



# NIOSH 582 Equivalency Course Requirements for Listing

**Effective Date: April 1, 2009**



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## **NIOSH 582 Equivalency Course Content Requirements**

Per AAR Policy Article II, Section 2.2.2, a NIOSH 582 Equivalency course must be a minimum of thirty (30) hours. To obtain listing as an AIHA Registry Programs, LLC reviewed course, the NIOSH 582 Equivalency course outline and material must demonstrate that each major topic is covered adequately during the course.

<b>REQUIRED TOPICS OF DISCUSSION</b>
Introduction/Health Effects/Overview of Asbestos
Asbestos Regulations
Sampling
Sample Receipt, Handling and Preparation
Phase Contrast Microscope
NIOSH 7400 Method Analysis and Counting Rules
Results Reporting
NIOSH 7400 Method Quality Control and Statistics
Homework, Review, Quizzes and Final Exam

The NIOSH 582 Equivalency course major topics should include discussion of the following subtopics. The AIHA Registry Programs staff reviewer shall consider the sub-topic coverage of a course on a case-by-case basis.

### **1. Course Overview and Introduction**

- 1.1 Registration and course introduction
- 1.2 Course objectives
- 1.3 Criteria for Successful Completion of Course  
(Attendance, passing grades for quizzes, filter analysis practical and written exam)
- 1.4 Policy on failure to successfully complete the course
- 1.5 Asbestos mineralogy and types
- 1.6 Health effects

### **2. Asbestos Regulations**

- 2.1 Regulatory bodies  
(i.e., NIOSH, EPA, OSHA)
- 2.2 Federal regulatory requirements
- 2.3 Proficiency programs  
(i.e., AIHA Proficiency Testing Programs, LLC IHPAT, AAT)

### **3. Sampling**

- 3.1 Types of air filter cassettes
- 3.2 Respiratory protection
- 3.3 Pumps



## **NIOSH 582 Equivalency Course Content Requirements (cont.)**

- 3.4 Types of samples
- 3.5 Sampling strategies  
(development of sampling strategies, pump placement, number of samples, blanks)
- 3.6 Optimal fiber loading  
(what is optimal fiber loading and how do you achieve it)
- 3.7 Sampling calibrations  
(primary and secondary calibration standards, hands-on pump calibration)
- 3.8 Sampling calculations  
(volume of air sampled, personal exposure limit, time weighted average, effective filtration area)

### **4. Sample Receiving, Handling and Preparation**

- 4.1 Sample acceptance and rejection
- 4.2 Unique sample identification
- 4.3 Chain of Custody
- 4.4 Sample preparation techniques
- 4.5 Hands-on sample preparation

### **5. Phase Contrast Microscopy**

- 5.1 Basics of phase optics
- 5.2 Components and function of PCM
- 5.3 Microscope alignment  
(Kohler illumination, phase ring centering, light intensity adjustment)
- 5.4 Microscope calibration  
(Field area determination with Stage micrometer, use of Walton Beckett graticule and HSE/NPL resolution test slide)
- 5.5 Microscope maintenance and cleaning
- 5.6 Basic understanding of what effects resolution, magnification, and image quality

### **6. NIOSH 7400 Method – Analysis and Counting Rules**

- 6.1 Overview of the method
- 6.2 A and B counting rules
- 6.3 Fiber counting examples: drawings and figures
- 6.4 Procedure to count random fields
- 6.5 Fiber counting worksheets: what should be recorded (date, sample ID, analyst name)
- 6.6 Hands-on fiber counting
- 6.7 Basic understanding of other fiber counting/identification methods (PLM, TEM, SEM)

### **7. Results Reporting**

- 7.1 Calculations  
(Fiber concentration (f/cc), fiber density (f/mm<sup>2</sup>), blanks in relation to calculations, limit of detection)



## **NIOSH 582 Equivalency Course Content Requirements (cont.)**

### **8. NIOSH 7400 Method – Quality Control and Statistics**

#### 8.1 Statistics

(introduction to statistics, statistical calculations of the method including standard deviation and relative standard deviation, coefficient of variation and upper and lower control limits).

#### 8.2 Quality control

(purpose of quality control, reference slides, recounts, round robin programs)

#### 8.3 Variance in the method

### **9. Homework, Review, Quizzes and Final Exam**

#### 9.1 Filter analysis practical

9.1.1 The results of practical exam shall demonstrate that the student can produce 95% of results within 3SD of the historical mean for the sample.

9.1.2 At least 5 slides must comprise the practical exam and these slides must be representative of different asbestos/fiber types and fiber loading ranges.

#### 9.2 Written Exam

9.2.1 Passing grade of at least 70%

## **NIOSH 582 Equivalency Course Certificate Requirements**

The certificate awarded for successful completion from an AIHA Registry Programs, LLC reviewed and listed NIOSH 582 Equivalency course must provide the following information. The AIHA Registry Programs staff reviewer shall consider course certificates not meeting the following criteria on a case-by-case basis.

1. Name of the organization providing the course
2. Name of the course instructor
3. Title of the course
4. Contact hours of the course
5. Date of course completion
6. Name of the successful participant

## **NIOSH 582 Equivalency Course Instructor Qualification Requirements**

An instructor of an AIHA Registry Programs, LLC listed NIOSH 582 Equivalency course must meet the following requirements. The AIHA Registry Programs staff reviewer shall consider individuals not meeting the following criteria on a case-by-case basis.

### 1. Education and Experience

- Bachelor's Degree in an applicable physical or biological science.
- In lieu of a bachelor's degree, four years of nonacademic analytical experience in fiber counting.

### 2. One year of experience directly involved with asbestos work, including conducting or supervising fiber counting operation.

### 3. Successful completion of a NIOSH 582 Course or Equivalent.