# Proposed OSHA Standard for Crystalline Silica
# Problematic Aspects for Industry

The following comments pertain to certain provisions of the proposed OSHA silica standard that are anticipated to create significant compliance problems for manufacturing operations based on the manner in which they currently are worded.

**SYNOPSIS**

1. The requirement to establish regulated areas where excessive exposures occur is worded in an overly-broad manner that could restrict access to many locations unnecessarily and with no added benefit.

2. The requirement for wearing respirators in regulated areas is based solely upon the act of entering a regulated area and not on actual exposure or need for the respirator. This would require enormous expense and man-hours to ensure compliance with the respirator standard. Also, this provision is written in a manner that it would not apply consistently to all who could enter a regulated area.

3. Protective clothing or means to clean clothing would be required where gross contamination with silica could occur, but the term "grossly contaminated" is not defined.

4. The standard would permit cleaning only by wet methods or use of a high efficiency vacuum cleaner. This would make it dangerous and/or impossible to clean various production areas and processes.

5. The proposed standard would require that exposure monitoring records include employee social security numbers, which likely would create much difficulty in handling exposure records and protecting personal information.

6. The proposed standard would require that exposure monitoring records identify all employees represented by any monitoring that is performed. This would create an enormous administrative burden to constantly update and link individuals to all prior data that represents exposure for the positions they work in.

**DETAILED EXPLANATION**

**1. Proposed Requirement:** In the proposed standard, 1910.1053(e) sets forth the requirements for regulated areas and controlled-access areas. Such areas are to be established and demarcated "wherever an employee's exposure to airborne concentrations of respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL…"

**Comment:** OSHA's approach to this issue appears to presume that employee exposures are solely due to the ambient conditions of particular work areas and that such areas can be demarked for the purpose of limiting access and minimizing exposures to other individuals. While work areas with consistently high airborne crystalline silica concentrations do exist, this proposal fails to address the fact that many elevated occupational exposures to silica are primarily task-oriented; they are not a result of surrounding

conditions. In such situations, the high silica concentration areas essentially are located immediately in front of the employees as certain tasks are performed. When the employees stop performing the tasks, the high concentration zones cease to exist and the overall concentrations of airborne silica in the work area are well below the proposed action level. The proposed standard needs to include clarification on how this type of situation is to be handled and whether a regulated or controlled-access area would exist at all.

**Suggested Change:** The definition for regulated area should be revised to accommodate situations where general air quality is acceptable and exposures above the PEL are due to transient, localized generation of airborne dust resulting from specific tasks performed by employees. The following wording would accomplish this. "Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL as a result of the general air quality (i.e., the typical ambient conditions) in that work area. Where exposure above the PEL is caused by transient generation of airborne crystalline silica in the employee's immediate work area / breathing zone due to performance of specific tasks, and where such elevated silica concentrations cease to exist upon cessation of the employee's task, a regulated area is not required."

**2. Proposed Requirement:** Sections 1910.1053(e)(2)(iv) and (e)(3)(ii)(E) of the proposed standard would require that any employee and designated representative entering a regulated or controlled-access area be issued and be required to wear a respirator.

**Comment:** This proposed requirement is unnecessarily restrictive and will result in excessive costs to many companies for little or no measurable benefit. The requirement does not allow employers to take into consideration the airborne concentrations of silica and the actual time personnel spend in affected areas to determine who really needs respiratory protection in those areas. The requirement will force use of respirators based simply on the designation of an area rather than on the actual exposures and needs of given individuals. This will result in excessive and unwarranted costs for compliance.

Those assigned to and normally working in regulated or controlled-access areas will not be a concern because they already will be in respirators. It is all the other personnel who periodically need to enter these areas that create a concern. They may include members of upper management, mail delivery, engineers, instrument technicians, safety and environmental personnel, security staff, medical first responders, etc. Even the briefest entries would require each of them to use a respirator. While it may seem like an easy thing to do, it would require significant effort and would incur substantial costs that are not readily apparent.

- There is the cost of the respirators themselves. Either an expensive reusable respirator would have to be purchased and given to each employee, or many disposable respirators would be used over time.

- Use of the respirators would be mandatory. Therefore, each person using one would have to obtain medical clearance in accordance with the requirements of 1910.134(e) before being allowed to use the respirator. This would require completing the extensive respirator medical questionnaires mandated by OSHA and having them reviewed by a physician or other licensed health care professional. The review could result in the need for an actual examination of the

employee. The employer would have to pay for each employee's time in this process as well as for the medical review and possible examination of each employee.

- Because use would be mandatory, each employee would have to pass a fit test for the respirator before being allowed to use it as required by 1910.134(f). The employer would have to pay for the time of each employee being fit tested as well as for the time of the fit tester and the cost of supplies used during the tests.

- Because use would be mandatory, each employee needing a respirator would have to be trained on the proper use, limitations, care and storage of the respirator as required by 1910.134(k). The employer would have to pay for the training time of each employee as well as the time of the trainer.

- Medical clearance, fit testing and training would have to be repeated for each employee at least annually, all of which must be paid for by the employer.

- Companies would be placed in the situation of having to clear, fit test and train numerous employees in anticipation that sometime they might need to enter a regulated/controlled area, or those companies would have to deal with each employee as the need arose. The former approach would result in much wasted time and expense if individuals end up not needing to enter a regulated/controlled area (which likely would be the case, e.g., emergency response personnel). The latter approach would be costly due to the inefficient handling of everyone on an as-needed basis and likely would cause unacceptable delays for certain personnel who would have urgent need to enter an affected area immediately (e.g., emergency response personnel).

- Additional hidden costs would be incurred by having to inventory and distribute more respirators and by having to document all of the above activities to prove compliance.

Another concern with these particular provisions of the proposed standard is that they apply only to employees and their designated representatives. They do not cover others who may enter regulated or controlled access areas such as vendors, local fire authorities, insurance agents, visitors from other companies, etc. As written, all employees must wear respirators in regulated/controlled areas regardless of how low their exposure may be, yet there is no respirator requirement for anyone else. This is not logical, and it will create problems for employers attempting to enforce compliance due to there being an obvious double standard.

The sections of the proposed standard addressing requirements for respirators in regulated and controlled-access areas need to be revised to create a reasonable and justifiable process for protecting personnel against excessive silica exposure. Employers should be allowed to establish their own respirator policies for these areas as long as those policies ensure that individuals entering the affected areas will not be exposed to respirable crystalline silica above the allowable limit.

**Suggested Change:** Section 1910.1053(e)(2)(iv) of the proposal currently states: "The employer shall provide each employee and the employee's designated representative entering a regulated area with an appropriate respirator in accordance with paragraph (g) of this section and shall require each employee and the employee's designated representative to use the respirator while in a regulated area." This should be reworded to state: "The employer shall ensure that persons entering a regulated area are not exposed

above the PEL. This may be done by imposing time restrictions on area entry or requiring use of respirators or implementing any other method that effectively keeps personal exposures below the PEL."

Section 1910.1053(e)(3)(ii)(E) contains a similar requirement and should be reworded in the same fashion.

**3. Proposed Requirement:** The term "grossly contaminated" is used in sections 1910.1053(e)(2)(v) and (e)(3)(ii)(F) of the proposed standard as a threshold for determining whether protective clothing or cleaning methods are required.

**Comment:** The term "grossly contaminated" is not defined in the proposed standard, leaving this key term open to interpretation. Generally accepted standards of contamination likely vary from one industry to another and even between operations within a single industry. Lacking some degree of quantification or qualification, this will result in confusion and uncertainty regarding implementation of protective clothing and cleaning methods. It also will make it hard to determine compliance status. Because this subjective term is used as a threshold for action, the standard needs to include a definition of "grossly contaminated".

**Suggested Change:** Add a definition for "grossly contaminated". A suggested definition is as follows: "Grossly contaminated means the visible accumulation of silica-containing particulate on work clothing to the extent that the clothing cannot hold the material in place. Simple bodily movement results in visible dust being released to the air or results in loose material visibly falling off the clothing."

**4. Proposed Requirement:** Section 1910.1053(f)(3) would require either HEPA-filter vacuuming or wet methods for cleaning accumulated crystalline silica. It expressly prohibits use of compressed air, dry brushing and dry sweeping.

**Comment:** This provision is unnecessarily restrictive and will make it impossible to clean legally in many situations. It falsely presumes that all situations where cleaning is needed can be handled via HEPA vacuum or wet methods. It provides no option for alternative methods when HEPA vacuuming and wet methods are infeasible.

There are many situations where cleaning accumulated silica is not possible with a HEPA vacuum or by wet methods. A few examples are:

- In foundry casting operations, excess sand (quartz silica) must be removed from the cope and the drag portions of a sand mold before the mold is closed for casting. In most cases it is not possible to do this via vacuuming or wet methods without damaging the finished mold. The only feasible method is to use compressed air to blow the sand gently off the mold faces.

- In sand core-making operations and in automated molding and casting operations, excess sand accumulates among the mechanical components and in the crevices of the machinery. The machines must be cleaned at least daily to maintain optimal performance and avoid unnecessary wear. It is not possible to reach many of these locations with a vacuum attachment. It also is not feasible to use wet methods as this would damage the equipment and create a safety hazard due to water accumulation on the surrounding floors (which also would have to be cleaned up each

time). The only feasible method for cleaning is the use of compressed air guided through long, narrow wands that can be inserted into the areas of concern.

- In vitreous ware casting operations, slip (i.e., slurry containing clays and other silica-bearing materials) is routinely spilled onto the casting benches and surrounding floors, where it dries readily. This dried material cannot be vacuumed as it either is adhered to the surfaces or is broken into chunks that will not fit into a vacuum inlet. Wet cleaning also is not feasible. Using water mist to suppress dust would make the material sticky and cause it to smear. Attempting to wash away the accumulated material would require extreme quantities of water. That in turn would create an unacceptable slipping hazard and would necessitate re-engineering all the casting shops to include drainage systems that currently do not exist. All accumulated water and solids would have to be treated. The cost of the water and treatment of the waste stream would be inordinately expensive and likely would be financially infeasible. To clean surfaces in vitreous ware casting operations requires the use of scrapers, brooms and shovels. Some fine dust cleaning could be done by vacuum, but it represents only a small portion of the material that routinely must be cleaned each day.

- In foundry operations, sand handling systems typically leak sand in various locations (e.g., conveyor transfer points). While efforts are made continually to prevent such spillage, it is impossible to prevent it completely. Wet cleaning methods are not feasible, and given the quantities of sand typically involved, HEPA vacuuming is not feasible either. The only practical and financially feasible methods for cleaning these systems are shoveling and use of a bucket skid steer.

This section of the proposed standard needs to be revised to permit alternative cleaning methods when HEPA vacuuming and wet methods are not feasible. The precedent for this already exists in other OSHA standards such as the lead standard (see 1910.1025(h)(2)(ii)).

**Suggested Change:** Change the wording of Section 1910.1053(f)(3) to state: "(3) Cleaning Methods. (i) The employer shall use HEPA-filter vacuuming or wet methods where feasible to clean accumulations of crystalline silica where such accumulations could, if disturbed, contribute to employee exposure to respirable crystalline silica that exceeds the PEL. Where these methods are not feasible, other methods such as shoveling, sweeping, or brushing may be used. Compressed air may be used for cleaning only when no other method is feasible. Use of methods besides HEPA vacuuming and wet cleaning must be done in a manner that minimizes generation of airborne dust. In addition, employees must be protected, during and after cleaning, against exposure to airborne crystalline silica above the PEL by use of engineering controls, administrative controls, controlled work practices and/or respirators. (ii) Compressed air and dry brushing shall not be used to clean clothing contaminated with crystalline silica where such activities could contribute to employee exposure to respirable crystalline silica that exceeds the PEL."

**5. Proposed Requirement:** Section 1910.1053(j)(ii)(G) of the proposed standard would require that exposure monitoring records include employee social security numbers.

**Comment:** There is no justifiable reason for mandating this inappropriate use of social security numbers in the silica standard. Aside from the fact that it isn't necessary for accurate tracking of individuals, use of social security numbers as part of the exposure monitoring record will create several serious problems.

The unnecessary use of social security numbers in this manner is ill-advised as it will put thousands of employees at greater risk of identity theft. Employee social security numbers typically are guarded closely within confidential employee files, and only a few authorized individuals within any company would have access to them. To include them as part of the exposure monitoring records would necessitate many other individuals having access to them, thus increasing the possibility of misappropriation and misuse.

The inclusion of social security numbers in the monitoring records also will create substantial logistical difficulties with regard to protecting those records. This requirement would greatly expand the volume of records that must be treated as confidential and will create additional administrative burden for companies as they now would have to restrict and control access to the records more than previously. Moreover, this requirement would hamper legitimate sharing of the monitoring records within a company and between the company and other entities (e.g., insurance carriers).

There are many other non-sensitive parameters (e.g., assigned employee clock number, personal address) that can be used to identify and track employees accurately within the monitoring records. The proposed rule should be revised to eliminate the requirement for including social security numbers as part of the monitoring record.

**Suggested Change:** Change Section 1910.1053(j)(ii)(G) to state: "Name, other appropriate personal identifier such as employee clock number, and job classification …"

**6. Proposed Requirement:** Section 1910.1053(j)(ii)(G) of the proposed standard would require that exposure monitoring records identify all employees represented by any monitoring that is performed.

**Comment:** Monitoring records (e.g., field data sheets, written reports) typically document the individuals who were sampled during exposure monitoring surveys. Requiring that the records identify all employees who are represented by the monitoring results will create a never-ending administrative burden for every record created. While it is simple to document who participated in a survey and to which job positions the results pertain, it would be unreasonably onerous to have to maintain an accurate record of all employees to whom the records apply. Once an exposure monitoring record is created, it remains static and requires no more administration. However, to whom that record applies changes constantly over time. Employees continually retire, are hired, are fired, are promoted and are transferred within companies. This requirement would necessitate continuous and extensive monitoring of all employee changes within companies and continuous updating of the monitoring records as those changes occur. This is an unreasonable and infeasible burden to place on employers. The proposed rule needs to be revised to eliminate this particular mandate.

**Suggested Change:** Change Section 1910.1053(j)(ii)(G) to state: "Name, other appropriate personal identifier such as employee clock number, and job classification of all employees who participated in the monitoring."