



FIELD SAMPLING GUIDE (ASBESTOS BY TEM)

The following field sampling guide is designed for use as a reference for the field consultant. It summarizes procedures and techniques for the sampling of asbestos for analysis by TEM, as they impact the analytical process.

For additional information on field sampling equipment, field health and safety, regulatory requirements for field sampling, sampling strategies and data interpretation, refer to the appropriate documented methodology and/or regulatory agency.

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Air	40 CFR Part 763 (AHERA)	25 mm MCE filter with pore size <0.45 microns	> 1200 liters	0.005 s/cc	Unsampled Cassette. 2 per set of 10
	Method 40 CFR Part 763 (AHERA)	Comments -if less than 1200 liters are collected, the screening for clearance cannot be used (mean < 70s/mm ²). The laboratory may also inquire as to the need for 0.005 analytical sensitivity. -method is based on a sample set (collected on required media) which includes 5 inside and 5 outside samples, with 3 blanks. Report will contain a disclaimer for samples submitted otherwise			

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Air	D 6281-98	25 to 50 mm cassette with pore size 0.45 micron	pending desired analytical sensitivity	calculated airborne structure concentration equivalent to 2.99 structures counted in the analysis	Unsampled Cassette.
	Method D 6281-98	Comments -analysis reports fibers > .5 microns -this method is used primarily as an alternative to AHERA. Applicability to regulatory limits should be determined prior to use.			

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Air	NIOSH 7402	.45 Cellulose ester membrane, 25mm; conductive cowl on cassette	400 – 1800 liters @ flow rate 2-10 L/min	one confirmed fiber > 95% of mean blank value	Unsampled Cassette. 2 to 10 per set
	Method NIOSH 7402	Comments	method is used to determine asbestos fibers in the optically visible range and is intended to complement the results obtained by PCM (NIOSH 7400)		

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Dust	D 5755-95	25 mm or 37 mm MCE with pore size < 0.8 microns with plastic tubing cut at a 450 angle	100 cm2 with a minimum of 2 min. sampling time	4 structures per TEM analysis	Unsampled Cassette. 1 per sample set
	Method D 5755-95	Comments	there are currently no clearance guidance levels for data from this analysis. available are suggested guidelines only.		

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Dust on Wipe	D 6480-99	particle free, sealed edge continuous filament cloth. 'clean room wiper'	typically 100 cm2 using a template	2.99 X calculated asbestos structures/cm2	Unsampled Wipe.
	Method D 6480-99	Comments	-template size can vary. results will be reported in asbestos structures/ cm2.		

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Water	EPA 100.2 (and 100.1)	1 liter polyethylene or glass container. sample containers should be analyzed for background level (blank determination) prior to sample collection.	should be collected in duplicate. 800 mls in 1 liter bottles and stored in the at 40 C. Samples are to be shipped in order to be filtered at the lab within 48 hours.	0.2 MFL (million fibers per liter)	blank checks should be performed prior to sample collection. polyethylene bottles one bottle from each batch or minimum of one from each 24 glass bottles four bottles from each 24. additional blanks may be desirable if low levels are suspected.

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Bulk	New York State ELAP 198.4 Chatfield Method	N/A	> 1 gm	1%	N/A
	Method New York State ELAP 198.4 Chatfield Method		Comments -This method is intended for use in identifying and quantitating asbestos in non-friable organically bound (NOB) bulk materials. Use of this method for sample types other than NOB can produce results that may not provide the analytical reliability for which the method was intended.		

Matrix	Method	Collection Media	Recommended Volume	Detection Limit	Blanks
Bulk	EPA/600/R-93/116	N/A	1 cubic inch for materials such as floor tiles.	1%	N/A
	Method EPA/600/R-93/116		Comments -The TEM section of this method is designed to provide a method for the detection of thin fibers below the resolution limit of optical microscopy - Detection limits can vary with sample type, amount of sample analyzed or method of quantitation used.		

Notes: The laboratory manager will contact the responsible party in the event there is a question on sample integrity. These may include circumstances which may include (but are not limited to):

- Analysis requested outside laboratory's scope of accreditation
- Analysis requested outside laboratory capability (such as lack of equipment or staffing resources).
- Obviously damaged or compromised samples, i.e. opened air cassettes, cassettes with torn or ripped filters.
- Improper labeling
- Improper packaging
- Impossible deadlines
- Obvious faulty sampling technique
- Improper sample media
- Incompatible samples packaged together (i.e.- air samples with bulk samples)
- Inappropriate analytical methodology requested

