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QUARTZ SURFACES
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Crystalline Silica Health Hazards and Protection Guide

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The information contained in this manual regarding health and safety as well as recommendations pertaining to health and safety concerns is not designed nor intended to serve in lieu of professional advice, nor does it replace a fabricator's personal responsibility to apply and comply with all relevant health and safety measures. It is strongly recommended to consult a local safety and occupational health professional to protect the health and well-being of all employees exposed to silica dust.

Introduction

A safe working environment for all employees, free of hazards and in compliance with all local, state and federal laws as applicable is the responsibility of all parties, companies and organizations within the stone fabrication and processing industry.

Our slabs provided as finished products do not present any type of health risk or hazard when transported, shipped or used by the end consumer. The fabrication and processing of the finished products will generate respirable crystalline silica dust. The fabrication of quartz products as well as granite requires that fabrication and processing be conducted under particularly diligent and stringent safety conditions.

We offer this manual as a means of providing information about the risks and health hazards associated with working with respirable crystalline silica dust and to assist in reducing worker's exposure to same, including safe use of products containing crystalline silica and protections that can be used.

This manual is not intended to supersede or replace any local, state or federal laws and/or regulations which are your responsibility to comply with.

We strongly recommend that you put into place a Silica Control Program within your organization in accordance with all applicable laws, regulations, orders and directives. We also recommend that you review this program on a periodic basis. Consulting with a health & Occupational Safety Professional is highly encouraged when putting together your program.

Silica Hazards

Vadara slabs contain approximately 90% crystalline silica (quartz, silica and cristobalite), and like all other natural stone product during the fabrication and processing of our material may produce dust containing fine particles of silica. This "dust" is commonly referred to as respirable crystalline silica dust.

The three fractions of dust that are of primary health concerns are; inhalable, thoracic and respirable dust. In the case of processing our material it is the respirable fraction of the dust that is of concern.

Anything that stops the lungs from performing their natural function of taking in air, extracting oxygen and expelling carbon dioxide can be potentially life threatening. The unprotected and uncontrolled occupational exposure and inhalation of these respirable crystalline silica particles without the safety measures required by law are dangerous and may cause severe illnesses such as; silicosis. Silicosis is a chronic and non-reversible disease which may cause severe disabilities and may be fatal.

Silicosis may cause severe complications such as: lung cancer, tuberculosis, and autoimmune diseases. Preexisting physical disorders may aggravate the adverse effects of exposure to silica dust.

It is important to understand that silicosis is an occupational disease that may affect workers in the stone fabrication industry. This is particularly important for those workers who fabricate and/or process granite, marble, quartz surfaces and other natural stones. This disease can affect the fabrication workers themselves, as well as, any other employee who is present at the fabrication facilities on a regular basis, examples are administrative staff and managers.

PROPOSITION 65 WARNING: Quartz surfaces contain crystalline silica, a material known to the State of California to cause cancer.

Prevention Measures

We strongly recommend that each facility that processes and/or fabricates quartz surfaces establish a Silica Control Program at those facilities. This program should be implemented with all applicable laws, regulations, orders and directives. This program should be reviewed on a periodic basis to ensure compliance throughout each facility.

This recommendation applies to the process of cutting, grinding, polishing quartz surfaces and not the slab as a product.

In addition, permissible exposure limits to respirable crystalline silica dust should be met. Exposure limits differ from country to country and we recommend consulting with a local expert regarding the requirements in your country.

It is the responsibility of the employer to provide their workers with all the information, tools and safety measures required in order to protect from the dangers of exposure to silica dust. The workers are responsible for fully implementing the control program and safety measures. Control access to the fabrication/processing area to authorized personnel only.

The following health & safety measures contained below are provided to assist the employer and the employees in understanding and implementing a Silicosis Control Program and is not intended to replace or supercede any laws, regulations, directives or other measures required by law.

Workplace Practices

- Avoiding exposure to dry silica is the best protection. Wherever possible implement fabrication techniques where all cutting, grinding, shaping and polishing is performed wet.
- Manual and automated tools should be wet operation.
- Professional designed electrical systems should be installed to ensure worker safety.
- Maintain all water systems in perfect working order according to system manufacturer guidelines.
- Clean & Maintain all drainage systems when using water sprays and hoses.
- Put preventative measures in place to prevent freezing in cold weather.
- Wet hosing not compressed air should be used for all clean up.
- Review current dust controls to determine if they are sufficient.
- Do not sweep silica dust with a broom.
- Consult your local regulations and laws for Permissible Exposure Limit (PEL) and/or Threshold Limit Value (TLV) limits for the legally allowable level of exposure to the different types of respirable silica dust.
- Perform regular checks of dust collection and expulsion systems.
- Ensure that captured dust cannot be spread to clean areas our outside the processing/fabrication areas.
- Display a “Hazardous Dust” sign in all areas of hazardous dust.
- Create a program and enforce rules for all employees to wear protective respiratory equipment in areas with hazardous dust.
- Have floor and wall surfaces that are hermetically sealed and easy to clean.

It is recommended to consult with industrial hygiene experts in implementing certain of these recommendations, such as creating a dust monitoring system, dust extraction, wall and flooring materials.

Personal Protective Equipment

Workers should always use Personal Protective Equipment (PPE) when working in hazardous areas. If dust production is not prevented by the use of water based machinery, workers must wear protective gear such as P3 masks, which should be used and replaced in accordance with manufacturer’s instructions. In cases of heavy exposure the use of industrial respirators is strongly recommended.

- Install appropriate and clearly visible signage making PPE mandatory in risk areas.
- PPE should comply with local legal requirements, and used and replaced according to manufacturer’s guidelines.
- Operators with facial hair should use air respirators since facial hair can reduce the effectiveness of a dust mask.
- Respiratory protection should be P3 classification.
- Train all employees on the use and maintenance of PPE and should check all equipment prior to each use.
- Ensure that employees use PPE.
- Keep accurate records.
- Provide overalls to employees in risk areas that prevent dust absorption.

Hygiene

- Provide bathroom facilities in the plant with toilets, showers, wash basins, and individual lockers for storing changes of clothing. Make two checkrooms available to all plant employees: one to change from home clothes into clean work clothes and another to change out of work clothes at the end of each work day.
- Employees should wear only designated work clothing at work, including footwear and socks. Employees should leave work clothes at the facility and never remove them from the facility.
- Launder all employees clothing and provide them clean clothes each day.
- Train employees on the importance of separating work clothes from clean clothing
- Employees should wash their hands and faces and change clothes before eating
- Permit eating, drink and smoking only in designated areas that are not exposed to hazardous dust.

Cleaning

- Ensure workplace, floors and all exposed surfaces are cleaned daily.
- Ensure that workplace is clean at the end of each shift.
- Create a schedule to clean all equipment and systems.
- Use both wet and vacuum cleaning methods.
- Provide ample connection points for both wet and vacuum systems connections.
- Use vacuum systems for dry spillage only.
- Use only dry cleaning with brushes when wet or vacuum cleaning is not possible.
- Clean all wet and dry spillage immediately.
- Do not allow dust and debris to dry before cleaning.
- Do not sweep with a dry broom, brush or use compressed air.
- Do not clean work clothes, machines or floors with compressed air.

Maintenance

- Maintain all equipment in good working order.
- Do not make changes or modifications to any working systems without consulting manufacturer or supplier.
- Keep instructions and diagram of installed systems in a safe place.
- Perform regular checks on inlet airflows, duct air speed, and filter pressure on ventilation systems.
- Check all systems a minimum of once a week or according to suppliers instructions.
- Keep inspection and maintenance records for the period of time required by law.

Training

It is extremely important that all employees receive ongoing training at all levels on safety issues that are specific to the workplace. Employee training should include the following:

- Clear guidelines for safe working procedures and good workplace practices
- Health, Safety and Hygiene training for all new employees
- Ongoing mandatory training sessions for existing employees to provide updates and review their knowledge of your health and safety procedures
- Review safety programs periodically to keep abreast and implement changes as required
- Inform employees of disposal methods of harmful substances such as respirable crystalline silica
- Provide training on the use of respiratory protective equipment and all other PPE
- Provide clear data regarding the risks associated with fabrication/processing
- Keep complete records of all training provided to employees
- Record employee attendance at all training sessions
- Encourage feedback and questions to improve training sessions
- Test employees knowledge after each training session to verify understanding of subjects covered.
- Keep inspection and maintenance records for the period of time required by law.

Monitoring

- Create and implement a health monitoring program for employees exposed to respirable silica dust, including medical and other tests as required by local regulations.

- Keep records following employment termination for the time period required by law.
- If an employee has been over exposed to respirable crystalline silica, provide them the details of the monitoring result.
- No one under age 18 should be employed in any role where they are exposed to silica dust.

Installation

- All surfaces should be fabricated in your facility and not at the end user's location.
- If the surface needs grinding or other dust producing modifications at the job site, use a wet method in an outdoor area. This should be performed using a P3 respiratory system along with eye and ear protection.
- If outdoor area is not available dust produced during modifications should be collected with a vacuum with a HEPA filter and the heating/air condition system sealed off.
- After installation, thoroughly clean the work surface and remove all dust. Carry out a final inspection by using a dry cleaning method and remove any remaining dust and debris with a portable vacuum cleaner.

Please not that grinding, polishing or cutting the surface's in the end user's home during installation or repair does not put the end user at any risk of disease. Silicosis and other lung diseases caused by respirable crystalline silica dust is developed only as a result of long-term, regular exposure.

Additional Information

Information on occupational safety and health administration is available at the following sources:

OSHA	www.osha.gov
International Labor Organization	www.ilo.org/safework
CDC	www.cdc.gov

Other sources are also available and it is suggested that you consult with an occupational health professional concerning all matters regarding control of respirable crystalline silica in your specific workplace.

The information contained herein is according to our knowledge current and accurate. However these guidelines are not intended to be a comprehensive manual for all topics covered. All the recommendations contained in this guide are general in nature and cannot account for specific conditions at each fabrication/processing facility.

None of the recommendations contained in this guide are intended to endorse any specific products or tools in violations of any laws or safety practices. Always consult with an occupational health professional or other experts regarding your specific workplace.

In the event that any of these guidelines conflict with your local regulations or laws, your local regulations and laws take precedence.

None of the information contained herein creates a contractual agreement between Vadara and any fabricator.

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