**Asbestos Operations and Maintenance Program Policy**

**1. Purpose**

To ensure that maintenance personnel and custodial staff have the knowledge and the training that they need to protect themselves from the exposure to asbestos fibers where applicable.

**2. Scope and application**

This section applies to all occupational exposures to asbestos in all industries covered by the Occupational Safety and Health Act.

**3. Reference**

29 CFR 1910.1001 Asbestos

**4. Definitions**

**Asbestos** includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

**Asbestos**-containing material (ACM) means any material containing more than 1% asbestos.

**Assistant Secretary** means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person authorized by in2vate and required by work duties to be present in regulated areas.

**Building/facility owner** is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

**Certified industrial hygienist (CIH)** means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

**Director** means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

**Employee exposure** means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

**Fiber** means a particulate form of asbestos 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

**High-efficiency particulate air (HEPA) filter** means a filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-disperse particles.

**Homogeneous area** means an area of surfacing material or thermal system insulation that is uniform in color and texture.

**Industrial hygienist** means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

**PACM** means "presumed asbestos containing material."

**Presumed asbestos containing material** means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph 8. of this section.

Regulated area means an area established by the in2vate to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

**Surfacing ACM** means surfacing material, which contains more than 1% asbestos.

**Surfacing material** means material that is sprayed, troweled–on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

**Thermal System Insulation (TSI)** means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

**Thermal System Insulation ACM** means thermal system insulation, which contains more than 1% asbestos.

**5. Responsibilities**

5.1. Duties of the Maintenance Manager

5.1.1. Shall determine the presence, location, and quantity of ACM and/or PACM at the work site and shall exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

5.1.2. Shall maintain records of all information required to be provided pursuant to this section and/or otherwise known to the building owner concerning the presence, location and quantity of ACM and PACM in the building/facility. Such records shall be kept for the duration of ownership and shall be transferred to successive owners.

5.1.3. Shall inform employees who will perform housekeeping activities in areas, which contain ACM and/or PACM of the presence and location of ACM and/or PACM in such areas which may be contacted during such activities.

5.1.4. Is responsible for the Asbestos Safety Program and maintain the written program in the Maintenance Services Office.

**6. Communication of hazards to employees**

Asbestos exposure occurs in a wide variety of settings. Housekeeping employees should know whether building components they maintain may expose them to asbestos. As noted in the construction standard, building owners are often the only and/or best source of information concerning the presence of previously installed asbestos containing building materials. Therefore they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

6.1. in2vate is required to treat installed TSI and sprayed on and troweled–on surfacing materials as ACM in buildings constructed no later than 1980 for purposes of this standard. These materials are designated ''presumed ACM or PACM''. Asphalt and vinyl flooring material installed no later than 1980 also must be treated as asbestos–containing. in2vateCollege ABC or building owner may demonstrate that PACM and flooring material do not contain asbestos by complying with paragraph 8.2.3. of this section.

6.2. Warning signs

6.2.1. Warning signs shall be provided and displayed at each regulated area. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

6.2.2. Sign specifications

6.2.1.1. The warning signs required by paragraph 6.2. of this section shall bear the following information:

**DANGER**

**ASBESTOS**

**CANCER AND LUNG DISEASE HAZARD**

**AUTHORIZED PERSONNEL ONLY**

6.2.2.2. In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

**RESPIRATORS AND PROTECTIVE CLOTHING**

**ARE REQUIRED IN THIS AREA**

6.2.3. in2vate shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph 6.2.1. of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

6.2.4. At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. in2vate shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

6.3. Warning labels

6.3.1. Labeling: Warning labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers. When a building owner or employer identifies previously installed ACM and/or PACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain ACM and/or PACM. in2vate shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph 6.2. of this section may be posted in lieu of labels so long as they contain information required for labeling.

6.3.2. Label specifications: The labels shall comply with the requirements of OSHA's Hazard Communication standard, and shall include the following information:

**DANGER**

**CONTAINS ASBESTOS FIBERS**

**AVOID CREATING DUST**

**CANCER AND LUNG DISEASE HAZARD**

6.4. Employers who are manufacturers or importers of asbestos or asbestos products (in2vate does not import or manufacture asbestos) shall comply with the requirements regarding development of material safety data sheets as specified in 29 CFR 1910.1200(g) of OSHA's Hazard Communication standard, except as provided by paragraph 6.5. of this section.

6.5. The provisions for labels required by paragraph 6.3. of this section or for material safety data sheets required by paragraph 6.4. of this section do not apply where:

6.5.1. Asbestos fibers have been modified by a bonding agent, coating, binder, or other material provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of fibers of asbestos in excess of the TWA permissible exposure level and/or excursion limit will be released or;

6.5.2. Asbestos is present in a product in concentrations less than 1.0%.

**7. Employee information and training**

7.1. in2vate shall institute a training program for all employees who are exposed to airborne concentrations of asbestos at or above the PEL and/or excursion limit and ensure their participation in the program.

7.2. Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

7.3. The training program shall be conducted in a manner which the employee is able to understand. College ABC shall ensure that each employee is informed of the following:

7.3.1. The health effects associated with asbestos exposure;

7.3.2. The relationship between smoking and exposure to asbestos producing lung cancer;

7.3.3. The quantity, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos;

7.3.4. The engineering controls and work practices associated with the employee's job assignment;

7.3.5. The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;

7.3.6. The purpose, proper use, and limitations of respirators and protective clothing, if appropriate;

7.3.7. The purpose and a description of the medical surveillance program required by paragraph 11.1. of this section;

7.3.8. The content of this standard, including appendices;

7.3.9. The names, addresses and phone numbers of public health organizations which provide information, materials, and/or conduct programs concerning smoking cessation. in2vate may distribute the list of such organizations contained in Appendix I to this section, to comply with this requirement;

7.3.10. The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

7.4. in2vate shall also provide, at no cost to employees who perform housekeeping operations in an area which contains ACM or PACM, an asbestos awareness training course, which shall at a minimum contain the following elements: health effects of asbestos, locations of ACM and PACM in the building/facility, recognition of ACM and PACM damage and deterioration, requirements in this standard relating to housekeeping, and proper response to fiber release episodes, to all employees who perform housekeeping work in areas where ACM and/or PACM is present. Each such employee shall be so trained at least once a year.

7.5. Access to information and training materials

7.5.1. in2vate shall make a copy of this standard and its appendices readily available without cost to all affected employees.

7.5.2. in2vate shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the training program to the Assistant Secretary and the Director.

7.5.3. in2vate shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, in2vate shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix I to this section.

**8**. **Criteria to rebut the designation of installed material as PACM**

8.1. At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph 8.2. of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph 11. of this section.

8.2. in2vate may demonstrate that PACM does not contain asbestos by the following:

8.2.1. Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR 763, Subpart E) which demonstrates that no ACM is present in the material; or

8.2.2. Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally–recognized round robin testing program.

8.2.3. in2vate may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

**9. Housekeeping**

9.1. All surfaces shall be maintained as free as practicable of ACM waste and debris and accompanying dust.

9.2. All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible.

9.3. Surfaces contaminated with asbestos may not be cleaned by the use of compressed air.

9.4. Vacuuming: HEPA–filtered vacuuming equipment shall be used for vacuuming asbestos containing waste and debris. The equipment shall be used and emptied in a manner which minimizes the reentry of asbestos into the workplace.

9.5.

Shoveling, dry sweeping and dry clean-up of asbestos may be used only where vacuuming and/or wet cleaning are not feasible.

9.6.

Waste disposal: Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with asbestos consigned for disposal, shall be collected, recycled and disposed of in sealed impermeable bags, or other closed, impermeable containers.

9.7.

Care of asbestos-containing flooring material.

9.7.1.

Sanding of asbestos-containing floor material is prohibited.

9.7.2.

Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

9.7.3.

Burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the asbestos-containing material.

9.8.

Waste and debris and accompanying dust in an area containing accessible ACM and/or PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

**10. Medical surveillance**

10.1. General

10.1.1. Employees covered: in2vate shall institute a medical surveillance program for all employees who are or will be exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

10.1.2. Examination by a physician

10.1.2.1. in2vate shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee and at a reasonable time and place.

10.1.2.2. Persons other than licensed physicians, who administer the pulmonary function testing required by this section, shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

10.2. Pre-placement examinations

10.2.1. Before an employee is assigned to an occupation exposed to airborne concentrations of asbestos fibers at or above the TWA and/or excursion limit, a pre-placement medical examination shall be provided or made available by the in2vate.

10.2.2. Such examination shall include, as a minimum, a medical and work history; a complete physical examination of all systems with emphasis on the respiratory system, the cardiovascular system and digestive tract; completion of the respiratory disease standardized questionnaire in Appendix D to this section, Part 1; a chest roentgenogram (posterior–anterior 14 x 17 inches); pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1.0)); and any additional tests deemed appropriate by the examining physician. Interpretation and classification of chest roentgenogram shall be conducted in accordance with Appendix E to this section.

10.3. Periodic examinations

10.3.1. Periodic medical examinations shall be made available annually.

10.3.2. The scope of the medical examination shall be in conformance with the protocol established in paragraph 10.2.2. of this section, except that the frequency of chest roentgenogram shall be conducted in accordance with TABLE 2, and the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section shall be administered to the employee.

**TABLE 2 - FREQUENCY OF CHEST ROENTGENOGRAMS**

Years since first exposure

Age of Employee

15 to 35

35+ to 45

45+

0 to 10

Every 5 years

Every 5 years

Every 5 years.

10+

Every 5 years

Every 2 years

Every 1 year.

10.4. Termination of employment examinations

10.4.1. in2vate shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

10.4.2. The medical examination shall be in accordance with the requirements of the periodic examinations stipulated in paragraph 10.3. of this section, and shall be given within 30 calendar days before or after the date of termination of employment.

10.5. Recent examinations: No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with any of paragraphs (10.2. through 10.4.) of this section within the past 1 year period. A pre-employment medical examination which was required as a condition of employment by the Institution, may not be used by that employer to meet the requirements of this paragraph, unless the cost of such examination is borne by the in2vate.

10.6. Information provided to the physician. The Institution shall provide the following information to the examining physician:

10.6.1. A copy of this standard and Appendices D and E

10.6.2. A description of the affected employee's duties as they relate to the employee's exposure.

10.6.3. The employee's representative exposure level or anticipated exposure level.

10.6.4. A description of any personal protective and respiratory equipment used or to be used.

10.6.5. Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

10.7. Physician's written opinion

10.7.1. The in2vate shall obtain a written signed opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

10.7.1.1. The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

10.7.1.2. Any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators;

10.7.1.3. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment; and

10.7.1.4. A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

10.7.2. The in2vate shall instruct the physician not to reveal in the written opinion given to the Institution specific findings or diagnoses unrelated to occupational exposure to asbestos.

10.7.3. The in2vate shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

**11. Recordkeeping**

11.1. Exposure measurements: Note: The in2vate may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

11.1.1. The in2vate shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos.

11.1.2. This record shall include at least the following information:

11.1.2.1. The date of measurement;

11.1.2.2. The operation involving exposure to asbestos which is being monitored;

11.1.2.3. Sampling and analytical methods used and evidence of their accuracy;

11.1.2.4. Number, duration, and results of samples taken;

11.1.2.5. Type of respiratory protective devices worn, if any; and

11.1.2.6. Name, social security number and exposure of the employees whose exposure are represented.

11.1.2.7. The in2vate shall maintain this record for at least thirty (30) years, in accordance with 29 CFR §1910.1020.

11.2. Objective data for exempted operations

11.2.1. Where the processing, use, or handling of products made from or containing asbestos is exempted from other requirements of this section (Where the employer has relied upon objective data that demonstrate that asbestos is not capable of being released in airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling, then no initial monitoring is required), the in2vate shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

11.2.2. The record shall include at least the following:

11.2.2.1. The product qualifying for exemption;

11.2.2.2. The source of the objective data;

11.2.2.3. The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

11.2.2.4. A description of the operation exempted and how the data support the exemption; and

11.2.2.5. Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

11.2.2.6. The in2vate shall maintain this record for the duration of the in2vate's reliance upon such objective data.

11.3. Medical surveillance

11.3.1. The in2vate shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph 10.1.1. of this section, in accordance with 29 CFR §1910.1020.

11.3.2. The record shall include at least the following information:

11.3.2.1. The name and social security number of the employee;

11.3.2.2. Physician's written opinions;[Reserved]

11.3.2.3. Any employee medical complaints related to exposure to asbestos; and

11.3.2.4. A copy of the information provided to the physician as required by paragraph 10.6. of this section.

11.3.2.5. The in2vate shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR §1910.1020.

11.4. Training: The in2vate shall maintain all employee training records for one (1) year beyond the last date of employment of that employee.

11.5. Availability

11.5.1. The in2vate, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

11.5.2. The in2vate, upon request shall make any exposure records required by paragraph 11.1. of this section available for examination and copying to affected employees,former employees, designated representatives and the Assistant Secretary, in accordance with 29 CFR §1910.1020(a) through (e) and (g) through (i).

11.5.3. The in2vate, upon request, shall make employee medical records required by paragraph 11.2. of this section available for examination and copying to the subject employee, to anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR §1910.1020.

11.6. Transfer of records.

11.6.1. The in2vate shall comply with the requirements concerning transfer of records set forth in 29 CFR §1910.1020(h).

11.6.2. Whenever the in2vate ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the in2vate shall notify the Director at least 90 days prior to disposal of records and, upon request, transmit them to the Director.

**12. Observation of monitoring**

12.1. Employee observation: The in2vate shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted.

12.2. Observation procedures: When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

**13. Appendices**

13.1. Appendices A, C, D, E, and F to this section are incorporated as part of this section and the contents of these Appendices are mandatory.

13.2. Appendices B, G, H, I, and J from OSHA 1910.1001 are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations and thus are not included in this document.

**APPENDIX A TO §1910.1001–OSHA REFERENCE METHOD–MANDATORY**

This mandatory appendix specifies the procedure for analyzing air samples for asbestos and specifies quality control procedures that must be implemented by laboratories performing the analysis. The sampling and analytical methods described below represent the elements of the available monitoring methods (such as Appendix B of the regulation, the most current version of the OSHA method 1D-160 or the most current version of the NIOSH METHOD 7400) which OSHA considers to be essential to achieve adequate employee exposure monitoring while allowing employers to use methods that are already established within their organizations. All employers who are required to conduct air monitoring under paragraph (d) of the standard are required to utilize analytical laboratories that use this procedure, or an equivalent method, for collecting and analyzing samples.

**Sampling and Analytical Procedure**

1. The sampling medium for air samples shall be mixed cellulose ester filter membranes. These shall be designated by the manufacturer as suitable for asbestos counting. See below for rejection of blanks.
2. The preferred collection device shall be the 25-mm diameter cassette with an open-faced 50-mm electrically conductive extension cowl. The 37-mm cassette may be used if necessary but only if written justification for the need to use the 37-mm filter cassette accompanies the sample results in the employee's exposure monitoring record. Do not reuse or reload cassettes for asbestos sample collection.
3. An airflow rate between 0.5 liter/min and 2.5 liters/min shall be selected for the 25-mm cassette. If the 37-mm cassette is used, an air flow rate between 1 liter/min and 2.5 liters/min shall be selected.
4. Where possible, a sufficient air volume for each air sample shall be collected to yield between 100 and 1,300 fibers per square millimeter on the membrane filter. If a filter darkens in appearance or if loose dust is seen on the filter, a second sample shall be started.
5. Ship the samples in a rigid container with sufficient packing material to prevent dislodging the collected fibers. Packing material that has a high electrostatic charge on its surface (e.g., expanded polystyrene) cannot be used because such material can cause loss of fibers to the sides of the cassette.
6. Calibrate each personal sampling pump before and after use with a representative filter cassette installed between the pump and the calibration devices.
7. Personal samples shall be taken in the "breathing zone" of the employee (i.e., attached to or near the collar or lapel near the worker's face).
8. Fiber counts shall be made by positive phase contrast using a microscope with an 8 to 10 X eyepiece and a 40 to 45 X objective for a total magnification of approximately 400 X and a numerical aperture of 0.65 to 0.75. The microscope shall also be fitted with a green or blue filter.
9. The microscope shall be fitted with a Walton-Beckett eyepiece graticule calibrated for a field diameter of 100 micrometers (+/-2 micrometers).
10. The phase-shift detection limit of the microscope shall be about 3 degrees measured using the HSE phase shift test slide as outlined below.
    1. Place the test slide on the microscope stage and center it under the phase objective.
    2. Bring the blocks of grooved lines into focus.
11. Note: The slide consists of seven sets of grooved lines (ca. 20 grooves to each block) in descending order of visibility from sets 1 to 7, seven being the least visible. The requirements for asbestos counting are that the microscope optics must resolve the grooved lines in set 3 completely, although they may appear somewhat faint, and that the grooved lines in sets 6 and 7 must be invisible. Sets 4 and 5 must be at least partially visible but may vary slightly in visibility between microscopes. A microscope that fails to meet these requirements has either too low or too high a resolution to be used for asbestos counting.
    1. If the image deteriorates, clean and adjust the microscope optics. If the problem persists, consult the microscope manufacturer.
12. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.
13. The samples shall be mounted by the acetone/triacetin method or a method with an equivalent index of refraction and similar clarity.
14. Observe the following counting rules:
    1. Count only fibers equal to or longer than 5 micrometers. Measure the length of curved fibers along the curve.
    2. In the absence of other information, count all particles as asbestos that have a length-to-width ratio (aspect ratio) of 3:1 or greater.
    3. Fibers lying entirely within the boundary of the Walton-Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle, shall receive the count of one half (½). Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area.
    4. Count bundles of fibers as one fiber unless individual fibers can be identified by observing both ends of an individual fiber.
    5. Count enough graticule fields to yield 100 fibers. Count a minimum of 20 fields; stop counting at 100 fields regardless of fiber count.
15. Blind recounts shall be conducted at the rate of 10 percent.

Quality Control Procedures

1. Intralaboratory program: Each laboratory and/or each institution with more than one microscopist counting slides shall establish a statistically designed quality assurance program involving blind recounts and comparisons between microscopists to monitor the variability of counting by each microscopist and between microscopists. In a institution with more than one laboratory, the program shall include all laboratories and shall also evaluate the laboratory-to-laboratory variability.
2. Interlaboratory program: Each laboratory analyzing asbestos samples for compliance determination shall implement an interlaboratory quality assurance program that as a minimum includes participation of at least two other independent laboratories. Each laboratory shall participate in round robin testing at least once every 6 months with at least all the other laboratories in its interlaboratory quality assurance group. Each laboratory shall submit slides typical of its own workload for use in this program. The round robin shall be designed and results analyzed using appropriate statistical methodology.
3. All laboratories should also participate in a national sample-testing scheme such as the Proficiency Analytical Testing Program (PAT), or the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).
4. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos dust or an equivalent course.
5. When the use of different microscopes contributes to differences between counters and laboratories, the effect of the different microscope shall be evaluated and the microscope shall be replaced, as necessary.
6. 6. Current results of these quality assurance programs shall be posted in each laboratory to keep the microscopists informed.