbestos content is done by the analyst making an estimate based on appearance of material under a stereomicroscope or by point counting method.
- Each fiber has specific optical properties which using polarized light allows for positive identification based on a series of tests. Asbestos fibers, cellulose, fibrous glass, synthetic fibers and any other fibrous material can be differentiated using this method.

Analytical Pictures of Asbestos



Basis for Asbestos Analysis

- Fibers must be 3 times longer than wide
- Light travels in 2 directions through asbestos fibers
- Birefringence – (glass in water)



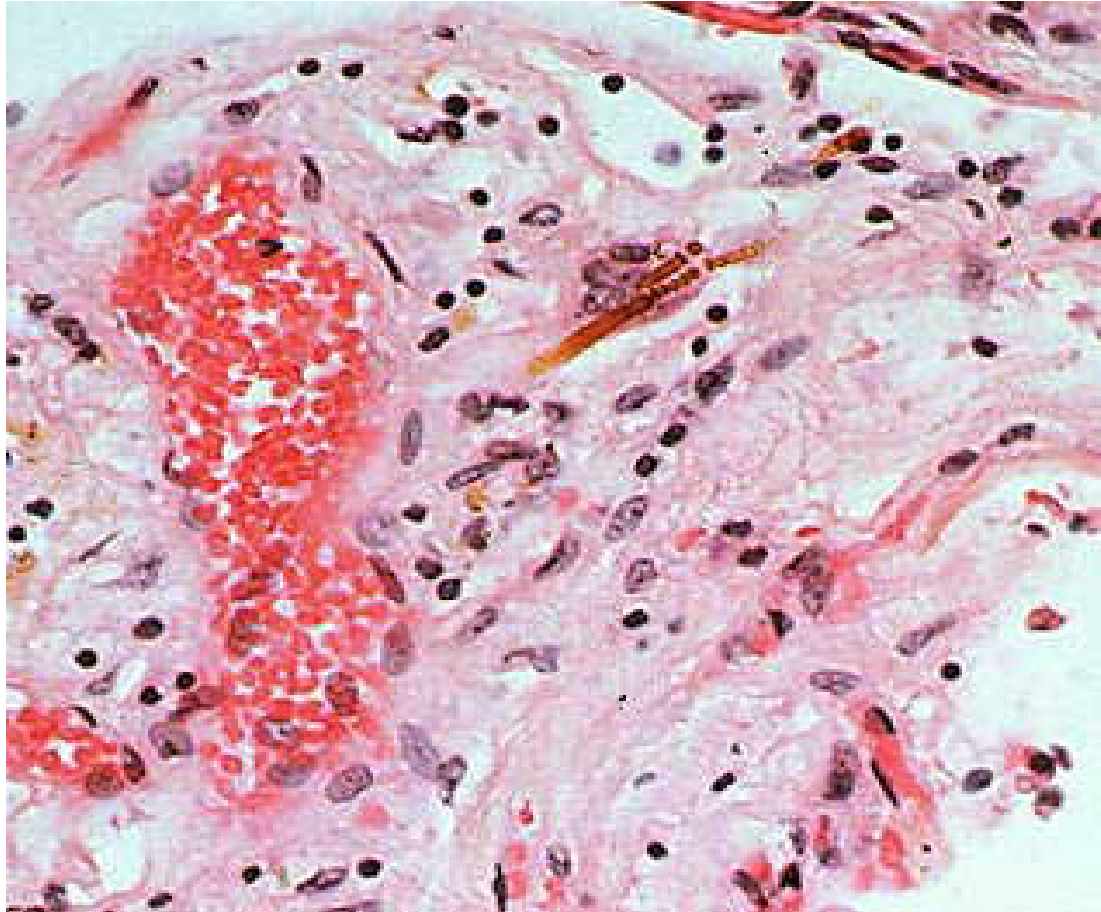
Health Effects of Breathing Asbestos Fibers

- Asbestosis (similar to emphysema), lung cancer, mesothelioma (cancer of the plural lining)
- Latency period for asbestos diseases 20-40 years
- Smoking and exposure to asbestos have a synergistic effect related to health risks (50-100x greater). Smoking anesthetizes the cilia/mucous defense mechanism allowing more fiber/dust to enter the lung.
- Asbestos fiber forms scars / scar tissue in the lungs
- Health risks are dose response related. Risk is a function of concentration of exposure / time of exposure.
- There is no safe level of exposure.

Health Effects of Asbestos Exposure (cont.)

- Fiber length of greatest concern 1 μ m - 10 μ m.
- Fibers enter the lung and lodge in the alveoli.
- Inorganic fibers cannot be broken down by macrophage blood component.
- Fibers trigger a defense mechanism which results in encapsulating fiber around lung tissue.
- Accumulation of scars reduces capacity of the lungs and promotes abnormal cell growth.

Photo of Lung tissue affected by asbestos fiber scarring



Asbestos Regulations

- **DNR** - enforces the NESHAP (National Emissions Standard for Hazardous Air Pollutants)
- **OSHA** – Occupational exposures/ safe work practices
- **DOT** – Transport of waste on roadways/ placards
- **DH&FS**- Certification and Licensing of Asbestos Workers

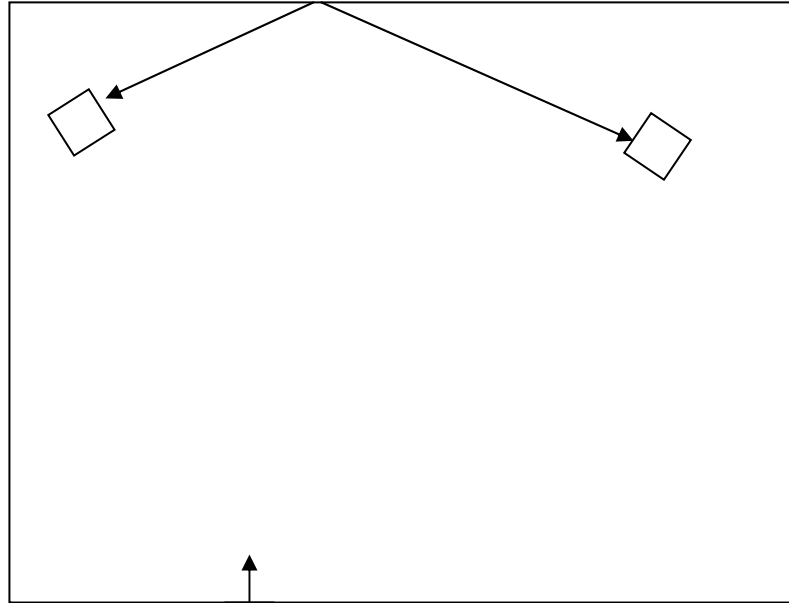
Common Materials



Basic Abatement Work Practices

- Area is to be contained and placed under negative pressure/ signs posted/ area isolated
- All friable / non-friable materials are to be removed **wet**.
- All materials should be removed in sealed bags with adequate water.
- Material should be in a secured container for transport (i.e. placarded dumpster).
- All material must go to an approved landfill for disposal

NEGATIVE AIR MACHINES (HEPA)



DECONTAMINATION UNIT

What materials are actually banned which contain asbestos?

- Fireproofing materials
- Thermal systems insulation

What materials may still contain asbestos and can be easily obtained at retail.

- Roofing tars (black jack)
- Floor tile adhesives/ mastics
- Gaskets
- Sealants
- Floor tiles

Retail Items – Deceptive Labeling

- Labels on products such as roofing tar, mastics and other similar materials will not directly state that they are asbestos fibers.
- Labels will include terms such as fibrous, chrysotile fiber, serpentine mineral fiber
- Materials available at all major home improvement outlets.
- It cannot be assumed that new structures do not contain asbestos containing materials due to continued availability.

Vermiculite Insulation - Attics

- Blown in material between rafters – very dry and friable.



Recommendations regarding residential concerns related to Vermiculite

- Asbestos is a contaminant in vermiculite materials.
- Presence of vermiculite in an attic should be assumed to contain asbestos
- Asbestos in vermiculite is not homogenous and is very difficult to sample.
- Air monitoring when vermiculite is found to contain trace asbestos have been found to be in excess of acceptable levels per AHERA regulations.

Asbestos Question Referrals

- Obtain a copy of the DNR Asbestos Inspector area assignments and contact information.
- Questions can be referred to the appropriate inspector or Amy Walden – Asbestos Coordinator DNR (608)267-3658.
- Questions related to training and certification should be referred to DHS – Asbestos and Lead Section (608) 261-6876.
- Questions related to worker safety should be referred to the local OSHA Office. Consult OSHA web-site for list of area offices.

Questions

