

PLM ANALYSIS FOR BULK ASBESTOS SAMPLING

When is it necessary to collect bulk samples for asbestos analysis?

Suspect building materials and other miscellaneous materials may contain asbestos, even newer products that are imported from other countries. EPA has designated many materials as suspect asbestos-containing materials ("ACM"), including vermiculite. Building owners will need to identify ACM prior to renovation or demolition, and remove the ACM prior to beginning work that will impact the ACM. This is called a NESHAP survey, and applies to all buildings, including single family homes and public buildings. School districts are required to identify all ACM that is present in their buildings. This is called an AHERA survey, which allows schools to assume all suspect materials are ACM instead of sampling. However, in the event that schools will undergo renovation that will impact the suspect materials, sampling must be performed beforehand, and the ACM must be removed prior to conducting renovation or demolition.

What analytical method must be used to analyze bulk samples in Massachusetts?

Polarized Light Microscopy is the minimum requirement for analysis of bulk samples [454 CMR 28.02, 28.06(7)].

- EPA 600/R-93/116: Required for analysis of all friable materials, including surfacing, thermal system insulation and miscellaneous materials.
- Interim Method for the Determination of Asbestos in Bulk Insulation Samples, 40 CFR Part 763 Appendix A: Permitted for the analysis of friable thermal system insulation (cannot be used to analyze non-friable organically bound materials).
- Transmission Electron Microscopy (TEM): Preferred method to analyze non-friable organically bound bulk samples. Should be used in place of PCM for any suspect non-friable material. This method is state of the art for analyzing non-friable organically bound materials.

Samples shall not be composited for analysis by PLM.

How many samples must be collected and submitted for bulk sample analysis?

Bulk sample collection must be performed in compliance with 454 CMR 28.13(3)(a) and (b).

- Miscellaneous ACM: Collect samples in a "manner sufficient to determine whether the material is ACM or not ACM". No less than 2 samples shall be collected from each homogeneous area of a friable or non-friable miscellaneous material.
- Thermal System ACM (TSI): Collect at least 3 samples of each homogeneous area of TSI, in a randomly distributed manner. Collect at least 1 sample from each patched area of TSI if that patch is less than 6 linear or square feet. Collect at least 1 sample from each cement/plaster fitting type, such as tee, elbow or valve.
- Surfacing ACM: Collect samples in a statistically random manner which is representative of the homogeneous area as follows:
 - At least 3 samples for a homogenous area of 1,000 sq. ft. or less
 - At least 5 samples for a homogeneous area greater than 1,000 sq. ft. and less than 5,000 sq. ft.
 - At least 7 samples for a homogeneous area greater than 5,000 sq. ft.

EPA recommends applying this sampling scheme to large homogenous areas of miscellaneous materials, such as floor and ceiling tiles.

Is it necessary to re-sample certain materials for asbestos?

If a material has been sampled and determined to be ACM, it is not necessary to resample. However, there may be conditions under which resampling would be required:

- Materials that were not sufficiently sampled to determine whether asbestos is present.
- Non-friable materials that were analyzed using the EPA 600/M4-82-020 (1982) Interim Method for the Determination of Asbestos in Bulk Insulation. This method was not capable of detecting the fine, thin fibers or fibers that were coated or obscured by a matrix.
- Non-friable materials that were analyzed using the EPA 600/R93/116 method and tested negative for asbestos, prior to removal or repair.
- Materials that constitute unique homogeneous areas, but were incorrectly grouped together into one homogeneous area.

One positive result is sufficient to consider a homogeneous material as asbestos containing. All samples collected must be submitted to the lab and analyzed to confirm that a material is non-asbestos.

Can I resample materials to rebut earlier findings of asbestos in a bulk sample?

Any material that has been determined to contain greater than 1% asbestos by PLM shall not be reanalyzed to rebut the presence of asbestos. If a situation should arise where a material that previously tested positive for asbestos needs to be re-tested, such material shall be analyzed using quantitative TEM. DLS will not accept PLM analysis alone to rebut the presence of asbestos in a sample where asbestos was previously identified using PLM analysis.

Who can analyze bulk samples in Massachusetts?

Asbestos Analytical Services must be approved and certified by the Department of Labor Standards. Class A laboratories may analyze bulk samples for any facility, including schools. Class B laboratories may analyze bulk samples for all facilities other than schools or facilities subject to AHERA.

454 CMR 28.13(4)(f) requires that the inspector who collects bulk samples for any facility must be independent of the Asbestos Analytical Service analyzing the samples.

What are the reporting requirements for bulk sample analysis?

Laboratory reports shall contain, at a minimum:

- Laboratory name, address and MA certification number
- Name and address of client
- Unique identification number of each sample collected
- The location of the sample
- The analytical method used
- Date of collection and date of analysis
- Name and signature of the analyst on the report (a signature on a cover letter is not sufficient)
- The results of analysis, including the percentage of asbestos and the percentage of any other analytes in the sample. Samples in which no asbestos is detected will identify the other matrices.

A completed chain of custody will accompany each set of samples submitted to the laboratory, with the name and signature of the person relinquishing the samples, either in person or by mail.