City of Manitowoc

Respirable Crystalline Silica Exposure Control Plan

Issue Date:	Revision(s):	Pages:
		12

Policy Source:
-Cities and Villages Mutual Insurance Company
-Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1153
-Wisconsin Department of Safety and Professional Services (SPS) Administrative Code SPS 332.15

SPECIAL INSTRUCTIONS:
This policy applies to employees that have an occupational exposure to respirable crystalline silica at or above 25 micrograms per cubic meter of air (25 $\mu g/m^3$) as an 8-hour time-weighted average (TWA). Typical exposure may include but are not limited to: cutting concrete/asphalt, and grinding, cutting, mixing, and/or otherwise pulverizing concrete and masonry products.

POLICY

The City of Manitowoc is committed to providing a safe and healthy work environment for all our employees. In addition, The City of Manitowoc's goal is to comply with the OSHA Respirable Crystalline Silica Standard 29 CFR 1926.1153 incorporated by reference in SPS 332.15.

PURPOSE

The purpose of this Exposure Control Plan is to ensure that appropriate precautions are taken to protect the City of Manitowoc employees (and others) from the adverse health effects associated with exposure to respirable crystalline silica.

SPECIFIED EXPOSURE CONTROL METHODS

For each City of Manitowoc employee engaged in a task identified on Table 1, the City of Manitowoc shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1. For tasks not listed in Table 1, or where the City of Manitowoc does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1, the City of Manitowoc shall execute either the Performance or Scheduled exposure assessment method described in 29 CFR 1926.1153.

The City of Manitowoc shall assess the exposure (using Figure 1 below) of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level of 25 micrograms per cubic meter of air (25 µg/m^3) as an 8-hour time-weighted average (TWA). Whenever possible the City of Manitowoc will utilize Table 1 for controlling exposures.

FIGURE 1

Roadmap for Meeting the Requirements of the Respirable Crystalline Silica Standard

1. Determine if the silica standard applies to your employees.

Could employees be exposed to respirable crystalline silica at or above 25 µg/m³ as an 8-hour TWA under any foreseeable conditions, including the failure of engineering controls, while performing construction activities?

No: No further action is required under the silica standard.
Yes: Choose to comply with the standard using either the:

- Specified exposure control methods in Table 1, or
- The alternative methods of compliance

2. Determine what additional requirements you must meet under the standard, based on the compliance method you are following.

	Must the Employer Follow this Requirement?	
Requirement	**If Fully and Properly Implementing Table 1**	**If Following Alternative Exposure Controls**
PEL	**No**	**Yes**
Exposure Assessment	**No**	**Yes**, when exposures are reasonably expected to be above the action level.
Methods of Compliance	**No**	**Yes**
Respiratory Protection	**Yes**, if respirator use is required by Table 1	**Yes**, if respirator use is required to reduce exposures to the PEL
Housekeeping	**Yes**	**Yes**
Written Exposure Control Plan	**Yes**	**Yes**
Medical surveillance	**Yes**, for employees who must wear a respirator under the silica standard for 30 or more days a year.	
Communication of Hazards	**Yes**	**Yes**
Recordkeeping	**Yes**, for any employees who are getting medical examinations	**Yes**, for exposure assessments and for any employees who are getting medical examinations

REASSESSMENT OF EXPOSURES

The City of Manitowoc shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the City of Manitowoc has any reason to believe that new or additional exposures at or above the action level have occurred.

EMPLOYEE NOTIFICATION OF RESULTS

If exposure monitoring is required to be conducted, the employee shall be notified:

- Within five working days after completing an exposure assessment, the City of Manitowoc shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.
- Whenever an exposure assessment indicates that employee exposure is above the PEL, the City of Manitowoc shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

WORKPLACE EXPOSURES AND CONTROLS

Job/Task that Involve Exposure to Respirable Crystalline Silica	Control, Work Practice, and Respiratory Protection Used to Protect Employee	Housekeeping Measures to Limit Employee Exposure (If needed)	Procedures to Restrict Access of Non-essential Employees (if needed)
SEE *TABLE 1*	SEE *TABLE 1*	SEE *TABLE 1*	Use appropriate barricades, caution tape, signs or similar barriers to restrict un-protected individuals from hazard.

COMPETENT PERSON

The City of Manitowoc shall designate competent persons to make frequent and regular inspections of the job sites, materials, and equipment and to properly implement this Exposure Control Plan. A competent person is one who is capable of identifying existing and foreseeable respirable crystalline silica hazards and who has authorization to take prompt corrective measures to eliminate or minimize them. The designated competent persons for City of Manitowoc include:

- Operations Division Manager
- Parks Team Leader
- Streets Team Leader
- Building & Grounds Manager
- Assistant Superintendent – Wastewater Treatment Facility

METHODS OF COMPLIANCE

The City of Manitowoc shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless the City of Manitowoc can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the City of Manitowoc shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

Where respiratory protection is required, the City of Manitowoc must provide each employee an appropriate respirator that complies with the requirements of 29 CFR 1910.134.

HOUSE KEEPING
The City of Manitowoc shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.

The City of Manitowoc shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or no alternative method is feasible.

MEDICAL SURVEILLANCE
The City of Manitowoc shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for **30 or more days per year.** If the employee is required to wear a respirator at any time during a day, that counts as **one day** of respirator use. The employer shall ensure that all medical examinations and procedures required by this section are performed by a Physician or Other Licensed Health Care Professional. 29 CFR 1926.1153 (h) shall be consulted and followed should medical surveillance be required.

EMPLOYEE INFORMATION AND TRAINING
The City of Manitowoc shall include respirable crystalline silica in the program established to comply with the Hazard Communication Standard (HCS) (29 CFR 1910.1200). The City of Manitowoc shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS. The City of Manitowoc shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

In addition, the City of Manitowoc shall ensure that each employee covered by this section can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to respirable crystalline silica.
- Specific tasks in the workplace that could result in exposure to respirable crystalline silica.
- Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used.
- The contents of this policy.
- The identity of the competent person.
- The purpose and a description of the medical surveillance program

RECORDKEEPING
The City of Manitowoc shall make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica. The records should contain at least the following:

- The date of measurement for each sample taken
- The task monitored

- Sampling and analytical methods used
- Number, duration, and results of samples taken
- Identity of the laboratory that performed the analysis
- Type of personal protective equipment, such as respirators, worn by the employees monitored
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored

The City of Manitowoc shall ensure that exposure records and medical surveillance records are maintained and made available in accordance with 29 CFR 1910.1020.

*This written Exposure Control Plan shall be made readily available for examination and copying, upon request, to each employee covered by this policy, their designated representatives, and regulatory agents.

TABLE 1

Specified Exposure Control Methods by Task

Equipment/Task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
(1) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(2) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10
(3) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None

Equipment/Task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF) ≤ 4 hours/shift	Required respiratory protection and minimum assigned protection factor (APF) > 4 hours/shift
(4) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	-When used outdoors	None	None
	-When used indoors or in an enclosed area	APF 10	APF 10
(5) Drivable saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(6) Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(7) Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None

Equipment/Task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF) ≤ 4 hours/shift	> 4 hours/shift
(8) Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
(9) Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
	OR		
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
(10) Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.		
	When used outdoors	None	APF 10
	When used indoors or in an enclosed area	APF 10	APF 10
	OR		
	Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	When used outdoors	None	APF 10
	When used indoors or in an enclosed area	APF 10	APF 10

		Required respiratory protection and minimum assigned protection factor (APF)	
Equipment/Task	Engineering and work practice control methods	≤ 4 hours/shift	> 4 hours/shift
(11) Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
(12) Handheld grinders for uses other than mortar removal	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None
	When used outdoors	None	None
	When used indoors or in an enclosed area	None	APF 10

		Required respiratory protection and minimum assigned protection factor (APF)	
Equipment/Task	Engineering and work practice control methods	≤ 4 hours/shift	> 4 hours/shift
(13) Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	OR		
	Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
(14) Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None

		Required respiratory protection and minimum assigned protection factor (APF)	
Equipment/Task	Engineering and work practice control methods	≤ 4 hours/shift	> 4 hours/shift
(15) Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain to minimize dust emissions.	None	None
	For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR	None	None
	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
(16) Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points0. Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None

		Required respiratory protection and minimum assigned protection factor (APF)	
Equipment/Task	Engineering and work practice control methods	≤ 4 hours/shift	> 4 hours/shift
(17) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demotion activities involving silica-containing materials	Operate equipment from within an enclosed cab.	None	None
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
(18) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR	None	None
	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None