

Asbestos Sampling

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Fiberquant Analytical Services offers analysis of asbestos in bulk samples or building materials, filters, and water. Often, the interpretation of asbestos analysis results is dependent on how the samples are taken. The following information is provided as a guide to some of the options and pitfalls in taking asbestos samples.

1. Basic Sampling Techniques

At the most basic level, sampling a suspect material merely consists of gouging out or otherwise obtaining some of the material. However, the sampler is responsible for obtaining a *representative* sample, that is, a sample that has the same average asbestos content as the whole. Towards that end, the full thickness of a material should be sampled. For example, for a sprayed acoustic ceiling, the material should be scraped all the way to the drywall or plaster underneath. For the safety of those who follow, the sample area should be sealed with a spray encapsulant to prevent further release of fiber, and the immediate area should be cleaned of any debris with a HEPA vacuum or by wet-wiping.

2. One Sample or Many Samples?

For materials manufactured at a factory, such as floor tile, mastic, ceiling tile, molded pipe insulation, one sample is usually sufficient, since these materials are generally made by formula and are relatively homogeneous. Bear in mind, however, that in a building with sufficient history, several different lots or brands of these materials may be present. Even materials that look identical may have different asbestos content. For surfacing materials (sprayed insulation and textures) or materials that are mixed on site (plaster, pipe elbow mud, wall patch or joint compound), multiple samples usually must be taken to adequately characterize the material, since these materials may be expected to be inhomogeneous on the scale that they are sampled.

3. How Big a Sample

Generally, a tablespoon-sized sample is the best. Too small a sample will not provide enough sample to analyze and may not be representative even of the area sampled. Too large a sample, and we will have to sub-sample, thereby negating your efforts in representative sampling.

4. Other Considerations

Sample collection devices are sold consisting of copper or steel tubing which are used to punch a cross-section of a material. We do not recommend these (especially the small, 1/4" dia. size), since during the punching process and then again during the process of removing the sample from the tube, much of the information on layering in the sample is lost. This type of sampler is especially unsuitable for roofing, where it creates a consolidated mass of bitumen from which it is impossible for us to reconstruct the layers involved.

In the past, some persons took wall cross-sections, supposedly consisting of wall texture, joint compound, joint tape, and drywall. Often we find no evidence of a joint in such samples, even when the chain-of-custody indicates it was supposed to be a joint. Such samples must be taken at the correct spot in the wall to succeed. If you want to sample wall texture, then sample just the texture. If you want joint compound, you can find plenty underneath switch plates. That way, you are certain that you have sampled the material desired.

We recommend for:

Roofing: 2"x2" cross-section cut with a chisel, knife, or hole saw

Acoustic Spray: 1 tablespoon

Wall Texture: 2"x2" area of texture (with or without paint) sampled away from any joint area

Joint Compound: a chunk from under a switch-plate

Drywall: a 1"x1" chunk

Ceiling Tile: a 2"x2" piece

Floor Tile: a 1"x1" piece with mastic adhering

Pipe Insulation: a 1"x1" piece of all layers

5. Containing and Submitting the Sample to the Lab

Samples must be adequately contained to prevent exposure to office personnel. Samples should be placed in sealable, reusable containers, such as film cans, centrifuge tubes, or zip-loc plastic bags. Samples in paper envelopes, in duct tape, or samples not contained at all will not be accepted. For submittal, each sample must be uniquely identified. Other required information includes the company or individual submitting the sample, the company or individual who is paying for the analysis, a contact individual, addresses, phone numbers, etc. A good way to include all of this information is to fill out a chain-of-custody. If you don't have one, we can supply a blank form during the submittal process.

6. Interpretation

AHERA and the EPA call any material containing > 1% asbestos an "asbestos-containing material." The %, as determined by polarized light microscopy (PLM), the usual method of analysis, is not absolute, but has a considerable range of uncertainty. For this reason, we recommend that critical samples that have been determined to be near 1% by PLM be quantified by gravimetry (a more accurate but more costly method than PLM). Neither the Federal nor the State has any regulations requiring abatement of any asbestos-containing materials. Generally, abatement is recommended when a material is damaged, is emitting or has the potential to emit fibers. For asbestos-containing materials in good, undamaged condition, surveillance is sufficient.