

## Fiber Analysis

There are many types of fibers that clothing is made of. These can be grouped into three groups, animal, vegetable, and man-made. The animal fibers include silk and wool. The vegetable fibers include cotton and linen. The man-made fibers include such things as nylon, Dacron, polyester, orlon, acetate, acrylic, etc. The list of man-made goes on and on. One way of identifying fibers is to look at them with a magnifying glass or a microscope. In a real crime scene, police would be collecting much smaller fibers than we will be looking at. This would make identification of the fibers much too hard for our purposes. In a real crime scene, police would also have access to much more sophisticated equipment than we will be able to use. In general, one can say that the smoother the fibers, the more likely they are to be man made. Most of the fibers made from natural sources such as animal or vegetable fibers are shorter fibers that are twisted together in some fashion. This often has the loose ends sticking out that look like fuzz. In a real life most clothing is made from a blend of natural and man-made fibers. This means that the type of identification we are doing would not be realistic.

Another way of identifying fibers is using a burn test. To do this the fiber end is held using forceps, just above the flame from something like a match. It is important not to let the flame touch the fiber itself. The man-made fibers will decompose and melt much quicker than either the animal or vegetable fibers.

Yet another way of separating the animal fibers from the vegetable or man-made fibers is to put the fibers in regular household bleach. The animal fibers will dissolve, but the man-made and vegetable fibers will remain untouched.

One of the oldest methods of identification of fibers is the dye test. There are specific dyes that only some types of fabric will take up. In other cases the dyes will look different colors with different types of fibers.