



HEALTH GUIDELINE FOR  
**CRYSTALLINE SILICA**

# INTRODUCTION

This guideline is intended to be a source of information and recommendation for the health and safety of workers and employees involved in cutting, sawing, grinding, drilling, crushing and installation of VICOSTONE® Quartz Surfaces. VICOSTONE® Quartz Surfaces, as with other stone products, contains crystalline silica, a material known to the State of California to cause cancer. VICOSTONE strongly encourages fabricators and installers to strictly adhere to the recommendations in this guideline to control silica dust exposure and reduce health risks.



# ABOUT CRYSTALLINE SILICA

Formula:  $\text{SiO}_2$ .

Synonyms: Quartz, coesite, cristobalite, tridymite.

Appearance and odor: Colorless, odorless solid (Crystalline silica may be a component of many mineral dusts).

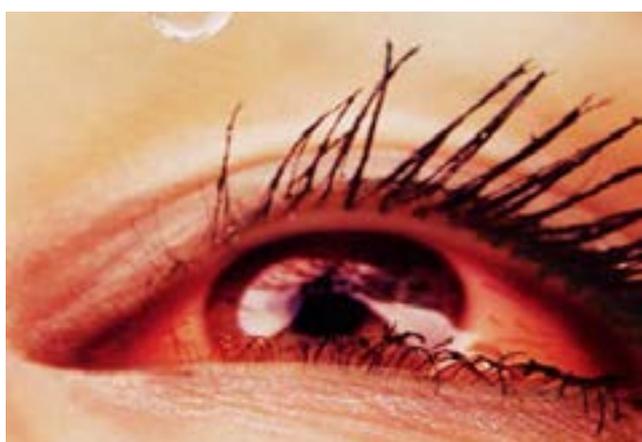
# HEALTH HAZARDS OF SILICA

Vicostone® quartz surfaces are perfectly safe for delivery, storage and use as certified by green-guard (for indoor air quality, children and schools) and by nsf for safe food contact as per ansi 051. However, as with other stone products, Vicostone® quartz surfaces contain crystalline silica (quartz), a material known to the state of california to cause cancer and link to other diseases, such as tuberculosis, chronic obstructive pulmonary disease, kidney and autoimmune disease if appropriate precautions and protective measures are not properly employed.



## **BREATHING SILICA CAN CAUSE SILICOSIS:**

Silicosis is a lung disease where lung tissue around trapped silica particles reacts, causing inflammation and scarring and reducing the lung's ability to take in oxygen. Workers who breath silica day after day are greater risk of developing silicosis. Silica can also cause lung cancer and has been linked to other diseases, such as tuberculosis, fibrosis of the lungs, chronic obstructive pulmonary disease (COPD) and kidney disease.



## **CRYSTALLINE SILICA CAN CAUSE AN ABRASION OF THE CORNEA AND IRRITATION OF THE SKIN AND EYES**

# EMERGENCY FIRST AID PROCEDURES



## EYE EXPOSURE

If crystalline silica dust gets into the eyes, wash eyes immediately with large amounts of pure water, lifting the lower and upper lids occasionally. If irritation persists after washing, get medical attention.



## BREATHING

If a person breathes in large amounts of crystalline silica dust, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and comfortable. Get medical attention as soon as possible!



## RESCUE

In the event of an emergency, move the affected person from the hazardous exposure. Perform emergency rescue procedures such as artificial respiration and send for first aid or assistance. Notify others and put into effect the established emergency rescue procedures.

---

# HOW TO ELIMINATE OR CONTROL **CRYSTALLINE** **SILICA DUST**

---

VICOSTONE recommends the following measures to reduce exposure to crystalline silica in the workplace

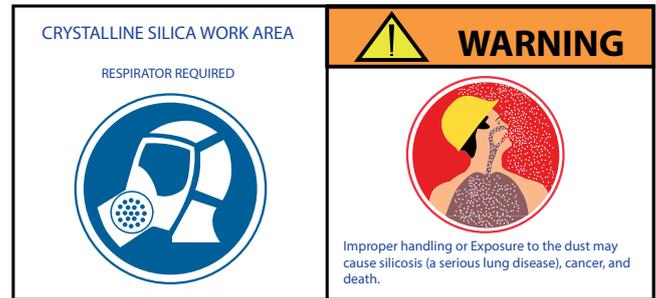
# 1. IDENTIFY WORK AREAS, TASKS AND EQUIPMENT THAT EXPOSE WORKERS TO CRYSTALLINE SILICA DUST

Post warning signs to identify areas and tasks that could expose workers to crystalline silica. Signs should warn workers about health risks of crystalline silica and protective measures against the harmful effects of silica.

Determine the operations and tasks that generate silicon dust: opening the bottom of the bag, loading the material, the operation of folding / removing the cover...

Identify the equipment that can generate silicon dust: mixing bowl, feed hopper, conveyor...

Only authorized employees are allowed to work in silica exposure areas.



# 2. USE PERSONAL PROTECTIVE EQUIPMENT WHEN NECESSARY

- Wear proper apparel such as dust masks, gloves, eye and ear protection and high visibility jacket in worksite.
- Use respirators as a special type of personal protective equipment. Respirators may protect workers from inhaling crystalline silica dust when carefully and properly selected, worn and used. General rules and when to use each type of respirators are included in the following pages.
- When it is necessary to use more than one item of PPE, make sure that these items are compatible with each other.
- Use respiratory protective equipment according to the supplier's instructions.
- Keep records of use, training and maintenance.
- Use a properly fitting respirator (half face or disposable mask) that creates a tight seal.

## GENERAL RULES

Risk assessment must be carried out to determine whether existing controls are adequate and problems are thoroughly resolved. If necessary, respiratory protective equipment (with the appropriate protection factor) should be provided and worn.

- Choose the appropriate respiratory protective equipment according to the respirable crystalline silica level, in consultation with an occupational health and safety professional, and considerations in the "When to use" sections below.
- Perform a medical/occupational health assessment to ensure that fabricators are able to work with respiratory protective equipment.
- Workers who may be exposed to crystalline silica dust should have yearly medical exams
- Using respiratory protective equipment does not exempt the employer from controlling the level of respirable crystalline silica or from bringing it to below the required Occupational Exposure Limit.

## 2. USE PERSONAL PROTECTIVE EQUIPMENT WHEN NECESSARY

### WHEN TO USE A HALF FACE RESPIRATOR:

- When fabricating with wet manual tools in the fabrication plant.
- When standing close to locations where respirable crystalline silica is created.
- At the installation site if performing dust-producing modifications.



### WHEN TO USE POWERED AIR PURIFYING RESPIRATORS (PAPR)

- If the fabricator has facial hair
- If the protection achieved with any other respiratory protective equipment is not sufficient
- If exposure levels are thought to be very high
- When working in confined spaces with oxygen levels in the work environment outside the permitted range from 19.5% - 23.5%



### WHEN TO USE A DISPOSABLE MASK

- Only in the case of short or occasional exposures to respirable crystalline silica (workers and visitors), e.g.:
- When washing the floor and machinery with running water near CNC machines that are water-connected to exhaust ventilation systems
- Masks marked with the letters NR (not reusable) are intended for single shift use. Masks marked with the letter R (reusable) are intended for more than single shift use, according to the supplier's instructions.



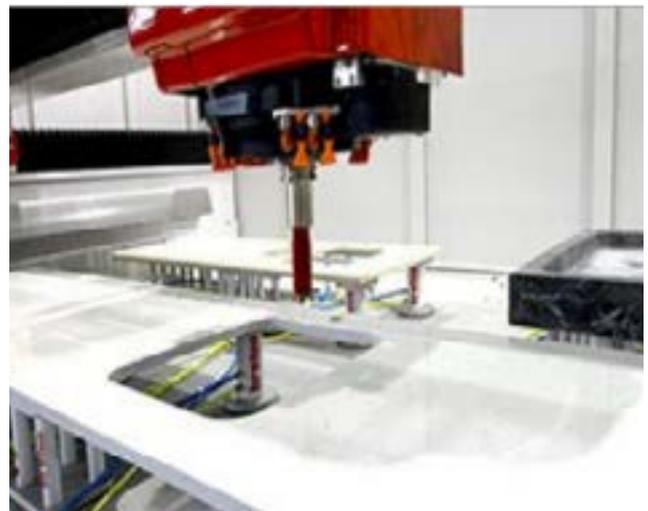
### 3. USE SHAPE AND WET TOOLS IN FABRICATION AND INSTALLATION TO SUBSTANTIALLY REDUCE THE AMOUNT OF DUST CREATED

- Processing and fabrication of VICOSTONE® Quartz Surfaces, such as cutting, polishing, drilling, grinding, etc., should be done with water injected tools. It is also essential to pay attention to electrical risks and recommend that all workers wear rubber boots when working.
- The use of wet tools such as CNC Machines, Manual Tools and Manual Saws is recommended as an effective method to control silica dust. Wet processes significantly reduced worker exposure to respirable crystalline silica. Please find general rules and types of wet tools in the following pages.



#### GENERAL RULES

- Dry cutting, grinding or polishing stone surfaces (e.g., engineered stone, natural stone or porcelain) generate very high respirable crystalline silica levels.
- Properly designed water-integrated tools and machinery significantly reduce the level of respirable crystalline silica and should therefore be used for all fabrication processes.
- It is also advisable to use water curtains as a measure to reduce or eliminate the dust.



### 3. USE SHAPE AND WET TOOLS IN FABRICATION AND INSTALLATION TO SUBSTANTIALLY REDUCE THE AMOUNT OF DUST CREATED

#### CNC MACHINES

- CNC (Computer Numerical Control) machining, is a manufacturing process in which pre-programmed computer software dictates the movement of factory tools and machinery. These machines are used for automatic initial cutting of slabs.
- Use CNC machines such as waterjet cutters and automated sawing machines.
- Keep CNC safety doors closed to prevent dust dispersal and to distance the operator from the dust source.



#### MANUAL TOOLS

- These tools are used for manual fabrication processes (e.g., drilling, cutting and polishing slabs) after initial cutting. When working with manual tools the fabricator is very close to the dust source. Therefore:
- Control water spray using guards or plastic flaps.
- Set air and water pressure to achieve minimum dust generation.
- Use a half face respirator with P3 filter.



### 3. USE SHAPE AND WET TOOLS IN FABRICATION AND INSTALLATION TO SUBSTANTIALLY REDUCE THE AMOUNT OF DUST CREATED

#### MANUAL SAWS

- Even when equipped with water integration, manual saws used for automatic initial cutting of slabs (e.g., bridge saws) are less recommended because
- The operator is close to the dust source, there are no safety doors; They are less accurate and slower than CNCs.
- Worker exposure to respirable crystalline silica is generally higher than with CNCs. When working with manual saws always use a half face respirator with P3 filter



#### EXAMINATION AND TESTING

- Visually check the equipment and water supply for signs of damage before every use.
- Make sure that the equipment and water supply operates correctly.
- Keep records of inspections for a suitable period of time which complies with national laws (minimum five years).
- Put in place measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

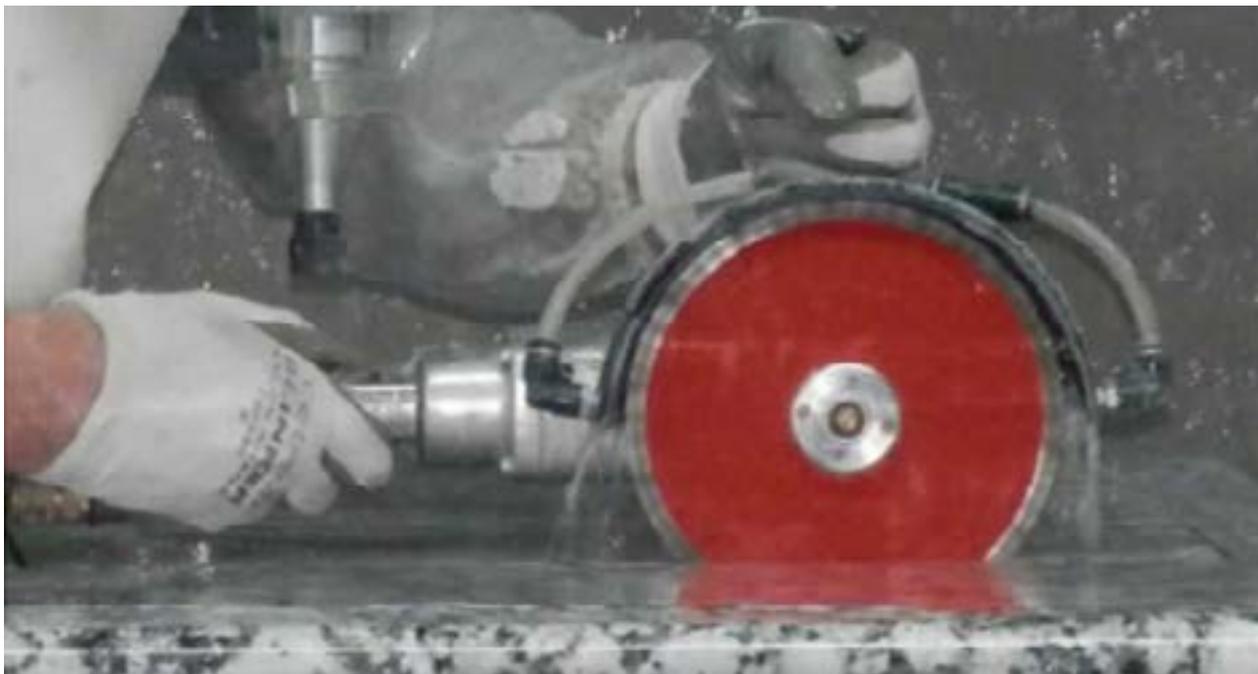
#### CLEANING AND HOUSEKEEPING

- Clean the equipment regularly according to the recommendations of the manufacturer.
- Clean slabs, floor and equipment (e.g., CNCs or manual saw) with low pressure wet hosing or wet sweeping.
- Change the water regularly if you have a closed water system (e.g., at the end of the day).
- Clean dry spillage with HEPA vacuum cleaning systems.
- Do not clean up with a dry brush or using compressed air.

## 4. GOOD PRACTICES FOR INSTALLATION OF COUNTERTOPS

### GENERAL RULES:

If no cutting, grinding, sanding or polishing of the countertops is performed during installation, no respirable crystalline silica should be released.



### PRE-INSTALLATION

- Prepare all slabs in your plant, not at the installation site.
- Clean dust off the front and back of slabs before transporting them to the installation site.
- If significant cutting is required upon installation, return the slabs to the plant for re-cutting.
- Shut down and seal off the local heating/ air-conditioning system.

### TOOLS ON SITE

- If performing modifications at the installation site is unavoidable, work outdoors using water-integrated tools.
- If an outdoors area is not available, work indoors using tools with a dust collector connected to a vacuum cleaner with HEPA filter.

## 4. GOOD PRACTICES FOR INSTALLATION OF COUNTERTOPS

### POST-INSTALLATION

- After installation clean the workplace using wet methods or HEPA filtered vacuum cleaner

### EXAMINATION AND TESTING

- Visually check the equipment and water supply for signs of damage before every use.
- Make sure that the equipment and water supply operates correctly.
- Keep records of inspections for a suitable period of time which complies with national laws (minimum five years).
- Put in place measures to control the risk of bacterial growth within water sources used across site, focusing most on systems where water droplets will be generated.

### CLEANING AND HOUSEKEEPING

- Remove dust in sealed sacks according to local regulations.
- Clean the equipment regularly according to the recommendations of the manufacturer.
- Clean slabs and floor with low pressure wet hosing or wet sweeping.
- Clean dry spillage with HEPA vacuum cleaning systems.
- DO NOT clean up with a dry brush or using compressed air.

## 5. CONTROL DUST EXPOSURE BY USING ENGINEERING CONTROLS AND CONTAINMENT METHODS

- Use local exhaust ventilation (LEV) system to collect silica dusts and prevent dust escape. Install dust collection systems on machines or equipment that can release dust.

## 6. PROVIDE TRAINING AND INFORMATION TO WORKERS ABOUT THE HAZARDS OF SILICA AND OTHER CHEMICAL

Make sure that all workers receive training that includes the following:

- Information about the potential adverse health effects of silica exposure
- Instruction about obeying signs that mark the boundaries of work areas containing crystalline silica.
- Instruction about practicing good personal hygiene, for example, washing their hands after working with materials containing silica, changing into clean clothes before leaving the worksite.
- Information about the importance of engineering controls, personal hygiene, and work practices in reducing crystalline silica exposure.
- Instruction about the use and care of protective equipment.



## 7. PROVIDE PERIODIC MEDICAL EXAMINATIONS FOR ALL WORKERS WHO MAY BE EXPOSED TO CRYSTALLINE SILICA DUST

Workers who may be exposed to crystalline silica dust should have regular medical exams. They should be examined before beginning their jobs and at least every three years thereafter. Normally, medical exams include:

- A medical exam that focuses on the respiratory system and includes a work and medical history.
- A chest X-ray and tuberculosis evaluations.



## 8. CONDUCT AIR MONITORING TO DETERMINE WORKER EXPOSURES TO SILICA

Air monitoring results are helpful to determine which jobs expose workers to silica above the permissible exposure limit and decide the best methods for controlling crystalline silica dust.

## 9. VICOSTONE ALWAYS FOSTER A SAFE AND HEALTHY WORK ENVIRONMENT FOR ALL WORKERS, FREE FROM ANY HAZARDS AND COMPLYING WITH ALL STATE AND FEDERAL LAWS

VICOSTONE also recommends that all workers heighten awareness of their rights when it comes to creating and maintaining a safe work environment. All workers have the right to:

- Work in conditions that do not pose a risk of serious harm.
- Require all personal protective equipment when necessary.
- Require the use of appropriate controls for crystalline silica-containing dust. Be sure to use all available engineering controls such as water sprays and ventilation of containment structures.
- Receive information and training about workplace hazards, methods to prevent them and the OSHA standards that apply to their workplace.
- Obtain copies of test results that detect and measure hazards.
- Exercise their rights under law, without retaliation or discrimination.
- Have a system to check that control measures are in place and that they are being followed.

## 10. LEGAL COMPLIANCE AND SAFETY REQUIREMENTS

This guideline is considered a part of a product manual for VICOSTONE® Quartz Surfaces. All fabricators of VICOSTONE understand that they are responsible for reviewing and complying with all information mentioned in this guideline. Fabricators and installers are to be aware that VICOSTONE® Quartz Surfaces, as other stone products, contains crystalline silica, a material known to the State of California to cause cancer. Therefore, all fabricators and installers of VICOSTONE are obligated to comply with all local and other applicable rules, regulations, ordinances and laws regarding the application, handling, storage, fabrication and disposal of VICOSTONE® Quartz Surfaces. VICOSTONE strongly recommends that fabricators and installers strictly adhere to the requirements of the International Labor Organization (<http://www.ilo.org>), Occupational Safety and Health Administration ([www.osha.org](http://www.osha.org)), US National Institute for Occupational Safety and Health (<http://www.cdc.gov/niosh/>), The Safe Work Australia (<http://www.safeworkaustralia.gov.au/>), and the European Network for silica (<http://www.nepsi.eu>) as well as recommendations in this Health Safety Guideline to control silica dust exposure and reduce health risks. For further information, please consult local Distributor of this Product.

## 11. ACKNOWLEDGEMENT AND AGREEMENT

This guide is intended to be a source of information and recommendation for the health and safety of workers and employees involving in cutting, sawing, grinding, drilling, crushing and installation of VICOSTONE® Quartz Surfaces.

VICOSTONE® Quartz Surfaces, as other with stone products, contains crystalline silica, a material known to cause cancer. VICOSTONE requires fabricators and installers to read, understand and strictly adhere to the recommendations in this guideline to control silica dust exposure and to reduce health risks.

We ask you to acknowledge this document by signing below. This states that required information of crystalline silica has been provided to you and that the health hazards of silica have been explained to you. You are also aware of the methods that can eliminate and control crystalline silica in the workplace.

NAME OF DEALER/FABRICATOR : .....

SIGNATURE OF DEALER/FABRICATOR : .....

DATE :    /    /