

Asbestos Awareness Training

Greg Hogan
Oklahoma State University
Environmental Health and Safety
(405) 744-7241



Objectives

- What is Asbestos
- Types of Asbestos
- Where is a Asbestos Located
- Health Effects of Asbestos Exposures
- Housekeeping
- Spills

Asbestos Awareness

- What is Asbestos?
- Asbestos is the name applied to six naturally occurring minerals that are mined from the earth. The different types of asbestos are:
 - Amosite
 - Chrysotile
 - Tremolite
 - Actinolite
 - Anthophyllite
 - Crocidolite



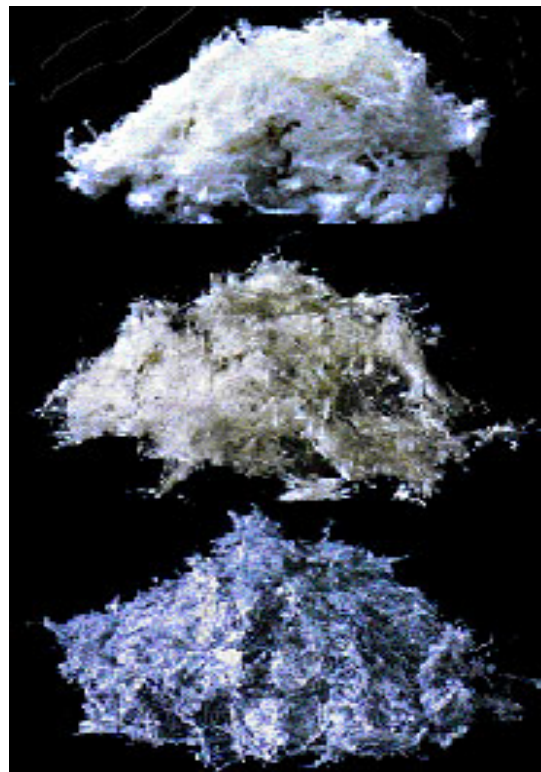
Types of Asbestos

Of these six, three are used more commonly.

Chrysotile (white) is the most common, but it is not unusual to encounter

Amosite (brown / off-white),

Crocidolite (blue) as well.



Asbestos Awareness

- All types of asbestos tend to break into very tiny fibers. These individual fibers are so small that many must be identified using a microscope.

In fact, some individual fibers may be up to 700 times smaller than a human hair. Because asbestos fibers are so small, once released into the air, they may stay suspended there for hours or even days.



Asbestos Awareness

- Asbestos fibers are also virtually indestructible. They are resistant to chemicals and heat, and they are very stable in the environment.

They do not evaporate into air or dissolve in water, and they are not broken down over time. Asbestos is probably the best insulator known to man. Because asbestos has so many useful properties, it has been used in over 3,000 different products.



Asbestos Awareness

- Usually asbestos is mixed with other materials to actually form the products.

Floor tiles, for example, may contain only a small percentage of asbestos. Depending on what the product is, the amount of asbestos in asbestos containing materials (ACM) may vary from 1%-100%.



Where is Asbestos Found ?

Asbestos may be found in many different products and many different places. Examples of products that might contain asbestos are:

- Sprayed-on fire proofing and insulation in buildings
- Insulation for pipes and boilers
- Wall and ceiling insulation
- Black mastic



Where is Asbestos Found ?

- Ceiling tiles
- Floor tiles / mastic
- Roofing shingles
- Siding shingles on old residential buildings
- Wall and ceiling texture in older buildings and homes
- Joint compound in older buildings and homes
- Brake linings and clutch pads



Asbestos Signage

Buildings that have asbestos-containing materials in them will have notices posted near the main entrances, frequently near the fire alarm panel



Ceiling Tiles

Asbestos-containing ceiling tiles will not be labeled or marked. These tiles cannot be differentiated from other tile by visual means they must be analyzed by a laboratory test.







11. 10. 1999



11. 10. 1999



2. 28. 2000

EXIT

2. 28. 2000



4.19.2000

08

When is Asbestos Dangerous

- The most common way for asbestos fibers to enter the body is through breathing. In fact, asbestos containing material is not generally considered to be harmful unless it is releasing dust or fibers into the air where they can be inhaled or ingested.



Normal Lung



Asbestos Lung



When Is Asbestos Dangerous

- Many of the fibers will become trapped in the mucous membranes of the nose and throat where they can then be removed, but some may pass deep into the lungs, or, if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems.



When is Asbestos Dangerous

- Asbestos is most hazardous when it is **friable**. The term "friable" means that the asbestos is easily crumbled by hand, releasing fibers into the air.
- Sprayed on asbestos insulation is highly friable. Asbestos floor tile is not.



Asbestos Ceiling & Floor Tile

- Asbestos-containing ceiling tiles, floor tiles, undamaged laboratory cabinet tops, shingles, fire doors, siding shingles, etc. **will not release asbestos fibers** unless they are disturbed or damaged in some way.
- If an asbestos ceiling tile is drilled or broken, for example, it may release fibers into the air. If it is left alone and not disturbed, it will not.



Health Effects

- Because it is so hard to destroy asbestos fibers, the body cannot break them down or remove them once they are lodged in lung or body tissues. They remain in place where they can cause disease.
- There are three primary diseases associated with asbestos exposure:
 - Asbestosis
 - Lung Cancer
 - Mesothelioma



Health Effects

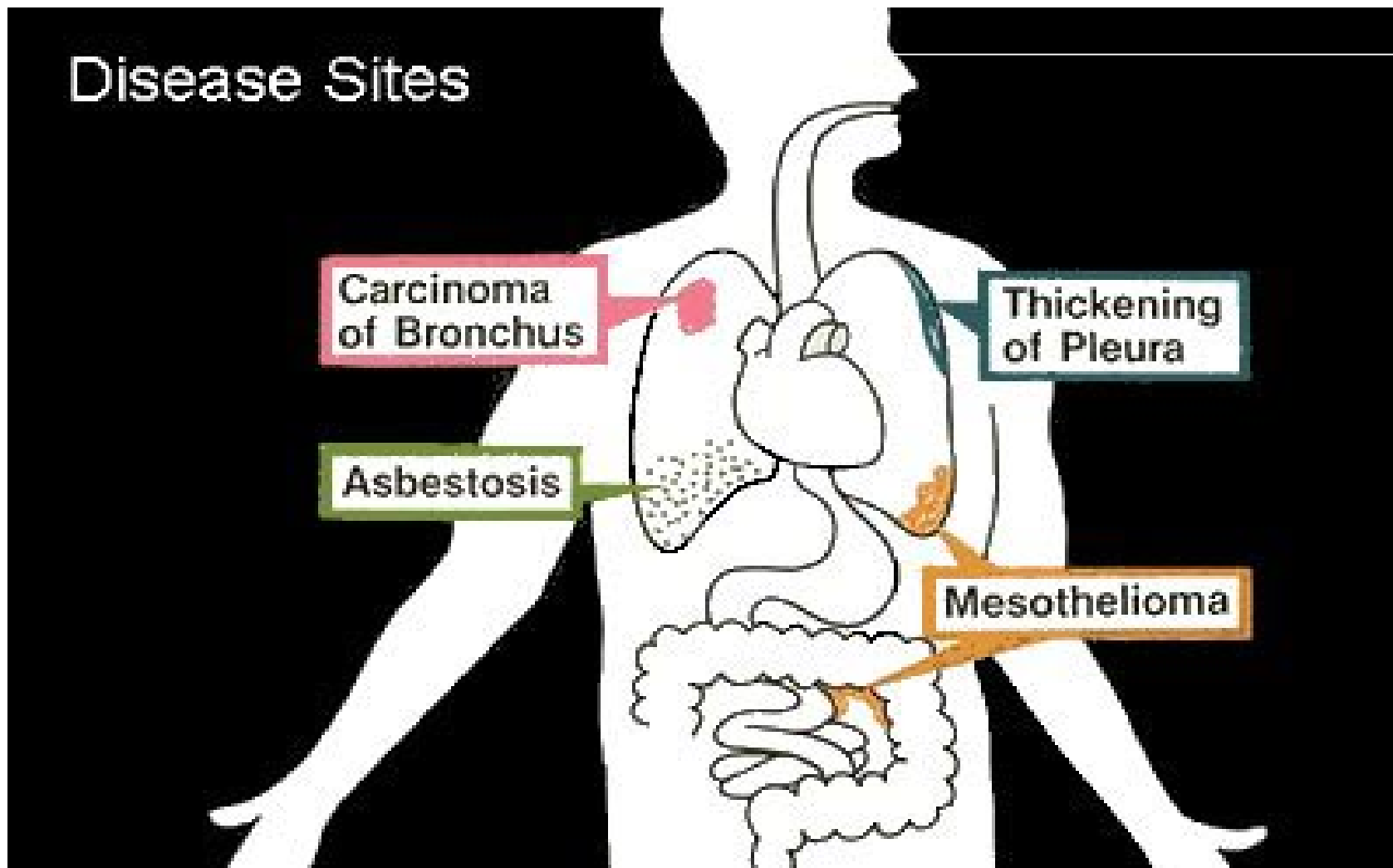
Disease Sites

Carcinoma
of Bronchus

Thickening
of Pleura

Asbestosis

Mesothelioma



Asbestosis

- Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which causes them to scar. Symptoms of asbestosis include shortness of breath and a dry crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure.



Asbestosis

- There is no effective treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure.
- Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.



Lung Cancer

- Lung cancer causes the largest number of deaths related to asbestos exposure.
- The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing and use of asbestos and its products is much higher than in the general population.
- The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.



Lung Cancer

- People who have been exposed to asbestos and are also exposed to some other carcinogen -- such as cigarette smoke -- have a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos.
- One study found that asbestos workers who smoke are about 90 times more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos.



Mesothelioma

- Mesothelioma is a rare form of cancer that most often occurs in the thin membrane lining of the lungs, chest, abdomen, and (rarely) heart. About 200 cases are diagnosed each year in the United States.
- Virtually all cases of mesothelioma are linked with asbestos exposure.



Mesothelioma

- Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract mesothelioma.



Mesothelioma

- People who work in asbestos mines, asbestos mills and factories, and shipyards that use asbestos, as well as people who manufacture and install asbestos insulation, have an increased risk of mesothelioma.
- So do people who live with asbestos workers, near asbestos mining areas, near asbestos product factories or near shipyards where use of asbestos has produced large quantities of airborne asbestos fibers.



Other Cancers

- Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon and kidney may be caused by ingesting asbestos.
- For more information on asbestos-related cancers, contact your local chapter of the American Cancer Society.



Determining Factors

1. **The amount and duration of exposure** - the more you are exposed to asbestos and the more fibers that enter your body, the more likely you are to develop asbestos related problems.

While there is no "safe level" of asbestos exposure, people who are exposed more frequently over a long period of time are more at risk.



Determining Factors

- 2. Whether or not you smoke** - if you smoke and you have been exposed to asbestos, you are far more likely to develop lung cancer than someone who does not smoke and who has not been exposed to asbestos.

If you work with asbestos or have been exposed to it, the first thing you should do to reduce your chances of developing cancer is to stop smoking.



Determining Factors

- 3. Age** - cases of mesothelioma have occurred in the children of asbestos workers whose only exposures were from the dust brought home on the clothing of family members who worked with asbestos.

The younger people are when they inhale asbestos, the more likely they are to develop mesothelioma. This is why enormous efforts are being made to prevent school children from being exposed.



How to Avoid Asbestos Exposures

- In order to avoid being exposed to asbestos, you must be aware of the locations it is likely to be found.

If you do not know whether something is asbestos or not, assume that it is until it is verified otherwise.

Remember that you cannot tell if floor or ceiling tiles contain asbestos just by looking at them.



How to Avoid Asbestos Exposures

- The OSU Asbestos Abatement Department has a laboratory and a licensed asbestos abatement crew that can take samples from materials in order to determine whether or not they contain asbestos.

If you need to have materials analyzed or tested for asbestos, please contact Physical Plant Action Desk at 4-7154. **Never try to take a sample yourself** unless you are licensed to do so.



How to Avoid Asbestos Exposures

- If you have reason to suspect that something is asbestos, either because it is labeled as such, or because it is something that is likely to contain asbestos (9" floor tile, black mastic for example), **DO NOT DISTURB IT.**



How to Avoid Asbestos Exposures

- During the course of your work, if you notice the material changes or you just have a concern that material may contain asbestos, **STOP WORK IMMEDIATELY** and contact supervisor.



How to Avoid Asbestos Exposures

NEVER

**Drill
Hammer**

**Cut
Saw**

**Break
Damage**

**Move
Disturb**



How to Avoid Asbestos Exposures

- The OSU Asbestos Abatement Department has surveyed all campus buildings for the presence of asbestos.

If you need to do work that might involve asbestos (lifting ceiling tiles, repairing insulated pipelines, etc.), check with OSU Asbestos Abatement Department to find out what can be done safely.



How to Avoid Asbestos Exposures

- **For example**, before moving any ceiling tiles to perform maintenance work, it will be necessary to ensure they do not contain asbestos.

If they do contain asbestos, they will need to be removed by licensed asbestos abatement workers before the work may be performed.



Housekeeping

- Housekeepers and custodians should never sand or dry buff asbestos containing floor tiles, and only wet stripping methods may be used during stripping operations.
- Low abrasion pads should be used at speeds below 300 rpm.



Housekeeping

- Broken and fallen ceiling tiles should be left in place until identified. Only after they have been identified as safe may they be removed. Asbestos tiles will be removed by OSU asbestos abatement workers.
- Broken and damaged asbestos floor tiles must also be removed by OSU asbestos abatement workers.



Housekeeping

It is important to report any damaged asbestos-containing materials immediately 744-7154. If, for example, you discover some asbestos has been knocked off of a ceiling or wall, this would be considered a "spill."

As such it would need to be cleaned up immediately by OSU asbestos abatement workers.

Do not attempt to clean up spills yourself!



Spills

- Also report any damaged pipe insulation, ceiling tile, 9" floor tile, fallen clumps of sprayed-on insulation, etc. Take measures to prevent others from disturbing the spill until the Asbestos Abatement crew arrives.
- By knowing where asbestos is likely to be located and then taking measures not to disturb it, you will protect yourself and others from exposure to this hazardous substance.



Takeaways

- What is Asbestos
- Types of Asbestos
- Where is a Asbestos Located
- Health Effects of Asbestos Exposures
- Housekeeping
- Spills

Programs and Services

- Fire Protection Engineering
- Life Safety & Emergency Preparedness
- Environmental Compliance
- Laboratory Safety
- Occupational Safety
- Occupational Health and Medical Surveillance
- Materials Management
- Industrial Hygiene
- Chemical Hygiene
- Safety Training



Location: University Health Services Bldg, Room 002 (basement)

Phone number: 744-7241

Email: EHS@okstate.edu

Questions?

