

STOCKTON UNIVERSITY

ASBESTOS - GENERAL AWARENESS TRAINING

For workers and building occupants

Asbestos Awareness

Asbestos is a serious health hazard commonly found in our environment today. This module is designed to provide an awareness and overview of asbestos and its associated hazards.

It is important for employees who may work in buildings that contain asbestos to know where it is likely to be found and how to avoid exposure.

What is Asbestos?

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

What is Asbestos?

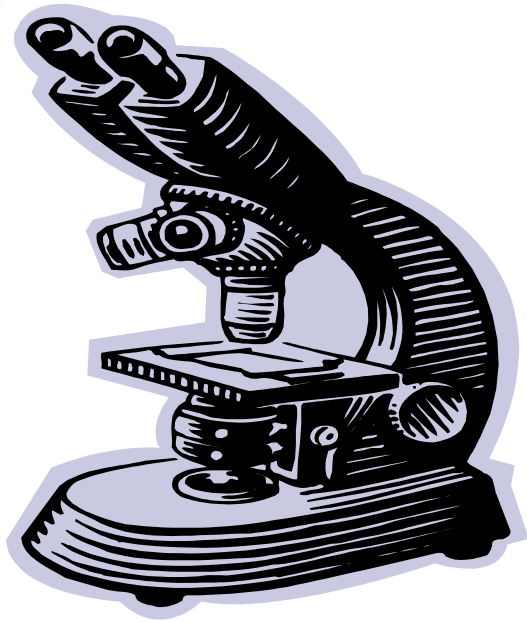
Of these six, three are used more commonly.

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

Amosite (brown / off-white), or

Crocidolite (blue) as well.

What is Asbestos?



All types of asbestos tend to break into very tiny fibers. These individual fibers are so small they must be identified using a microscope. Some fibers may be up to 700 times smaller than a human hair.

What is Asbestos?

Because asbestos fibers are so small, once released into the air, they may stay suspended there for hours or even days.

What is Asbestos?

Asbestos fibers are also virtually indestructible.

They are resistant to chemicals and heat, and they are very stable in the environment.

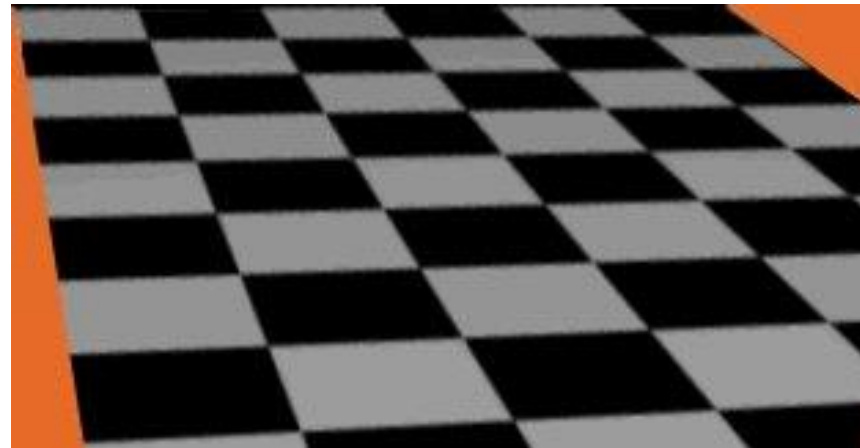
They do not evaporate into air or dissolve in water, and they are not broken down over time.

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.

What is Asbestos?

Usually, asbestos is mixed with other materials to actually form the products. Floor tiles, or the glue/mastic that holds them 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%.



What is ACM / PACM

- ACM – Asbestos Containing Material
 - Any Material with more than 1% asbestos
- PACM – Presumed Asbestos-Containing Material
 - Surfacing materials (soundproofing)
 - TSI – Thermal System Insulation (piping, fittings, boilers)
 - Commonly used until the early 1980s

Where is Asbestos Found?

Where is Asbestos Found?

Asbestos may be found in many different products and many different places at home and in public buildings. 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
- Ceiling tiles
- Floor tiles
- Putties, caulks, and cements (such as in chemical carrying cement pipes)

Where is Asbestos Found?

- 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
- Insulation on old furnaces or wood burning stoves or
- Insulation on old hot water or steam pipes

Asbestos Sampling

- How is asbestos sampled?
 - Bulk
 - Polarized Light Microscopy “PLM” – used in bulk sampling
 - Air
 - Phase Contrast Microscopy “PCM” - used to count fiber concentrations in air samples
 - Transmission Electron Microscopy “TEM” – used to count and characterize asbestos fibers

Asbestos Sampling

- Samples collected are taken to an NVLAP accredited laboratory where they are analyzed and determined whether or not to be ACM.
- Some laboratories are:
 - EMSL
 - Bureau Veritas
 - Emlab P & K

Asbestos Sampling Results

Buildings Containing No Asbestos Containing Building Materials (ACBMs)

The results of the asbestos inspection conducted between March 31, 2014 and April 24, 2014, in Stockton University located at 101 Vera King Farris Drive in Galloway, New Jersey, indicate that the following buildings contain no asbestos greater than to one percent:

- **G Wing**
- **H Wing**
- **I Wing**
- **J Wing**
- **Plant Management Building**
- **Police Station**

Asbestos Sampling Results

- The results of the asbestos inspection conducted between March 31, 2014 and April 24, 2014, in Stockton University located at 101 Vera King Farris Drive in Galloway, New Jersey indicate that the following buildings contain asbestos materials with greater than one percent:
 - **Water Plant**
 - **A Wing**
 - **B Wing**
 - **C Wing**
 - **D Wing**
 - **E Wing**
 - **K Wing**
 - **L Wing**
 - **M Wing**
 - **N wing**

Asbestos Sampling Results

Location	Material Description	Quantity
A Wing – upper level of wing near ceiling deck	Roof Drain Mud Fitting	35 Fittings
B Wing – upper level of wing near ceiling deck	Roof Drain Mud Fitting	35 Fittings
C Wing – upper level of wing near ceiling deck	Roof Drain Mud Fitting	24 Fittings
C Wing – CC005	3” Mud Fitting on Fiberglass Pipe Insulation	27 Fittings
C Wing – CC005	4” Mud Fitting on Fiberglass Pipe Insulation	12 Fittings
C Wing – CC005	6” Mud Fitting on Fiberglass Pipe Insulation	25 Fittings
C Wing – Tank 470008009U (above ceiling)	Tank Insulation	100 sf
D Wing – upper level of wing near ceiling deck	Roof Drain Mud Fitting	26 Fittings

Asbestos Sampling Results

Location	Material Description	Quantity
E Wing – Throughout upper level of wing	Roof Drain Mud Fitting	42 Fittings
E Wing – Throughout upper level of wing (along interior roof line)	Roof Drain Collar	20 collars

Asbestos Sampling Results

Location	Material Description	Quantity
F001 A	Ceiling Foam Tack Glue	20 LF
F001 F	Mastic associated with 12" speckled Beige Floor Tile	200 SF
F001 E	Transite Type Fume Hoods	32 SF
F001 E	Slate Lab Table Tops	80 SF
F002	Slate Lab Table Tops	1,200 SF
F003	Slate Lab Table Tops	2,000 SF
F005	Slate Lab Table Tops	1,300 SF
F005	Slate Beaker Drying Racks	30 SF
F006	Slate Lab Table Tops	1,300 SF
F006	Slate Beaker Drying Racks	50 SF
F007	Slate Beaker Drying Racks	40 SF

Asbestos Sampling Results

Location	Material Description	Quantity
F010	Slate Beaker Drying Racks	30 SF
F012	Slate Beaker Drying Racks	30 SF
F0121	Slate Lab Table Tops	30 SF
F017	Slate Lab Table Tops	120 SF
F017	Slate Beaker Drying Racks	10 SF
F022 Print Shop	Mastic associated with 12" speckled Beige Floor Tile	770 SF
Hallways Lower F Wings	Mastic associated with 12" speckled Beige Floor Tile	5 SF
Stairwells	Firedoors	280 SF

Asbestos Sampling Results

Location	Material Description	Quantity
K Wing - Boiler Room K001	Mud Fitting on 8" Hot Water Supply Line	26 Fittings
K Wing - Boiler Room K001	4" Mud Fitting on 3" Boiler Hot Water Pipes	12 Fittings
K Wing - Boiler Room K001 (Boilers 4990 & 4991)	Breeching Collar	260 sf
K Wing - Halls (above ceilings/in wall chases)	3" Mud Fitting on Fiberglass Pipe Insulation	600 fittings
K Wing - Halls (above ceilings/in wall chases)	6" Mud Fitting on fiberglass Pipe Insulation	20 fittings
L Wing - Boiler Room K001	6" Mud Fitting on fiberglass Pipe Insulation	18 fittings
M Wing - Dressing Rooms	Pink Sink Undercoat	8 sf

Asbestos Sampling Results

Location	Material Description	Quantity
M Wing – Throughout upper level of wing	Roof Drain Mud Fitting	26 fittings
M Wing – M002	12” x 12” Brown Vinyl Floor Tile	542 sf
M Wing – M002	Black Floor Tile Mastic	542 sf
N Wing – Work Room 131; Offices 107, 108 & 109	Mastic for 12” x 12” Cream Vinyl Floor Tile	1’292 sf
N Wing – N007 Storage, N006e	Mastic for 12” x 12” Brown Mottled Vinyl Floor Tile	80 sf
N Wing – N023	Mastic for 12” x 12” Brown Mottled Vinyl Floor Tile	256 sf
Water Plant – Near Circulator Pumps	Mud Fitting on Fiberglass Pipe Insulation	22 fittings
Water Plant – Exterior Door	Door Caulk	20 linear feet

When is Asbestos Dangerous?

When is Asbestos Dangerous?

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.

Fibers can be released by drilling, cutting, sawing or grinding building materials that contain asbestos.

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.

The OSHA exposure level to asbestos must be below one fiber per cubic centimeter of air (0.1 f/cc) as an 8-hour Time Weighted Average (TWA).

When is Asbestos Dangerous?

- The most common way for asbestos fibers to enter the body is through breathing.



When is Asbestos Dangerous?

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

When is Asbestos Dangerous?

Asbestos-containing floor tile glue/mastic, undamaged slate laboratory table tops, transite material inside fume hoods, slate beaker drying racks or, ceiling foam tack glue or fire doors, **will not release asbestos fibers** unless they are disturbed or damaged in some way by drilling, cutting, sawing, grinding.

If left alone and not disturbed, these items will not release asbestos fibers.

Where is Asbestos?

- **Buildings that have asbestos-containing materials in them will have notices posted near the material.**

Health Effects

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

Asbestosis

Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which cause 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.

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 for Disease

Determining Factors

Three things seem to determine your likelihood of developing one of these asbestos related diseases:

- 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

Organizations that may offer programs, support, or information to help people stop smoking are:

- National Cancer Institute (1-800-4-CANCER)
- American Heart Association (1-800-242-8721)
- American Lung Association
(in NJ: 908-685-8040)

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.

Determining Factors

Because each exposure to asbestos increases the body burden of asbestos fibers, it is very important to reduce and minimize your exposure.

How to Avoid Asbestos Exposure

How to Avoid Exposure

In order to avoid being exposed to asbestos, you must be aware of the locations it is likely to be found. Please review the 2014 and 2018 surveys of asbestos locations if you have any questions / concerns

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 a building material contains asbestos just by looking at them.

How to Avoid Exposure

The University works with licensed asbestos sampling and abatement professionals that can take samples from materials in order to determine whether or not they contain asbestos.

If you have a question please call E/H/S at extension 4496 or by email at EHS@stockton.edu

How to Avoid Exposure

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.

DO NOT DISTURB IT

How to Avoid Exposure

Never...

- Drill
- Hammer
- Cut
- Saw
- Break
- Damage
- Move
- Disturb

...any asbestos-containing materials or suspected materials.

How to Avoid Exposure

If you need to do work that might involve building materials that contain asbestos check with your supervisor who will then investigate what can be done safely.

Asbestos “Spills”

It is important to report any damaged suspected asbestos-containing materials to your supervisor. If it is in an enclosed room, close door behind you to prevent additional release.

Do not attempt to clean up spills yourself!

Avoiding Exposure

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.

A copy of our Asbestos Sampling and Analysis reports are available in the EHS Department and online at:

<https://www.stockton.edu/risk-management/asbestos.html>