



Respirable Silica in the Construction Industry

Instructor's Manual



University of South Florida

<http://usfotocenter.org/silica-training> |

Contents

| | |
|--|----|
| Course | 4 |
| Overview | 4 |
| Intended Audience | 4 |
| Reasons for Development | 4 |
| Media and/or Teaching Methods | 5 |
| Class Size | 6 |
| Prerequisites | 6 |
| Instruction/Trainer Qualifications | 6 |
| Course Matrix | 8 |
| Disclaimer | 10 |

Respirable Silica in the Construction Industry

Overview

This is a one day training session intended to educate frontline employees and foreman about OSHA's new silica standard for the construction industry. This course will offer:

- Overview of the new silica standard
- Health hazards associated with respirable crystalline silica exposure
- How to anticipate and recognize potential silica dust hazards
- How to use a specified exposure control method for a given task
- Allowable housekeeping techniques

Intended Audience

The main target audience includes construction workers in high-hazard and high fatality jobs.

Reasons for Development

There is strong scientific evidence showing that exposure to respirable crystalline silica can increase a person's risk of developing lung cancer. The World Health Organization's International Agency for Research on Cancer – the leading international voice on cancer causation – and the National Institutes of Health's National Toxicology Program have conducted extensive reviews of the scientific literature and have designated crystalline silica as a known human carcinogen. The American Cancer Society has adopted the WHO and NIH's determinations (OSHA, 2016).

Ideal Setting or Conditions for Course Presentation

The ideal setting for this course is a classroom or other area where students have space to break into groups.

Media and/or Teaching Methods

Respirable Silica in the Construction Industry has been set up as a facilitated, interactive training session. Participants are given small “chunks” of information, and then are able to test their understanding of the subject matter via participant activities and workshops. Participants receive a workbook and complete the activities provided, primarily in group sessions. The workshop is designed to promote an active learning environment. Several practice sessions included are designed to increase participant awareness and enable them to apply what they have learned when they return to their workplace.

Workshop Materials

| <u>Participants</u> | <u>Trainer/Facilitator</u> |
|---|---|
| <ul style="list-style-type: none">• 1 workbook for each participant• 1 copy of the PowerPoint presentation for each participant• 1 Course Evaluation form for each participant• 1 pencil for each participant• 1 hi-liter for each participant• 1 flip chart and markers for each group• 1 certificate of completion for each participant | <ul style="list-style-type: none">• 1 Facilitator Guide• PowerPoint presentation• References and Additional Information• Laptop or computer• Media viewing screen for projector• LCD projector• Flip chart and markers• Exhaust Ventilation• Water Spray• Dust Sampling• Respirator• Vacuum for Silica Dust with HEPA filtration |

Class Size

The maximum class size for this workshop is 20 to 28 students. This provides a good student-to-instructor ratio, and allows the class to break into small groups, as needed.

Prerequisites

None.

Instruction/Trainer Qualifications

The ideal candidate is someone who has at least five years of experience in safety and health silica exposure investigation. Such factors could include previous industry experience, subject matter teaching experience, conducting presentations on the subject at safety and health conferences and seminars, and certification through professional associations. The instructor should also be familiar with OSHA's policies and procedures.

At the end of the training, the participants will be able to:

1. Identify various types of Health Hazards resulting from Silica Exposure

- Identify Workers Rights and Employer Responsibilities under the OSH Act
- Identify activities likely to expose workers to silica exposure, including discussion of CFR 1926.1153 Table 1
- Identify ways to avoid and abate hazards associated with silica exposure
- Identify appropriate engineering controls
- Identify various types of PPE used to reduce health hazards associated with silica exposure
- Identify requirements for respiratory protection
- Identify proper use of respiratory protection
- Identify importance of respiratory protection

- Identify health risks, both short and long-term, associated with silica exposure

2: Assess current respiratory protection and silica exposure programs

- Discuss new OSHA standards and highlight changes to occur with new standard
- Evaluate safety compliance of various respiratory systems
- Assess compliance of a specific worksite's respiratory protection and silica exposure programs
- Provide guidance on acceptable abatement methods
- Identify housekeeping methods to reduce silica exposure

Upon Completion of this Course, trainees will be able to:

- Discuss health hazards of respirable silica
- Identify silica dust hazards in the workplace
- Describe the requirements of the new silica standard for construction
- Demonstrate knowledge and use of proper respiratory protection equipment
- Identify appropriate housekeeping techniques to reduce risk of silica dust exposure
- Demonstrations of controls and measurements

Course Matrix

| Target Lesson & Objectives | Time Allotted | Content |
|--|---------------|--|
| Introduction | 50 minutes | <ul style="list-style-type: none"> • Welcome • Housekeeping • Introduction • Objectives • Use of manual • Pre-test |
| OSH Act | 60 minutes | <p>Employer and employee responsibilities under the standard Employee rights under OSHA Emphasis will be placed on: Silica hazard information and training Specified control methods in Table 1 Effective respirator use Acceptable versus unacceptable housekeeping techniques</p> |
| Silica Hazard Information and Medical Surveillance | 90 minutes | <p>Course instruction and discussions on silica health hazards Course instruction and discussions on silica hazard recognition Discussions on specific activities that could result in respirable silica exposure including examples Course instruction and discussions on silica exposure controls Course instruction and discussions on the purpose of the medical surveillance program requirement</p> |
| Specified Control Methods – Table 1 | 90 minutes | <p>Course instruction and discussions on the specified exposure control methods listed in Table 1 Group activities to include work scenarios to identify the requirements within particular tasks listed in Table 1 Group activities to include manufacturers' user manuals and other information to identify: If the tool and/or control requirements have been met If the tool and/or control is being used and maintained according to manufacturer's instructions Group activities to determine if the requirements for a given task have been fully and properly implemented</p> |
| Respirator Selection, Lab I & II | 90 minutes | <p>Course instruction on the different types of respirators likely to be encountered at the job, including particulate filtering facepiece and elastomeric half-face and full-face respirators Instructions to include: How to use a respirator properly including performing a user seal check How to maintain and care for the respirator When the respirator or cartridges should be replaced Hand-on activities to demonstrate proper respirator use</p> |
| Housekeeping Techniques | 40 | <p>Course instruction to identify what housekeeping techniques are allowed and not allowed under the standard Group activities and discussions to identify housekeeping measures that are inappropriate and/or ineffective Group activities and discussions to identify housekeeping</p> |

Respirable Silica in the Construction Industry

| | | |
|---|----|---|
| | | measures that: Might be allowed given the situation Could be considered as an alternative |
| Post-test and evaluation | 30 | |
| Total content time is 7.5 hours. Time for breaks and lunch will add up to approximately 10 hours. | | |

Disclaimer

DISCLAIMER: This material was produced under grant number SH29661-SH6 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U. S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U. S. Government. The U.S. Government does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed.

COPYRIGHT INFORMATION: This material is the copyrighted property of **University of South Florida – OSHA Training Institute Education Center**. By federal regulation, OSHA reserves a license to use and disseminate such material for the purpose of promoting safety and health in the workplace. The **University of South Florida – OSHA Training Institute Education Center** hereby authorizes employers and workplace safety and health professionals to use this material, distributed by or through OSHA, in their workplaces or practices in accordance with the guidance contained in the material.

To this end, permission is granted to use such copyrighted material solely for non-commercial, instructional, personal, or scholarly purposes. The material may be used and incorporated into other workplace safety and health programs on the condition that no fee may be charged for the subsequent use of the material. Use of the material for any other purpose, particularly commercial use, without the prior, express written permission of the copyright owner/s is prohibited. Furthermore, any modification to the material is prohibited without the prior, express written permission of the copyright owners.

This material is intended for training purposes only. This material is not a substitute for any provision of the Occupational Safety and Health Administration or any standards issued by OSHA.