



***SOUTH CAROLINA FAMILY AND COMMUNITY LEADERS***  
Affiliated with National Volunteer Outreach Network, Country Women's Council, U.S.A., Associated Country Women of the World and in partnership with Clemson University Cooperative Extension Service  
SCFCL website: <http://www.scfcl.com>

## **Leader Training Guide**

### **Title: ASBESTOS**

#### **Objectives:**

Learning what is asbestos, where does it come from and why did we use it? If having been exposed to asbestos, should one be afraid?

#### **Lesson Overview/Introduction:**

Asbestos has been used in many materials for centuries. Although a very useful material, it has been found very detrimental to human health.

#### **Lesson:**

What is asbestos, where does it come from, why did we use it? Have I been exposed to asbestos? If yes, should I be afraid? These are good questions...let's get some answers.

***Ask the group for a show of hands: Who has not been exposed to asbestos?***

What is asbestos, where does it come from? Asbestos is a naturally occurring mineral. It is mined from the ground just like iron or copper. Asbestos was mostly mined in Canada, Russia, China, Union of South Africa and Brazil. Was asbestos ever mined in the United States? Yes. Do we still mine asbestos in the United States? NO, we closed our last asbestos mine in California. ***Ask the group when?***, Answer: 2002.

For centuries, people have known that this fibrous mineral had many useful properties. What sets it aside from other minerals is its ability to separate into very thin fibers. Asbestos is the only mineral that can be woven into cloth. The Egyptians used it to wrap mummies as it would not rot; the Romans used it for wicks in their oil lamps as it would not burn at normal temperatures. In fact some asbestos withstands temperatures up to 5000°F. This property led to asbestos being very widely used as sprayed-on fireproofing in the late 1800's until 1989.

Asbestos fibers are very strong. Therefore it was used to strengthen pottery in Finland as early as 5000 BC. It also has been used to strengthen concrete, floor tile and sprayed-on popcorn ceilings for example. In addition asbestos is chemically inert; it will not conduct electricity or transmit heat. It was so useful that it was often called the "Miracle Fiber." It was also cheap, readily available and it worked. For many other common uses, remember the old black and green chalk boards and the chalk; fire retardant curtains in school auditoriums; shingles on the sides of houses; window glaze;

plaster; kitchen toasters, lady's hair dryers...just to name a few. Asbestos has documented usage in over 3,000 products.

Because of its many useful properties, asbestos was the premier material of choice for home and industry for many years. What people did not understand was the hidden danger of asbestos. Although asbestos was often thought of as a health danger, its many good properties overshadowed its dark side. In fact Pliny the Elder told the Romans, "Don't buy the quarry slaves...they die young." The medical fraternity did not know for sure the dangers of asbestos regarding human health until 1906 when an autopsy proved death from asbestos fibrosis. Even with that, it was not until an exhaustive study by Dr. Selikoff in the 60's and 70's brought asbestos dangers to the level of today's concern.

Many people think asbestos was banned from use in the United States in the 1970's. **NOT SO!!!** Asbestos was banned by the Environmental Protection Agency in 1989 with its "Ban and Phase" rule. In short, the EPA said asbestos could no longer be used in the United States and all already installed asbestos would be removed. Many products did not work as well without the asbestos especially roofing materials. The roofing industry led a lawsuit against the EPA and in 1991 the 5<sup>th</sup> district U.S. Federal Court overturned the EPA ruling, saying: We agree that some products are so dangerous to human health that they will remain banned. Two of those were of major usage, sprayed-on popcorn ceiling texture and sprayed-on fireproofing. However; most material usage was again legal. The court did tell EPA, "If you find a suitable replacement for asbestos used in those various products, the court will return them to the banned listing". That has not been done. Therefore, asbestos is still legal for many uses in the United States. It is commonly found in roofing materials, flooring materials, piping gaskets, lite concrete, and brake shoes on big trucks, buses and airplanes and some passenger-size vehicles.

***Remember when I asked for a show of hands on those who had not been exposed to asbestos? What do you think now? Well; should you be afraid? NO! Aware...YES.***

Is asbestos dangerous? When handled carelessly and by untrained people...yes! Asbestos is like a snake. Farmers love seeing a snake in their corn crib...no rats. However, the farmer is not going to pick the snake up and kiss it either. When left alone and in good condition, asbestos is not the 2-headed dragon many people think it is. What is good condition and what is not good condition? You may have heard the term FRIABLE. Friable means asbestos containing material that can be reduced to powder or dust by hand pressure when dry and a non-friable material that will be damaged and torn up. As long as asbestos remains solid, it is considered to be non-friable and you are at little or no risk from that exposure. It is when the asbestos becomes friable and airborne that you are in peril. Therefore you should not sand, saw, drill, grind, abrade or do any other activity that will generate dust.

Although asbestos harms us in several ways the major problem is breathing the fibers. Remember that asbestos separates into very thin fibers? They are so thin that they cannot be seen with the naked eye. Asbestos fibers are often as thin as 4 microns.

What the heck is a micron? You all know what an inch looks like...*hold up your thumb and index finger indicating an inch.* There are 25,400 microns in 1 inch, meaning we could stack up 65 to 68 thousand asbestos fibers in 1 inch. An asbestos fiber turned loose at shoulder level may still be floating in the air 4 to 5 days later.

Well, what is the problem? The problem is something called the latency period...time of exposure to time of reaction. The generally accepted latency period for asbestos is 10-40 years. Generally accepted...means this is not set in stone and varies with different people. There are 3 major respiratory issues associated with asbestos: asbestosis, mesothelioma and lung cancer.

Asbestosis is not a cancer; it is fibrotic scarring of the lung. As the asbestos fiber irritates the lung, it creates raw areas that heal as scar tissue. Think of your lungs as being made from a soft spongy pliable material and then think of your lungs as being made of a deflated basketball, that's like asbestosis. Asbestosis is a "marked disease" as the only known cause is asbestos. The latency period is generally 10-20 years. It is a progressive disease like a long drawn out suffocation...it will never get better.

Mesothelioma is a cancer, not of the lung but of the pleura. The pleura is the sack your lungs are held in. The latency period for mesothelioma is generally accepted to be 20-40 years. Thankfully it is the rarest of the 3 major respiratory issues. However; once diagnosed, life expectancy is 6 months to a year...there is no known cure. Like asbestosis, mesothelioma is a "marked disease" as the only known cause is asbestos.

Lung cancer is a cancer. Asbestos is the 4<sup>th</sup> leading cause of lung cancer; preceded by:

1. 1<sup>st</sup> hand smoke @ 87% according to the American Cancer Society
2. Radon gas, naturally occurring byproduct from the decay of uranium @ 12%
3. 2<sup>nd</sup> hand smoke
4. Asbestos

Interestingly, 1<sup>st</sup> hand smoke and radon gas account for 99% of lung cancer while asbestos that has been looked on as the "evil spirit on mankind" accounts for less than 1%.

These are the main issues, there are others. The medical fraternity still does not have an explicit understanding regarding the effects of asbestos on human health. They do not understand:

- Why does asbestos not create adverse health effects on some people?
- Why does asbestos create lung cancer in some people?
- Why does asbestos create mesothelioma in some people?
- Why does asbestos create asbestosis in some people?

Well if asbestos causes all of that, why don't we just take it out and get rid of it? THE PROBLEM? We have over 30 million tons of installed asbestos in the United States. Even if we did take it out, what would we do with it?

How can I find out if I have asbestos in my home or work place?

At home you may employ an EPA Certified Asbestos Inspector who will take samples of any suspect material, have it analyzed by an accredited laboratory and give you a report. How much will that cost? Including laboratory cost, the price averages \$350.00 to \$500.00. Wow!! That is a lot of money, I will ask Bubba, he knows about that stuff. The problem is Bubba cannot tell you if a material contains asbestos or not. Only a certified laboratory can verify the presence of asbestos.

Regarding your work place; OSHA regulation requires the owner of a commercial or public property; or a residence of 10 or more units to identify the presence of asbestos materials on the property and inform the workers and occupants of its presence and location.

**Lesson Summary:**

Leave it alone! If you want to do something with it, use properly trained people!

**Suggested Activities:**

None

**Suggested Materials:**

None

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**Sources/References:**

U.S. EPA and U.S. OSHA