WorkSafe VICTORIA

## Compliance code

# Managing exposure to crystalline silica: Engineered stone

Edition 1

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VICTORIA State Government

# Contents

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# Preface

This Compliance Code (**Code**) provides practical guidance for those who have duties or obligations under the *Occupational Health and Safety Act 2004* (**OHS Act**) and the Occupational Health and Safety Regulations 2017 (**OHS Regulations**), in relation to exposure to crystalline silica as a result of working with engineered stone.

The Code was developed by WorkSafe Victoria (**WorkSafe**). Representatives of employers and employees were consulted during its preparation. It was made under the OHS Act and approved by Jill Hennessy MP, Minister for Workplace Safety.

Duty holders under the OHS Act and OHS Regulations should use this Code to assist them in complying with their duties under the OHS legislation.

While the guidance provided in the Code is not mandatory, a duty holder who complies with the Code will – to the extent it deals with their duties or obligations under the OHS Regulations or OHS Act – be taken to have complied with those duties or obligations.

If conditions at the workplace or the way work is done raise different or additional risks not covered by the Code, compliance must be achieved by other means. WorkSafe publishes guidance to assist with this at **worksafe.vic.gov.au**.

Failure to observe the Code may be used as evidence in proceedings for an offence under the OHS Act or OHS Regulations. However, a duty holder will not fail to meet their legal duty simply because they have not followed the Code. A WorkSafe inspector may cite the Code in a direction or condition in an improvement notice or prohibition notice as a means of achieving compliance.

A health and safety representative (**HSR**) may cite the Code in a provisional improvement notice when providing directions on how to remedy an alleged contravention of the OHS Act or OHS Regulations.

Approval for the Code may be varied or revoked by the Minister. To confirm the Code is current and in force, go to **worksafe.vic.gov.au**.

**Note**: The Occupational Health and Safety Amendment (Crystalline Silica) Regulations 2021 (Crystalline Silica Regulations) came into effect on 15 November 2021.

This Compliance Code has not yet been updated to reference, or reflect any changes introduced by, the Crystalline Silica Regulations. Complying with the guidance after 15 November 2021 may not necessarily mean compliance with a duty under the Crystalline Silica Regulations.

Information reflecting changes introduced by the Crystalline Silica Regulations relating to engineered stone can be found at **worksafe.vic.gov.au/crystalline-silica**.

# Part 1 – Introduction

## Purpose

1. The purpose of this Code is to provide practical guidance to duty holders on how to comply with their duties under the OHS Act to manage the health and safety risks associated with exposure to airborne crystalline silica dust generated by working with engineered stone. This includes duties under Parts 4.1 (Hazardous substances) and 4.5 (Crystalline silica) of the OHS Regulations.

## Scope

2. In circumstances where engineered stone is used in a workplace, duty holders may have duties under both Part 4.1 and Part 4.5 of the OHS Regulations, to control health and safety risks associated with exposure to crystalline silica.

3. This Code provides information for duty holders about meeting their obligations under both of those Parts of the OHS Regulations, and specific duties under the OHS Act, where relevant (eg manufacturer and supplier duties, employer's duty to consult with employees).

4. This Code also provides information about how to identify hazards and control the risks associated with exposure to crystalline silica when working with engineered stone.

5. It is not possible for this Code to deal with every risk associated with crystalline silica exposure that a duty holder may encounter at their workplace. The guidance in this Code needs to be considered with regard to the particular activities undertaken and the characteristics and circumstances of the workplace.

6. This Code is not intended to replace the Hazardous substances compliance code, which also provides practical guidance on how to comply with duties under Part 4.1 of the OHS Regulations. While this Code deals with specific circumstances (such as working with engineered stone), the Hazardous substances compliance code should be referred to for all other situations involving work with a hazardous substance or with silica dust generated from materials other than engineered stone.

## Application

7. This Code applies to a range of duty holders at workplaces where engineered stone is used, including:

   - manufacturers
   - suppliers, including importing suppliers
   - persons who have management or control of a workplace
   - employers
   - self-employed persons
   - employees, including independent contractors.

   It may also be useful for HSRs.

8. A workplace is a place, whether or not in a building or structure, where employees or self-employed persons work. OHS Act s5 For example, workshops where engineered stone slabs are manufactured, benchtop fabrication workshops and installation sites such as domestic premises.

# Part 1 – Introduction

## What is crystalline silica?

**Note**: The word **must** indicates a legal requirement that has to be complied with. The words **need(s) to** are used to indicate a recommended course of action in accordance with duties and obligations under Victoria's health and safety legislation. The word **should** is used to indicate a recommended optional course of action.

9. Crystalline silica is the crystalline form of silicon dioxide, or silica, a naturally occurring mineral that forms a major component of most rocks. The most common type of crystalline silica is quartz, which is found in sand, stone and granite.

10. Materials containing crystalline silica are used to make a variety of products, including engineered stone, concrete, ceramic tiles, bricks and mortar. The amount of crystalline silica in these products varies depending on the type of product. To find out how much crystalline silica is in a product, refer to the safety data sheet (SDS) or product information from the supplier.

11. When products containing crystalline silica (such as engineered stone) are subjected to processes such as cutting, grinding or polishing, very fine dust is released into the air. Some dust particles released, known as respirable crystalline silica, are so small they cannot be seen by the naked eye. Respirable crystalline silica dust can be inhaled deep into the lungs where it can lead to serious health effects.

## What is engineered stone?

12. Engineered stone is also known as reconstituted, artificial or manufactured stone and quartz conglomerate. It is a manufactured composite stone material that contains resins and has a crystalline silica content of 80 per cent or greater. OHS Regulations r319B It can contain up to 95 per cent crystalline silica.

13. In its solid form, such as in slabs supplied to workplaces, engineered stone does not have hazardous properties.

14. However, these products are commonly used to make bathroom and kitchen benchtops. People working in this industry are at high risk of exposure to respirable crystalline silica dust, because their work involves cutting, grinding and polishing these materials with high speed power tools. Other stone products used in this industry also have some crystalline silica content, however the concentration is much lower than engineered stone. For more information about the crystalline silica content of common stone products, see **Appendix C**.

# Part 1 – Introduction

## Health risks

15. Respirable crystalline silica can be harmful when it becomes airborne and is inhaled. Exposure to high airborne concentrations over a short period of time, or low to medium airborne concentrations over a long period of time can lead to serious diseases, including:
    - silicosis
    - lung cancer
    - kidney disease
    - autoimmune disease.
16. Silicosis is a serious, incurable, irreversible and progressive disease. It occurs with the body's immune response to the presence of crystalline silica dust in the small airways and tiny air sacs (alveoli) of the lungs, and results in scarring the lung tissue. In the early stages there will not be any warning symptoms, but as the disease progresses symptoms such as shortness of breath, coughing, fatigue and weight loss will develop. In severe cases, the damage to the lungs caused by silicosis can require a lung transplant or may lead to death.
17. There are three types of silicosis:
    - Acute silicosis, which can develop after a short exposure to very high levels of silica dust (within a few weeks or years), and causes severe inflammation and an outpouring of protein into the lung.
    - Accelerated silicosis, which can develop after exposure of 3 to 10 years of moderate to high levels of silica dust and causes inflammation, protein in the lung and scarring of the lung (fibrotic nodules).
    - Chronic silicosis, which can develop after long term exposure to lower levels of silica dust and causes fibrotic nodules and shortness of breath. It can include progressive massive fibrosis where the fibrotic nodules in the lung aggregate.
18. In recent years, identified cases of silicosis have been increasing. In particular, cases of accelerated silicosis have significantly increased, most commonly occurring in people working with engineered stone.

## Who has duties?

**Note**: The OHS Act sets out general duties that apply to employers, employees, manufacturers, importers and suppliers. The OHS Regulations specify the way in which duties imposed by the OHS Act must be performed. Duty holders must ensure they are complying with their obligations under both the OHS Act and the OHS Regulations. For information about the compliance framework see **Appendix A**.

### Employers

19. Employers must provide and maintain, so far as is reasonably practicable, a working environment for their employees that is safe and without risks to health. OHS Act s21

For information about what reasonably practicable means when complying with Part 3 of the OHS Act or the OHS Regulations, see the WorkSafe Position *How WorkSafe applies the law in relation to reasonably practicable* at **worksafe.vic.gov.au**.

20. To ensure that employers provide a working environment that is safe and without risks to health, they must eliminate risks to health and safety so far as is reasonably practicable, and if it is not reasonably practicable to eliminate the risks to health and safety, reduce those risks so far as is reasonably practicable. OHS Act s20

21. Employers must, so far as is reasonably practicable, monitor conditions at any workplace under the employer's management and control. OHS Act s22(1)(b)

22. Employers must also, so far as is reasonably practicable, ensure that persons other than employees are not exposed to risks to their health or safety arising from the business activities undertaken by the employer. OHS Act s23

23. An employer's duties under sections 21 and 35 of the OHS Act and regulations that set out the way an employer complies with their duties to employees under those sections of the OHS Act extend to independent contractors engaged by the employer and any employees of an independent contractor working at the workplace. However, these extended duties are limited to matters over which the employer has control. OHS Act s21(3) and 35(2), OHS Regulations r8(1)

24. Employers also have a number of duties under Part 4.1 (Hazardous substances) of the OHS Regulations, to manage risks associated with exposure to crystalline silica in the workplace. These duties include but are not limited to:

- ensuring that the risks associated with exposure to crystalline silica in the workplace are controlled, so far as is reasonably practicable OHS Regulations r163
- reviewing and, if necessary, revising any measures implemented to control risks associated with crystalline silica at the workplace OHS Regulations r164
- ensuring that employees (including independent contractors) are not exposed to an atmospheric concentration of crystalline silica dust generated at the workplace above the relevant exposure standard OHS Regulations 165
- ensuring that atmospheric monitoring OHS Regulations r166 and health monitoring is carried out when required. OHS Regulations r169

For more information about complying with these duties see Part 3 of this Code.

## Specific duties: Using power tools to cut, grind or polish engineered stone

25. A ban on the uncontrolled dry cutting of engineered stone is in effect in Victoria.

26. An **employer**, a **self-employed person** or a **person who manages or controls a workplace** must ensure that a power tool is not used for cutting, grinding or abrasive polishing of engineered stone at a workplace unless the use is controlled.

27. Under Part 4.5 of the OHS Regulations, the use of a power tool is controlled if it is used with:

a) an integrated water delivery system that supplies a continuous feed of water, or

b) a commercially available on-tool extraction system connected to a Dust Class H vacuum or another suitable system that captures the dust generated, or

c) where the controls listed at (a) and (b) are not reasonably practicable, local exhaust ventilation. OHS Regulations r319C(2)(a)

For information about these controls see pages 24 to 29 of this Code.

28. An employer, a self-employed person or a person who manages or controls a workplace must also provide a person who is undertaking cutting, grinding or polishing of engineered stone with respiratory protective equipment that is suitable for the activity being carried out. OHS Regulations r319C(2)(b)

    For more information about complying with these duties see Part 3.3 of this Code.

## Self-employed persons

29. A **self-employed person** must ensure, so far as is reasonably practicable, that persons are not exposed to risks to their health or safety arising from the business activities of the self-employed person. OHS Act s24 and OHS Regulations r11

## Employees

30. **Employees** while at work must take reasonable care for their own health and safety and that of others who may be affected by their acts or omissions in the workplace. Employees must also cooperate with their employer's actions to make the workplace safe, for example, by following any information, instruction or training provided. OHS Act s25(1)

## Manufacturers and suppliers

31. **Manufacturers** of substances (such as engineered stone) who know, or ought reasonably to know, that the plant or substance is to be used at a workplace must give adequate information to each person to whom they provide the substance concerning any conditions necessary to ensure that the substance is safe and without risks to health if it is used for a purpose for which it was manufactured. OHS Act s29 For example, information may be supplied in the form of a safety data sheet (SDS). For more information about complying with this duty see Part 2 of this Code.

32. **Suppliers**, including importing suppliers, of substances (such as engineered stone) who know, or ought reasonably to know, that the substance is to be used at a workplace (whether by the person to whom it is supplied or anyone else) must give adequate information to each person to whom they supply the substance concerning any conditions necessary to ensure that the substance is safe and without risks to health if it is used for a purpose for which it was designed, manufactured or supplied. OHS Act s30 For example, information may be supplied in the form of a safety data sheet (SDS). For more information about complying with this duty see Part 2 of this Code.

# Part 1 – Introduction

## Which duties apply to you?

### Manufacturers

Duties for a manufacturer apply to anyone who creates engineered stone slabs from their composite elements of quartz and resins.

### Suppliers

These duties apply to anyone who obtains engineered stone slabs from a manufacturer or a reseller, and on-supplies them for use in a workplace. The duties are the same for suppliers who import the slabs from overseas or obtain them locally. A supplier includes:

- anyone who directly resells slabs without modifying them
- fabricators who modify slabs and supply them as finished products, such as benchtops.

### Employers

These duties apply at any workplace where engineered stone is used. This includes manufacturing and supplier workplaces, in addition to fabrication workshops and installation sites for the final product.

### Person who manages or controls a workplace

These duties apply at any workplace where power tools are used to cut, grind or abrasively polish engineered stone. For example, this may include the principal contractor at an installation site.

**Example: A benchtop fabrication workshop that purchases engineered stone slabs from an overseas supplier**

In the workshop, engineered stone slabs are shaped into kitchen benchtops, which are then sold to a builder. The benchtops are installed by employees of the fabricators.

For the fabrication and installation work, duties apply for:

- employers
- any self-employed persons working at the workplace
- persons who manage or control a workplace (such as a principal contractor at the installation site)
- employees.

In addition, the fabricators are supplying the engineered stone product for use in a workplace (the construction site), so the supplier duties also apply.

# Part 1 – Introduction

## The risk management process

33. This Code outlines a risk management process (see diagram 1) to help employers comply with their duties under the OHS Act and OHS Regulations. The risk management process involves the following steps:

- Identifying hazards associated with exposure to crystalline silica in the workplace (see Part 3.1 of this Code).
- Assessing, where necessary, any associated risks (if unsure of appropriate risk controls) (see Part 3.2 of this Code).
- Controlling risks associated with exposure to crystalline silica in the workplace (see Parts 3.3 to 3.5 of this Code).
- Monitoring, reviewing, and where necessary, revising risk controls (see Part 3.6 of this Code).

**Note**: There are certain circumstances where each step of the risk management process needs to occur, see Part 3 of this Code for further information.

**Diagram 1 – The risk management process**


## Consultation

34. Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect, or are likely to directly affect them. This duty to consult also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control. OHS Act s35

**Note**: The characteristics of the workplace will have an impact on the way consultation is undertaken. For example, consider:

- the size and structure of the business
- the nature of the work
- work arrangements (such as shift work)
- characteristics of employees (such as language or literacy).

Go to **worksafe.vic.gov.au** for more information on consultation.

35. An employer has a duty to consult with employees (including HSRs, if any) and independent contractors when, for example, identifying or assessing hazards or risks to health or safety at the workplace, making decisions about measures to control such risks and proposing changes that may affect the health or safety of employees at the workplace. OHS Act s35

36. It is important to consult with your employees as early as possible when planning to:

- introduce new work or change existing work
- select new plant
- refurbish, renovate or redesign existing workplaces
- carry out work in a new environment.

37. Employers who are required to consult on a matter must share information about the matter with employees, including independent contractors and HSRs (if any). Employees must be given a reasonable opportunity to express their views, and those views must be taken into account before a decision is made. If employees are represented by an HSR, the consultation must involve that HSR (with or without the involvement of the employees directly). If the employer and the employees have agreed to procedures for undertaking consultation, the consultation must be undertaken in accordance with those procedures. OHS Act s35

38. Employees and contractors may have practical suggestions or potential solutions that can be implemented.

## Information, instruction, training and supervision

39. Employers must provide employees with any necessary information, instruction, training or supervision to enable them to perform their work in a way that is safe and without risks to health. This duty also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control. OHS Act s21(2)(e)

40. The mix of information, instruction, training or supervision required will depend on the frequency and type of hazards in the workplace, and how much employees already know about the risks and necessary risk control measures.

41. Information, instruction and training needs to cover the nature of the hazards associated with hazardous substances such as crystalline silica used in the workplace, including the need for risk control measures and how to properly use and maintain them.

42. Employers must provide supervision to employees where such supervision is necessary for safe work. OHS Act 21(2)(e) For example, when engineered stone is being cut for the first time in a workplace or by an employee or with new machinery. This is particularly important with employees who are more vulnerable in their work areas, such as new, inexperienced or young employees.

43. Where employees undertaking the work are new and inexperienced, such as young workers, it is often necessary to provide additional supervision.

# Part 1 – Introduction

44. When providing information, instruction and training to employees and independent contractors it is important to include information about:
    - the risk management process
    - information provided by the manufacturer or supplier about the engineered stone being used in the workplace
    - hazards and potential risks associated with exposure to crystalline silica dust
    - appropriate work practices and procedures to be followed when working with engineered stone
    - control measures, including information on the correct use and maintenance of risk controls
        - including working off-site (for example installing stone benchtops)
        - waste collection and disposal
    - how to fit, use, maintain and clean personal protective equipment (PPE)
    - emergency procedures, including any special decontamination procedures
    - first aid and incident reporting procedures to be followed in case of injury or illness
    - the purpose and results of air monitoring
    - the types of health tests that may be required for employees working with engineered stone.
45. Training programs should be practical and 'hands on'. The structure, content and delivery of the training needs to take into account any special requirements of the employees and independent contractors being trained. For example, information, instruction and training may need to be provided in a language other than English. Other considerations for how training is delivered include specific skills or experience, disability, literacy and age.
46. Employers need to review their training programs regularly and also when:
    - there is a change to work processes, plant or equipment
    - there is an incident
    - new control measures are implemented
    - there is a request by an HSR
    - changes are made to relevant legislation, or
    - any other issues may impact on the way work is performed.
47. Employers should also keep records of induction and training given to employees.
48. Refresher training needs to be provided as appropriate for the workplace. The frequency of refresher training should be determined having regard to the complexity of the work, the skills required and the frequency with which tasks or work are carried out.

# Part 2 – Duties of manufacturers, importing suppliers and suppliers

49. In its solid form, such as in slabs supplied to workplaces, engineered stone does not have hazardous properties. However, dust generated when the slabs are processed (for example through cutting, grinding or polishing) will contain high concentrations of respirable crystalline silica.

50. Manufacturers, importing suppliers and suppliers of substances, including engineered stone products, have a duty to provide information about the conditions necessary to ensure their products are safe to work with.

51. Information needs to be provided in a clear and effective format, such as a safety data sheet (SDS), throughout the supply chain and to end users. The information needs to clearly state the risks associated with processing engineered stone products. In particular, it needs to include:

- the percentage of crystalline silica contained in the product
- the hazardous properties and risks to health of respirable crystalline silica
- risk controls that need to be used when processing the engineered stone product.

***substance*** means any natural or artificial substance, whether in the form of a solid, liquid, gas or vapour OHS Act s5

## Duties of manufacturers

52. A person who manufactures a substance, such as engineered stone, who knows, or ought reasonably to know, that the plant or substance is to be used at a workplace, must:

- ensure, so far as is reasonably practicable, that it is manufactured to be safe and without risks to health if it is used for a purpose for which it was manufactured
- carry out, or arrange the carrying out of, any testing and examination necessary for the performance of the duty to ensure the substance is safe and without risks to health if it is used for a purpose for which it was manufactured
- provide adequate information to each person they provide the substance to concerning:
  - the purpose or purposes for which the plant was manufactured
  - the results of any testing or examination
  - any conditions necessary to ensure that the substance is safe and without risks to health if it is used for a purpose for which it was manufactured, and
- on request, give such information to a person who uses or is going to use the substance. OHS Act s29

53. Manufacturers should provide an effective piece of information, for example a safety data sheet (SDS). The information needs to be in English and in a format that is clear and easy to understand. For more information about SDSs, see paragraphs 58 to 60.

# Part 2 – Duties of manufacturers, importing suppliers and suppliers

## Duties of suppliers

54. Most of the engineered stone products used in Victorian workplaces are supplied from overseas manufacturers. Duties for suppliers of substances, such as engineered stone, apply to both local and importing suppliers.

55. A supplier of a substance who knows, or ought reasonably to know, that the substance is to be used at a workplace (whether by the person to whom it is supplied or anyone else), must:

- ensure, so far as is reasonably practicable, that it is safe and without risks to health if it is used for a purpose for which it was designed, manufactured or supplied
- give adequate information to each person to whom the supplier supplies the substance concerning:
  - the purpose or purposes for which the substance was manufactured or supplied
  - any conditions necessary to ensure that the substance is safe and without risks to health if it is used for a purpose for which it was designed, manufactured or supplied
- on request, give such information to a person who uses or is to use the substance. OHS Act s30

56. The information must be provided when the engineered stone is supplied, as well as on request. OHS Act s30(1)(b)

57. Suppliers need to obtain the information about products they are supplying from the manufacturer. The information needs to be in English and in a format that is clear and easy to understand. The most convenient and readily recognisable form to provide this information in is a SDS. Product labels or similar documents with information about the product can also be fixed to engineered stone slabs. For more information about SDSs, see paragraphs 58 to 60.

## Safety data sheets (SDS)

58. An SDS provides vital information for end users of substances with hazardous properties, so that they know how to use the products safely. It describes, for example, the identity, properties, health hazards, precautions for use and safe handling of a substance.

59. SDSs need to be clear and easy to understand. Where appropriate, standardised hazard and precautionary statements, such as 'may cause cancer by inhalation', need to be used.

60. A manufacturer or supplier may choose to provide SDSs in languages that are predominant in a particular workplace, in addition to providing them in English. For more information about what an SDS should include see the Hazardous substances compliance code at **worksafe.vic.gov.au**.

# Part 3 – Working with engineered stone

## 3.1 Identifying hazards

61. Processes such as the cutting, grinding, drilling or polishing of engineered stone generate a large amount of dust. When these processes are performed without appropriate controls in place, employees can be exposed to hazardous levels of respirable crystalline silica.

62. Employers need to consider the types of tools that are used for cutting, shaping and joining engineered stone both in fabrication workshops and on job sites during installation. For example, powered hand held tools, such as circular saws or grinders generate high levels of airborne dust that contains respirable crystalline silica.

63. Poor housekeeping can be a secondary source of exposure to respirable crystalline silica, including the build up of settled dust around equipment and workstations, on floors or in waste collection areas, particularly when slurry solutions are allowed to dry out. For example, once settled dust is dry it can be disturbed by:

    - dry-sweeping, compressed air or high-pressure water
    - people or vehicles moving around the work area
    - wind or air movement.

### Where exposure to respirable crystalline silica can occur

64. Employees, such as shapers, machine operators, finishers and polishers who cut, grind, drill, polish or otherwise modify engineered stone are at the highest risk of exposure to respirable crystalline silica, both in the fabrication workshop and at the installation site. Other trades who make modifications at the installation site, such as plumbers and electricians, are also at risk of exposure.

65. When respirable crystalline silica dust becomes airborne, it can travel through the atmosphere to different parts of the workplace, exposing employees performing other tasks in or near the immediate work area to high levels of dust. This includes supervisors, maintenance and cleaning personnel, forklift drivers and, at the installation site, other trades.

66. Employers should also consider the potential risk to office workers in workplaces where engineered stone processes are carried out. These employees may be exposed if background levels of respirable crystalline silica are high or if their roles mean they frequently access processing areas. For example, office workers may be exposed if they walk through or perform tasks in or near a benchtop fabrication area.

67. Exposure can also occur when dust is transferred to break areas such as lunch rooms, due to poor housekeeping and personal decontamination practices.

# Part 3 – Working with engineered stone

## 3.2 Assessing risks

68. A risk assessment involves considering what could happen if employees are exposed to a hazard and the likelihood of it happening. For work involving engineered stone, employers should consider:
    - how, where and for how long workers could be exposed to respirable crystalline silica dust
    - the control measures you have in place to control the exposure dust
    - how to monitor the effectiveness of control measures.
69. When power tools are used to cut, grind or polish engineered stone, certain control measures must be used. This needs to be factored into the risk assessment. For information about the required controls, see Part 3.3 of this code.
70. For work with engineered stone that does not involve power tools, a risk assessment may be unnecessary if knowledge and understanding of the risk, and how to control it already exist. For example, an employer in a kitchen benchtop processing workplace may know that there is a risk of exposure to respirable crystalline silica through inhalation when cleaning tasks are undertaken. If the employer knows that this risk can be controlled by using wet methods, local exhaust ventilation systems and making sure employees and contractors wear appropriate PPE, as well as regular air monitoring, they can go straight to implementing risk controls without conducting an assessment.

## Crystalline silica exposure standard

**What is an exposure standard?**

An exposure standard is a maximum airborne concentration of a substance that a person may be exposed to in their breathing zone, averaged over an 8 hour work day and 40 hour work week.

For the purposes of the OHS Regulations, exposure standard means an exposure standard set out in the *Workplace Exposure Standards for Airborne Contaminants* published by SafeWork Australia. OHS Regulations r5

71. An employer must ensure that an employee's exposure (including independent contractors) to a hazardous substance, such as respirable crystalline silica, does not exceed the exposure standard. OHS Regulations r165
72. Employers must also eliminate or reduce, so far as is reasonably practicable, risks associated with exposure to airborne respirable crystalline silica dust in a workplace. OHS Regulations r163
73. The exposure standard for respirable crystalline silica dust is 0.05 mg/m$^3$ as a TWA (time-weighted average ) airborne concentration over eight hours. An eight hour time-weighted average exposure standard is the average airborne concentration of a particular substance permitted over an eight hour working day and five day working week.

# Part 3 – Working with engineered stone

74. WorkSafe Victoria recommends that employees are not exposed to levels above 0.02 mg/m$^3$ as an eight hour TWA. This is a precautionary measure to prevent silicosis, and to minimise the risk of lung cancer.

75. Where employees have a working day longer than eight hours, a working week longer than 40 hours, or work shift rotations in excess of either eight hours a day or 40 hours a week, the TWA exposure standard needs to be adjusted. Adjustments need to compensate for greater exposure during longer work shifts and decreased recovery time between shifts. For more information about adjusting TWA exposure standards for extended work shifts, see Safe Work Australia's *Guidance on the interpretation of workplace exposure standards for airborne contaminants*.

76. The workplace exposure standard does not represent a line between 'safe' and 'unsafe' airborne concentrations of respirable crystalline silica. Everyone is different, and this means that some people might experience adverse health effects below the exposure standard. Therefore, efforts should be made to reduce exposure as much as possible.

## Effectiveness of control measures

77. The effectiveness of any control measure used to control exposure to respirable crystalline silica depends on how the control is designed, installed, used and maintained. For example, the level of exposure to airborne dust is affected by whether:

- water spray is appropriately contained when power tools with water suppression are used
- integrated water systems use fresh or sufficiently filtered watered
- wet slurry is managed so that it does not dry out
- RPE is properly fit tested.

78. The level of a person's exposure to respirable crystalline silica is also impacted by work procedures after the processing work is complete, such as housekeeping and waste management. For example, even if water suppression is used to control the risk of employee exposure while engineered stone is being processed, the use of inappropriate cleaning methods such as compressed air can significantly increase the level of airborne respirable crystalline silica.

79. Employers need to establish and regularly check the effectiveness of controls in their workplace through air monitoring. For information about when air monitoring is required, see paragraphs 86 to 88.

80. Employers should also regularly undertake inspections of controls, to ensure they are in good working condition. For more information about inspection and maintenance of controls see Part 3.6 of this Code.

# Part 3 – Working with engineered stone

## Air monitoring

### Atmospheric monitoring (personal air monitoring)

81. Atmospheric monitoring is a procedure by which air is sampled within the breathing zone of a person to measure and evaluate the person's exposure to airborne contaminants. OHS Regulations r5

82. The breathing zone is a hemisphere with a radius of 300mm, extending in front of a person's face, and measured from the mid-point of an imaginary straight line joining the ears.

83. The workplace exposure standard for respirable crystalline silica is based on the levels found in a person's breathing zone, outside of any respiratory protective equipment that may be in use.

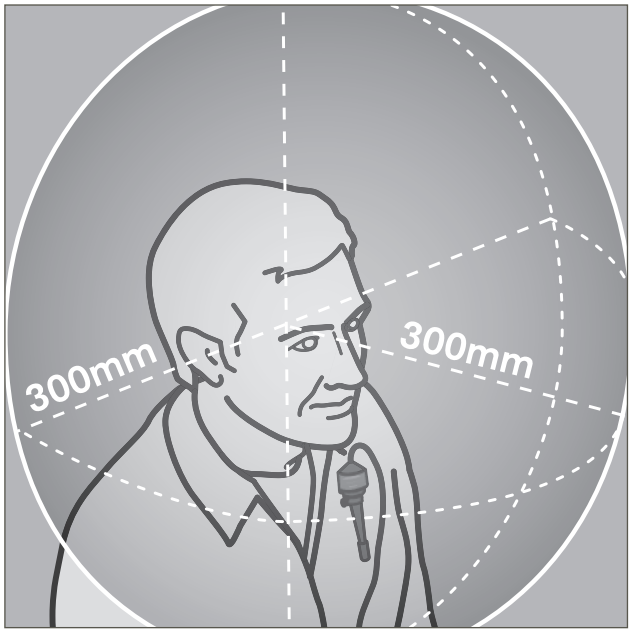



*Figure 1: The breathing zone*

*Figure 2: Personal air monitoring equipment*

84. While atmospheric monitoring does not prevent disease and is not an alternative to controlling exposure, it is important to:

- ensure employee exposure is not exceeding the exposure standard
- check the ongoing effectiveness of any control measures
- check that any new controls are working effectively
- inform employees of the pattern of exposure to the risk of respirable crystalline silica
- help choose the right level of respiratory protection
- inform health monitoring requirements.

85. Under the OHS Regulations, employers must ensure that atmospheric monitoring is carried out for crystalline silica dust generated at the employer's workplace where:

- there is uncertainty (based on reasonable grounds) as to whether the exposure standard is or may be exceeded, or
- atmospheric monitoring is necessary to determine whether there is a risk to health. OHS Regulations r166

# Part 3 – Working with engineered stone

## When is air monitoring required?

86. There is insufficient evidence to show that any single control or combination of controls is guaranteed to keep exposure to respirable crystalline silica below the exposure standard when power tools are used on engineered stone.

87. An ongoing air monitoring program is required to confirm that the exposure standard for respirable crystalline silica is not being exceeded. Employers need to conduct ongoing air monitoring, at least once every six months.

88. In addition to the ongoing schedule, employers should conduct air monitoring:

- when there are changes to work practices, the materials being used or the work environment
- if a health monitoring report for an employee indicates a negative change in health status which may be related to silica exposure
- if an HSR requests a review of control measures
- there are changes to the workplace exposure standard, and previous air monitoring results have indicated levels about the new standard.

## Who can conduct air monitoring?

89. Atmospheric monitoring, and the interpretation of the results (including comparison with the exposure standard) needs to be undertaken by a person with the requisite skills, knowledge and experience, such as an occupational hygienist.

90. The Australian Institute of Occupational Hygienists (AIOH) represents the occupational hygiene field. A list of service providers with the right experience to conduct atmospheric monitoring can be found at **aioh.org.au**.

## What does air monitoring involve?

91. Air monitoring needs to be conducted in a way that ensures sufficient samples are collected to be truly representative of the usual employee exposure levels in the workplace. For example, by monitoring all tasks involving exposure to respirable crystalline silica. Tasks may be split into similar exposure groups such as:

- the operation of automated cutting machines
- benchtop finishing with hand tools
- cleaning or maintenance activities performed in the vicinity of processing work.

92. Depending on the number of employees in the workplace, monitoring may need to be undertaken on more than one occasion. For example, in a small workplace with 6 or less employees, each employee may need to be monitored over consecutive days to gather enough sampling for accurate results.

93. More information about personal sampling can be found in AS 2985 Workplace atmospheres – *Method for sampling and gravimetric determination of respirable dust*.

## Who can analyse the atmospheric monitoring samples?

94. The analysis of respirable crystalline silica samples should be undertaken by a competent laboratory, such as a laboratory accredited by the National Association of Testing Authorities (NATA) for crystalline silica (quartz) analysis. To confirm if a laboratory is accredited go to the NATA website at **nata.com.au**.

# Part 3 – Working with engineered stone

## Results of atmospheric monitoring

95. An employer must provide the results of any atmospheric monitoring at their workplace as soon as reasonably possible to any employee who has been, or who may be, exposed to the hazardous substance (such as crystalline silica) that is the subject of the monitoring. OHS Regulations r167
The air monitoring report should be made available to an inspector on request and if any relevant health monitoring is being conducted, to the medical practitioner.

96. Employers must keep records of atmospheric monitoring result for 30 years. Those records must be readily accessible to any employees who have been, or may be, exposed to the hazardous substance. OHS Regulations r168

## Results exceeding the exposure standard

97. If air monitoring results exceed the workplace exposure standard, an investigation should be conducted and documented, including any corrective actions taken to eliminate or reduce the exposure to below the exposure standard.

98. As soon as corrective action has been taken, follow up air monitoring needs to be conducted to confirm that the exposure standard is no longer being exceeded.

99. The results of an investigation should be provided to employees and, on request, HSRs and inspectors.

## Static monitoring

100. Static or fixed position monitoring may be undertaken at fixed workplaces, such as fabrication workshops, to determine general background levels of respirable crystalline silica outside of employees' breathing zones.

101. Static monitoring involves taking samples of air from fixed locations outside the area where the engineered stone is being processed.

102. Static monitoring can help in determining the design of risk controls or the effectiveness of existing risk controls, however it should not be used as an indicator of actual employee exposure to respirable crystalline silica.

# Part 3 – Working with engineered stone

## 3.3 Prohibition on uncontrolled dry cutting of engineered stone

103. A ban on the uncontrolled dry cutting of engineered stone is in effect in Victoria. The ban applies at any workplace where power tools are being used to process engineered stone, such as in a fabrication workshop or at an installation site.

104. An employer, a self-employed person or a person who manages or controls a workplace must ensure that a power tool is not used for cutting, grinding or abrasive polishing of engineered stone at a workplace unless the use is controlled. OHS Regulations r319C(1)

105. The use of a power tool is controlled if it is used with:

    a) an integrated water delivery system that supplies a continuous feed of water, or

    b) a commercially available on-tool extraction system connected to a Dust Class H vacuum or another suitable system that captures the dust generated, or

    c) where the controls listed at (a) and (b) are not reasonably practicable, local exhaust ventilation. OHS Regulations r319C(2)(a)

106. In addition to the controls specified in paragraph 105, an employer, self-employed person or a person who manages or controls a workplace must provide a person who is undertaking cutting, grinding or polishing of engineered stone with respiratory protective equipment that is suitable for the activity being carried out. OHS Regulations r319C(2)(b)

107. An employer, a self-employed person or a person who manages or controls a workplace must also ensure that any controls used in accordance with paragraph 105 are properly designed, installed, used and maintained so that they are effective in reducing exposure to airborne crystalline silica dust generated as a result of cutting, grinding or abrasive polishing of engineered stone. OHS Regulations r319C(3)

108. For information about on-tool water suppression, on-tool dust extraction, local exhaust ventilation and respiratory protective equipment see Part 3.4 of this code.

109. In addition to the legal duties set out in Part 4.5 of the OHS Regulations, employers also have duties under Part 4.1 (Hazardous substances) of the OHS Regulations to, for example, reduce risks associated with crystalline silica dust as far as is reasonably practicable using the hierarchy of control. For information about the hierarchy of control see Part 3.4 of this code.

There are consequences for employers who don't control the risks of dry cutting. If cutting, polishing or grinding of engineered stone is undertaken without appropriate controls in place, enforcement action, including prosecution, may be taken. Failing to control the risks of dry cutting is a breach of the OHS Regulations and may be a criminal offence.

# Part 3 – Working with engineered stone

## 3.4 Controlling risks

**Required controls when using a power tool to cut, grind or polish engineered stone**

Under Part 4.5 of the OHS Regulations, certain controls must be used when power tools are used to cut, grind or polish engineered stone. Duty holders must ensure the specified controls are used for these activities. The hazardous substances hierarchy of control must then be used to reduce any remaining risk associated with the work. For more information see Part 3.3 of this code.

110. In addition to the requirements under Part 4.5 of the OHS Regulations, the hierarchy of control set out in Part 4.1 of the OHS Regulations must also be followed when controlling risks associated with exposure to crystalline silica dust.

111. Under this hierarchy of control, employers must consider and apply the highest level of control (starting from level 1 – see table 1), so far as is reasonably practicable, before considering the level below it. Controlling the risk may involve a single control measure or a combination of two or more different controls. Examples of controls are set out in table 1.

112. An employer must, so far as is reasonably practicable, eliminate any risk associated with exposure to crystalline silica at their workplace. OHS Regulations r163(1)

113. If it is not reasonably practicable to eliminate a risk associated with crystalline silica, the employer must reduce the risk so far as is reasonably practicable by:

- substituting the substance with a substance that is less hazardous, or a less hazardous form of the substance, or
- isolating the source of exposure to the hazardous substance, or
- using engineering controls, or
- using a combination of these measures. OHS Regulations r163(2)

114. If the controls listed in paragraph 113 have been implemented, so far as is reasonably practicable, and a risk remains, an employer must reduce the risk so far as is reasonably practicable by using administrative controls. OHS Regulations r163(3)

115. If the controls listed in paragraphs 113 and 114 have been implemented, so far as is reasonably practicable, and a risk remains, the employer must reduce the risk, so far as is reasonably practicable, by providing appropriate personal protective equipment to employees at risk. OHS Regulations r163(4)

# Part 3 – Working with engineered stone

Table 1 – Hierarchy of control

| Level | Example |
|---|---|
| **Level 1:**<br>**Eliminate the risk** | Use materials that do not contain crystalline silica. |
| **Level 2:**<br>**Reduce the risk by using substitution** | Use materials with a lower crystalline silica content, such as natural stone. |
| **Level 3:**<br>**Reduce the risk by using isolation** | Use automated wet machines to cut, grind or polish engineered stone slabs. |
| **Level 4:**<br>**Reduce the risk by using engineering controls** | Use hand held tools with on-tool water suppression or dust extraction. |
| **Level 5:**<br>**Reduce the risk by using administrative controls** | Design shifts to include rotation between high exposure and low exposure tasks. |
| **Level 6:**<br>**Reduce the risk by providing PPE** | Provide respiratory protective equipment (RPE) such as a half face negative respirator or powered air purifying respirator (PAPR). |

116. Employers need to use a combination of control measures to minimise the risk of exposure as much as possible. For example, by using:
    - a hand held grinder that has an integrated water feed and appropriate guarding to control water spray
    - local exhaust ventilation, positioned as close as possible to the source of mist that may contain silica particles
    - respiratory protective equipment.

117. Employers must consult, so far as is reasonably practicable, with their employees, HSRs (if any) and independent contractors, when making decisions about how to control risks. OHS Act s35

118. When investigating risk control measure options, employers need to also consider whether a risk control measure will introduce additional risks.

# Part 3 – Working with engineered stone

## Eliminate

119. Elimination of the risk is the most effective control measure and must be implemented, so far as is reasonably practicable, before all other control measures are considered. OHS Regulations r163(1) For example, using products that do not contain crystalline silica would eliminate the hazard completely.

120. For installation work, elimination involves ensuring no dust is generated at the installation site. For example, by:

- asking builders to provide a template for pre-cutting the silica-containing materials at the fabrication workshop
- ensuring installation measurements are correct – using lasers may assist in taking precise measurements for installations
- asking builders to communicate any installation changes before you attend the site, such as changes to location or measurements
- when modifications are found to be necessary, taking the slab back to the fabrication workshop rather than undertaking processing at the installation site.

## Substitute

121. Substitution involves replacing a hazardous substance with a less hazardous substance, or a substance in a less hazardous form. When working with engineered stone it may not be possible to eliminate the risk associated with crystalline silica, however working with materials that have a lower crystalline silica content will reduce the risk.

## Isolate

122. Where possible, employers should use isolated automated wet machines for cutting, grinding, trimming or polishing engineered stone.

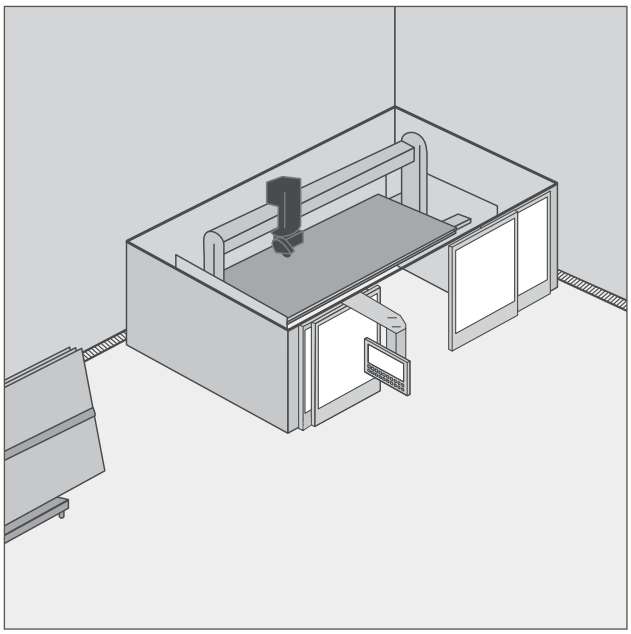


*Figure 3: Automated wet cutting machine, isolated from other work areas*

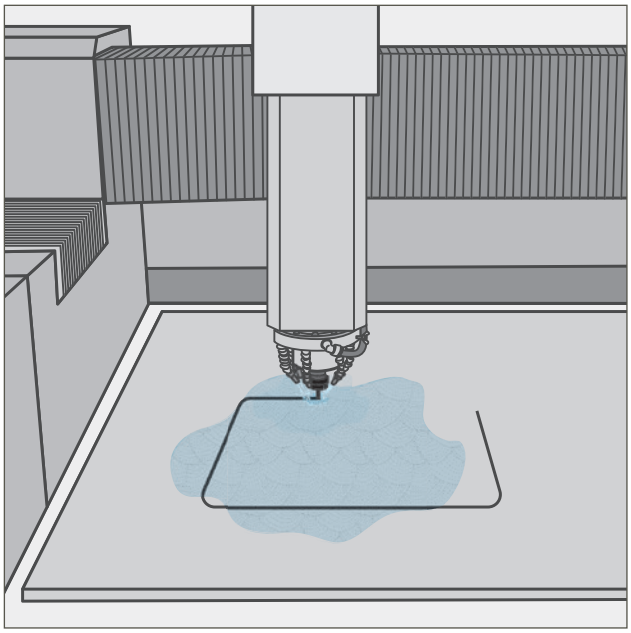


*Figure 4: CNC machine for cutting shapes, such as sink holes*

123. If automation is not a reasonably practical control, other isolation measures such as completing work outside should only be used in combination with engineering controls (see paragraph 126).

# Part 3 – Working with engineered stone

124. Where minor modifications of engineered stone benchtops at an installation site are unavoidable, the work needs to be undertaken in a controlled exclusion zone with access restricted to people involved in the task. The exclusion zone should be in a well ventilated area, for example outside or in a dedicated room at the site. Employers need to ensure contaminated dust does not travel in the direction of other employees or premises.

125. Employers need to provide employees with a separate room or area away from dust generating processes for food preparation and dining.


*Figure 5: Controlled exclusion zone with restricted access*

## Engineering controls

126. On-tool water suppression or dust extraction are the most effective ways to minimise exposure to respirable crystalline silica when hand held power tools are used.

## Water suppression

127. Water suppression uses water at the point of dust generation to dampen down or suppress dust before it is released into the air. It is one of the most common dust control measures.

128. Water suppression may be in-built as an automated control in large machinery such as bridge saws, routers or polishing machines, or integrated into hand held power tools.

129. While water suppressed machinery and tools provide an effective means of reducing exposure to respirable crystalline silica, their use needs to be controlled to ensure other hazards are not created. For example, electrical hazards or the spread of mist containing respirable crystalline silica.

### Electrical hazards when using water suppression

Only tools and machinery that have been designed for use with water attachments should be used with water suppression. Handheld spray bottles, sponges or garden hoses should not be used to apply water to electric powered rotating tools.

130. The appropriate tool needs to be used for the task. For example, in some cases a pneumatic tool may be more appropriate than an electrical tool. To help in determining which tool is best for the job, consult with your supplier.

131. Water suppressed powered hand tools, where possible, should be interlocked with the water feed, so that when the tool is activated, spraying commences slightly before processing starts (such as cutting or grinding).

# Part 3 – Working with engineered stone

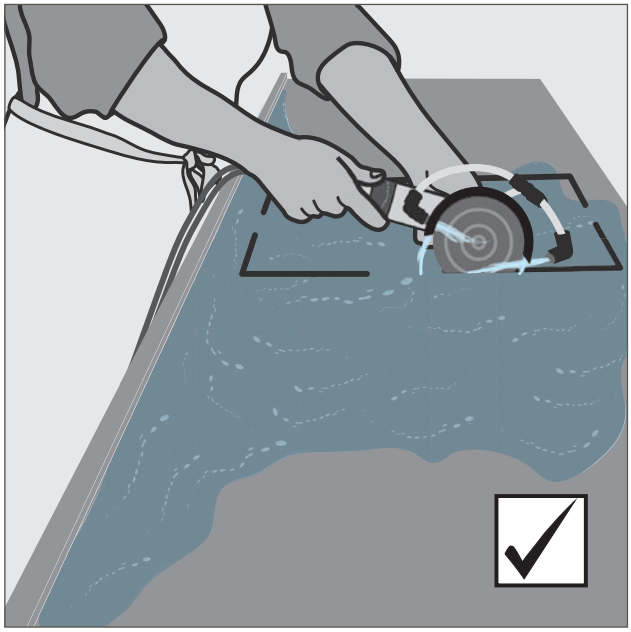


*Figure 6(a): Suitable water suppression: grinder being used to cut slab*

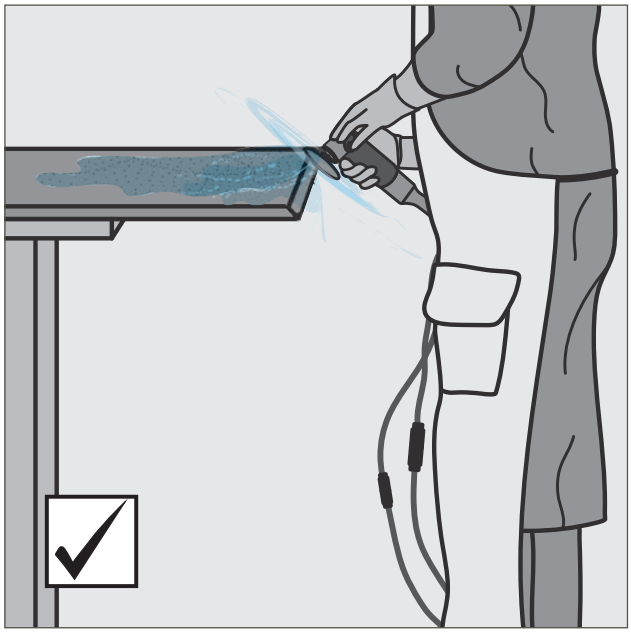


*Figure 6(b): Suitable water suppression: polisher being used to finish benchtop*

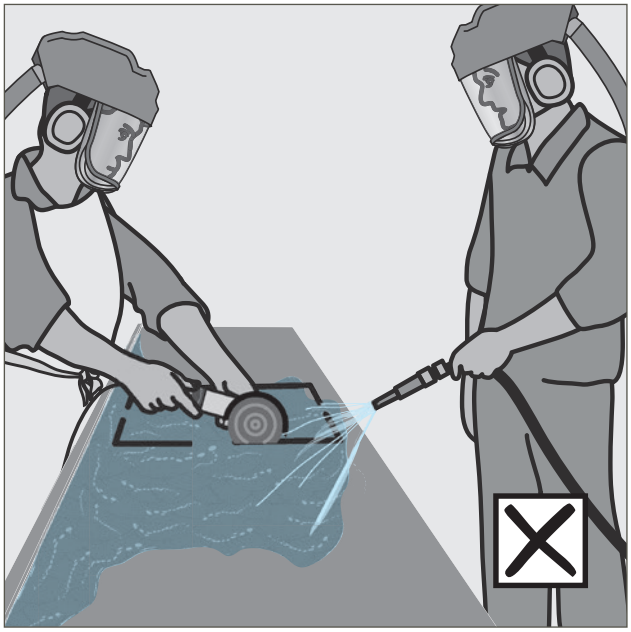


*Figure 6(c): Inappropriate water suppression: separate hose being directed at work*

132. Equipment or machinery used for water suppression should:

- be designed for use with water suppression
- have the water feed attached and an adequate number of water feeds directed at the contact point to prevent dust being released during the process
- have a consistent water flow and adequate water pressure (usually 0.5L/min) during operation
- be fitted with guards, plastic flaps or brush guards designed to manage the water spray
- be maintained according to the manufacturer's instructions.

# Part 3 – Working with engineered stone

## Enclosing water spray

133. When water is applied to rotating tools, water spray contaminated with respirable crystalline silica dust is ejected from the process. This spray can expose workers to respirable crystalline silica dust by:

- being breathed in as water mist
- drying in the air and being breathed in
- depositing on surfaces, including clothing, and drying, then becoming airborne when it is disturbed.

134. Controls need to be used to enclose water spray when using water suppression systems, such as guards, plastic flaps or brush guards around the rotating blade, tool or equipment. Employers need to ensure guards are routinely maintained and cleaned.

135. The design of hand power tools is important in determining whether employees are protected from water mist containing respirable crystalline silica dust particles. In particular, guarding needs to be fitted so that it will appropriately suppress water mist when the tool is being used at different angles by the operator.

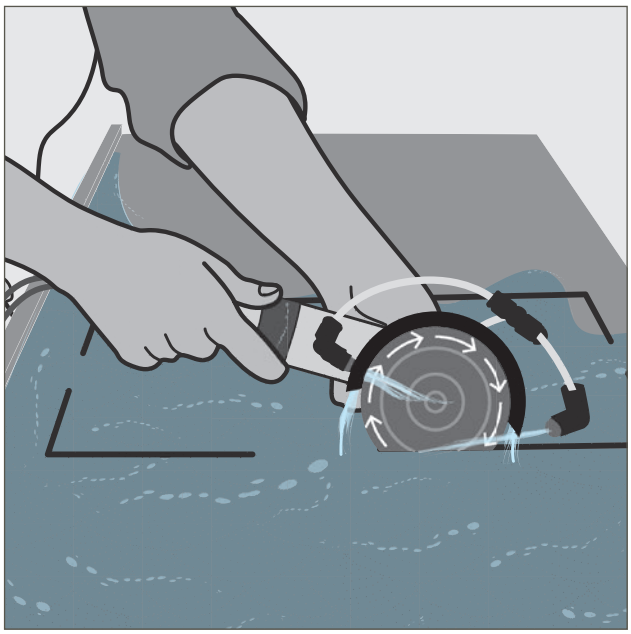


*Figure 7: Good spray control – guarding deflects water down towards the slab*

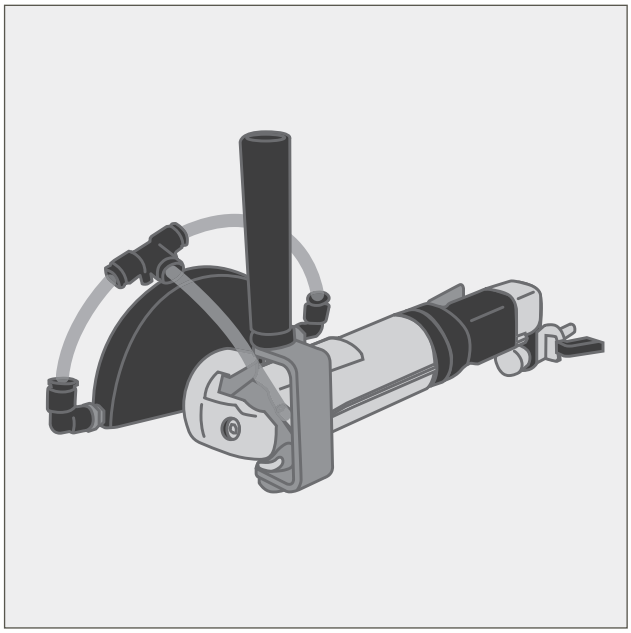


*Figure 8: Example of appropriate guarding on a wet grinder*

136. In addition, other controls that further minimise exposure by managing the water spray from water suppression processes include:
    - increasing the distance between the work process and the employees (for example operator positioning when using bridge saws or routers)
    - increasing the distance between employees using powered hand tools and others at the workplace
    - providing physical barriers between different work areas to prevent the water mist moving into other locations in the workplace, such as offices or break rooms.

### Water run off

137. Employers need to ensure that run off from wet processes is captured, for example in purpose-built channels underneath the work area, or for work undertaken at the installation site, by using a drip tray underneath the cutting table or trestle.

138. Water run off should be contained by floor bunding, to prevent water from spreading to other work areas and to direct water towards drains.

139. Wet slurry needs to be managed to ensure it does not dry and release respirable crystalline silica dust into the air. For more information about the management of wet slurry, see paragraph 198.

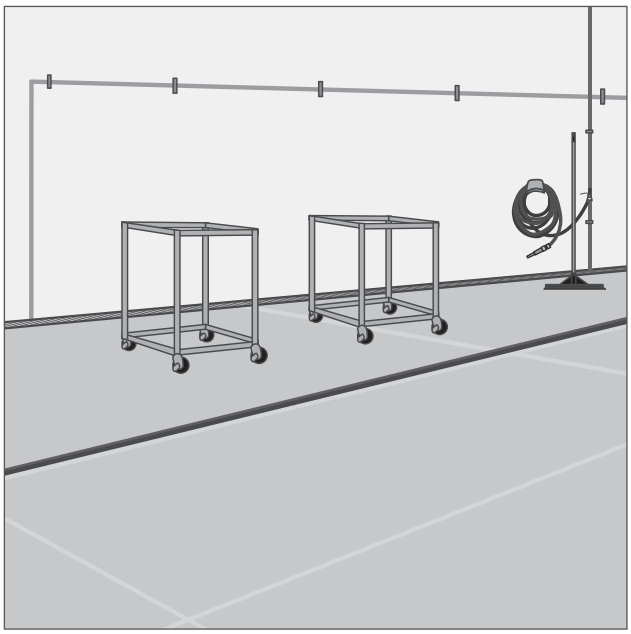


*Figure 9: Effective workplace design to capture water run off, with in-built drains and floor bunding*

## Local exhaust ventilation: On-tool extraction

140. On-tool dust extraction removes dust as it is being produced. It is a type of local exhaust ventilation (LEV) system which is fitted directly onto the tool. The system includes a captor hood or shroud, fitted over the dust generation point. The hood captures the dust as it's produced and transports it through a hose to an extraction unit.

141. Tools fitted with extraction need to be set up with the captor hood as close as possible to the point where the dust is generated, to ensure as much dust as possible is captured.

# Part 3 – Working with engineered stone

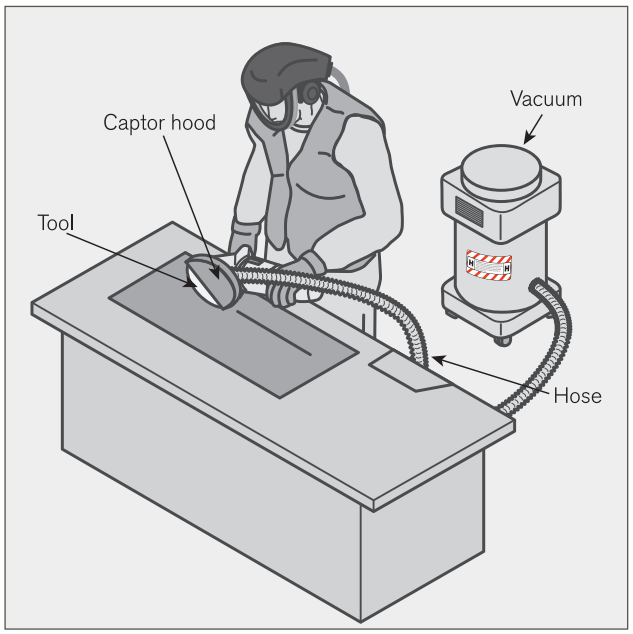



*Figure 10: Grinder fitted with on-tool extraction*

142. Employers should select on-tool extraction systems that are interlocked with tool activation (where available), so that when the tool is activated, extraction begins operating shortly before the tool can be used, and continues after the tool operation is complete.

143. The hood is the most important part of the system and needs to be properly designed for the tool and tasks. The hood should sit as close as possible to the work surface when in use, to ensure all airborne dust created from the work process is captured.

144. Hoods are often manufactured as part of the power tool but may be retro-fitted to existing equipment. When retro-fitting extraction systems onto tools, employers need to ensure the tool is appropriately designed to allow the system to work effectively. For example, sanding blocks or pads or grinding discs need to have enough holes to allow dust to be extracted through them.

145. On-tool extraction systems used for the dry processing of engineered stone, such as cutting, grinding or polishing, must be connected to a Dust Class H vacuum or other suitable system that captures the dust generated. OHS Regulations r319C(2)(a)(ii)

> ***Dust Class H vacuum*** means a vacuum that complies with the Class H requirements in AZ/NZS 60335.2.69 *Household and similar electrical appliances—Safety—Part 2.69: Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use* or its equivalent. OHS Regulations r319B

146. Filters for Dust Class H vacuum cleaners (commonly referred to as Class H filters) need to conform to the requirements of AS 4260 *High efficiency particulate air (HEPA) filters – classification, construction and performance* or its equivalent. Filters need to be regularly checked and replaced, according to the manufacturer's instructions.

147. Waste captured by the extraction unit will need to be emptied regularly. Employers need to ensure that when the unit is emptied, any risk of exposure to dust is controlled.

148. Employers have specific duties associated with the management of waste that contains hazardous substances, such as silica dust. For information about waste management, see paragraph 194.

149. Silica dust is very abrasive to extraction equipment. Employers need to ensure extraction systems are regularly inspected for damage and properly maintained.

## Other forms of local exhaust ventilation

150. Local exhaust ventilation systems such as hoods, booths or extraction walls extract airborne dust from processing areas. While these controls may reduce background levels of airborne silica dust they are not as effective in reducing the exposure of employees performing high exposure tasks. High exposure tasks should be performed using on-tool controls that suppress or capture dust at the source, such as integrated water suppression or dust extraction.

151. If there is too much distance between an extraction unit and the dust generation point, the capture strength or velocity of extraction at the point of dust generation is too low to adequately capture the dust generated.

152. For extraction to be effective, the cutting point needs to be close to the extraction hood. The nature of the work may not allow this, or it may require the employee to constantly reposition the work piece or hood. For example, a stonemason cutting a sink hole into a benchtop is regularly moving and turning the tool, which generates dust in a range of directions and angles.

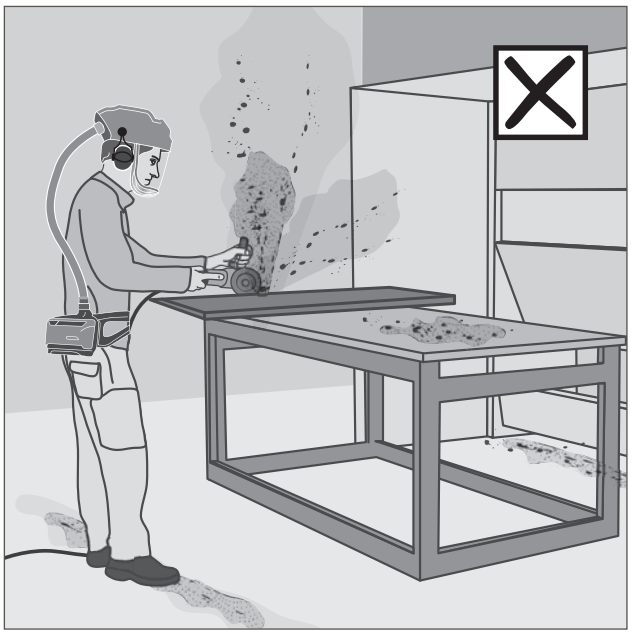


*Figure 11: Dust not effectively captured by extraction wall*

# Part 3 – Working with engineered stone

## Administrative controls

153. If the risk has been reduced so far as is reasonably practicable using higher order controls (such as substitution, isolation and engineering controls) and a risk remains, an employer must reduce the risk further using administrative controls, so far as is reasonably practicable. OHS Regulations r163(3)

154. Administrative controls involve using systems of work and work procedures to reduce risk. When working with engineered stone, administrative controls must only be used to supplement higher order control measures.

## Workshop layout

155. The layout of engineered stone processing workshops needs to be designed to minimise exposure to and contamination from respirable crystalline silica generated in neighbourhood work areas. For example, by including enough distance between work stations and positioning work areas for each stage of processing in sequence.

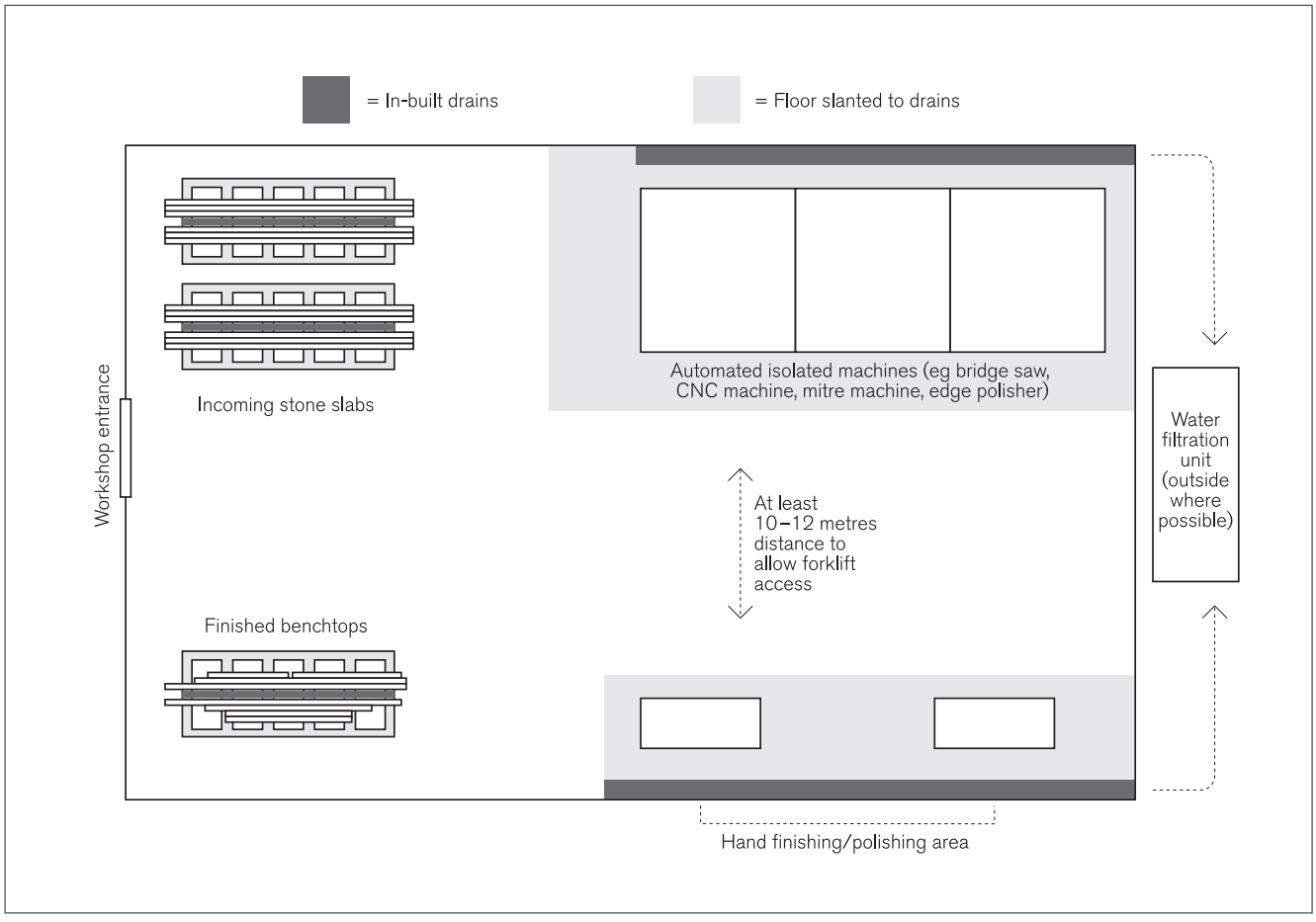



*Figure 12: Effective workshop layout to minimise exposure*

# Part 3 – Working with engineered stone

## Work practices

156. The way in which work is conducted can influence the generation of respirable silica dust and exposure to employees and others. The following work practices may assist in reducing the amount of exposure:

- planning to make the minimum number of cuts for each job
- using machinery and equipment that generates less dust, including routers, water jet cutters and edge or surface polishing machines
- implementing systems to ensure routine, or daily checks of critical controls, such as guards and local exhaust ventilation, as well as respiratory protective equipment
- wetting slabs before cutting, grinding, trimming or polishing to remove dust and aid water suppression
- washing slabs after fabrication to remove residual dust
- good housekeeping, including regular cleaning of work areas and equipment
- never using compressed air for cleaning or personal decontamination
- ensuring employees remove contaminated clothing before leaving the work area (for information about personal decontamination see paragraph 190).

157. Rotating employees between high exposure and low exposure tasks can be one way to minimise the exposure to respirable crystalline silica dust for the duration of a shift.

158. In addition to safe work practices, warning signs should be erected to clearly communicate silica dust hazards and required personal protection controls, such as RPE.


*Figure 13: Silica dust hazard warning signs*

# Part 3 – Working with engineered stone

## Information, instruction, training and supervision

159. Employers have a duty to provide their employees with the necessary information, instruction, training or supervision to enable them to perform their work safely and without risks to health. OHS Act s22(2)(e) When working with engineered stone, this should include:

- information about the health risks associated with exposure to respirable crystalline silica dust
- the correct use of guarding and dust control measures
- how to operate plant in a manner that reduces exposure to dust
- how to carry out inspections, shut down, cleaning, repair and maintenance of both plant and dust control measures
- emergency procedures
- the use of personal protective equipment, such as protective footwear, eye wear, respiratory protective equipment or an apron.

For more information see paragraphs 39 to 48.

## Personal protective equipment

160. Using personal protective equipment (PPE) such as safety footwear, gloves and occupational protective helmets (hardhats) is not a risk control measure for exposure to respirable crystalline silica. However, a risk assessment may determine PPE is required to control other risks associated with the work being undertaken.

161. Any PPE that may become contaminated with respirable crystalline silica needs to be cleaned regularly to ensure the dust is not transferred into other areas of the workplace. For more information about personal decontamination, see paragraph 190.

## Respiratory protective equipment (RPE)

162. An employer, self-employed person or a person who manages or controls a workplace must provide a person who is undertaking cutting, grinding or polishing of engineered stone with respiratory protective equipment. OHS Regulations r319C(2)(b)

163. In Part 4.5 of the OHS Regulations, respiratory protective equipment is defined as equipment that is:

- designed to protect the wearer from the inhalation of airborne contaminants entering the nose, mouth and lungs, and
- complies with AZ/NZS 1716 – *Respiratory protective devices*.

164. Employers need to provide an RPE program that includes:

- the provision of suitable RPE for the task
- fit testing
- maintenance and repair procedures a facial hair policy for respirators that rely on an effective seal around the face
- training for employees on the use, cleaning and maintenance of RPE
- facilities for appropriate storage.

# Part 3 – Working with engineered stone

## Selection of respiratory protective equipment

165. A person with the requisite knowledge, skills and experience needs to determine the most appropriate respirator for work involving engineered stone, following a risk assessment. This person needs to have knowledge of the risks to health from exposure to respirable crystalline silica, the nature of the work to be performed and the risk control measures in place to control the risk. The person also needs to be familiar with the appropriate Australian Standards for RPE.

166. When choosing the most appropriate RPE, employers need to consider:

- whether it provides the required level of protection from the risks associated with the task
- whether it is suitable for the wearer's size and build
- the wearer's need for mobility, dexterity, clear vision and communication.

167. Powered air purifying respirators (PAPRs) provide the highest level of protection and are more comfortable for wearing over longer periods. PAPRs work by using a fan to draw or push air in through the filter. This reduces the fatiguing effects that negative pressure respirators can have, which require wearers to draw air through the filter.

168. If there is uncertainty as to the suitability of a person to wear certain types of RPE (for example, negative pressure respiratory equipment), the employer needs to seek an assessment by a registered medical practitioner.

169. Respirators must comply with AS/NZS 1716 R*espiratory protective devices*. Check the product information to make sure RPE is AS/NZS 1716 compliant. If you're not sure, ask your supplier or contact the manufacturer. Detailed guidance about RPE can also be found in AS/NZS 1715 *Selection, use and maintenance of respiratory protective equipment*.

170. The risks to health from exposure to respirable crystalline silica should be assessed for any persons working adjacent to or visiting the processing area (such as administrative or sales employees) and appropriate control measures, such as providing RPE, need to be implemented. Procedures should be in place to minimise incidental access to the processing area when processing, cleaning or maintenance is occurring.

# Part 3 – Working with engineered stone

Table 2: Recommended RPE for working with engineered stone

| | | |
|---|---|---|
| **PAPR loose fitting helmet**<br>High level of protection |  | ▪ Positive pressure reduces fatigue<br>▪ Can be worn with facial hair<br>▪ Does not require fit testing<br>▪ Can be heavy, depending on the unit |
| **PAPR loose fitting hood**<br>High level of protection |  | ▪ Positive pressure reduces fatigue<br>▪ Can be worn with facial hair<br>▪ Does not require fit testing |
| **Half face powered air-purifying respirator**<br>Medium level of protection |  | ▪ Does not impair vision or mobility<br>▪ More comfortable over longer periods<br>▪ Positive air pressure reduces fatigue<br>▪ Cannot be worn with facial hair<br>▪ Requires fit testing<br>▪ Needs to be fit checked with each wear |

# Part 3 – Working with engineered stone

## Fit testing of RPE

171. Fit testing measures the effectiveness of the seal between a respirator and the wearer's face. If there is not a good seal, contaminated air, including respirable crystalline silica, could leak into the respirator. Hood and headtop type respirators do not require fit testing as they cover the whole head and do not rely on a tight seal.

172. Fit testing ensures employees wear a respirator that is suitable to their individual facial characteristics. As these characteristics vary from person to person, it is unlikely that one model or size of RPE will fit everyone. Different sizes and models of respirators are available to accommodate these differences.

173. Facial hair, including beards, moustaches, sideburns and stubble impinging on the seal will stop a respirator from sealing properly. Hood and headtop respirators do not rely on a tight fitting facial seal. Respirable crystalline silica particles are much smaller than facial hair and will be able to leak into the respirator if it is not sealed.

174. Employees who are required to wear tight fitting respirators need to be clean shaven, or ensure there is no hair between their face and the seal of the respirator face piece. They also need to ensure facial hair, clothing or jewellery do not interfere with the respirator seal or inhalation/exhalation valve operation.

175. Fit testing needs to be carried out:

- by a competent in-house person, manufacturer, supplier or consultant
- before wearing a tight fitting respirator for the first time
- when a new make or model of tight fitting respirator is issued
- whenever there is a change in the employee's facial characteristics or features which may affect the facial seal (for example large weight loss or gain)
- on a regular basis as part of risk assessment, and
- a minimum of once every 12 months.

176. Fit testers need to be properly trained and proficient in the fit testing method being used.

### Fit checking

For RPE that requires a facial seal, such as a half-face powered air purifying respirator, a fit check is a quick check to ensure it is properly positioned on the face when it is put on. Employees should do a fit check every time they put on their respirator, by following the manufacturer's instructions.

# Part 3 – Working with engineered stone

## Maintenance of RPE

177. RPE needs to be properly stored and regularly maintained, repaired or replaced to ensure it continues to be effective. Maintenance should be carried out by a competent person, in accordance with the manufacturer's instructions.

178. Particulate filters need to be replaced regularly. For example, as soon as any resistance is experienced, the filter should be replaced.

179. A maintenance program for RPE should include:

- daily cleaning and inspections for wear, damage and low or flat batteries (where batteries are being used)
- appropriate storage (for example in a dry, clean and sealed container), with each employee provided with a dedicated container for their RPE
- regularly replacing particulate filters
- identification and repair or replacement of any worn or defective components of the equipment
- maintenance and testing of RPE in accordance with the manufacturer's instructions
- record keeping of any issues, training provided and fit testing details (including style, size, make and model for each employee)
- maintenance records, including filter replacement and maintenance schedules
- RPE program records, including procedures for use and audits or evaluations.

## Training on the use of RPE

180. The effectiveness of RPE as a control measure relies on its correct use and maintenance. Employers need to provide training and supervision to ensure RPE is being used, maintained and stored correctly.

181. Training in RPE use and maintenance should be in accordance with AS/NZS 1715 *Selection use and maintenance of respiratory protective devices*.

182. Training should be provided by a competent person, and cover:

- why RPE is required
- when RPE is required to be worn
- how RPE works
- the limitations of RPE
- how to correctly put on and take off RPE
- how to conduct a fit check
- how to clean and maintain RPE
- when and how to replace filters and batteries (including rechargeable batteries)
- how and where to store RPE when it is not in use.

## 3.5 Clean up

### Cleaning the work area

183. Employers need to ensure that the work area used for processing engineered stone is kept clean. For example, the area should be cleaned after each job is completed to ensure that there is no build up of silica dust on plant, equipment, working surfaces or the floor. Respirators need to be worn during clean up activities.

184. Cleaning methods need to be carefully selected to ensure they do not have the potential to disturb or spread respirable crystalline silica beyond the work area. For example, wet methods such as low pressure hosing, mopping, squeegeeing or wet wiping down surfaces will suppress any residual dust.

185. Never use brooms, brushes, high-pressure water jets or compressed air in areas that may be dusty.

186. A Dust Class H vacuum cleaner is suitable for cleaning if the area is dry, but would likely be ineffective if the area is wet because the filter may become damaged. A household vacuum cleaner should not be used, even if it has a HEPA filter.

187. Damp rags can be used to clean dusty surfaces or equipment that are hard to reach with a Dust Class H vacuum cleaner. Rags used to clean up silica dust are contaminated waste and need to be contained and disposed of as soon as possible, in a manner that eliminates the release of airborne respirable crystalline silica. Rags should not be re-soaked after they have been used as this will contaminate the water.

188. As part of decontamination, particular attention needs to be paid to walls, ledges, fittings and furnishings where silica dust may accumulate.

**Wash down engineered stone slabs**

Slabs of engineered stone are often supplied with a layer of dust, or are sent out for installation after processing without being washed down. To minimise the risk of exposure, stone slabs should be washed prior to processing and again before sending out for installation.

189. At a minimum, cleaning of the work area should be conducted at the end of each day. To ensure good housekeeping practices:

- implement daily and thorough housekeeping and cleaning procedures for wet slurry and settled dust
- use low pressure water, wet sweeping or a Dust Class H vacuum cleaner to clean floors, walls and other surfaces
- regularly clean vehicle track or high use areas and keep them wet during the day
- prohibit the use of dry sweeping or compressed air to clean surfaces or clothing
- provide low pressure water from hoses for cleaning between tasks.

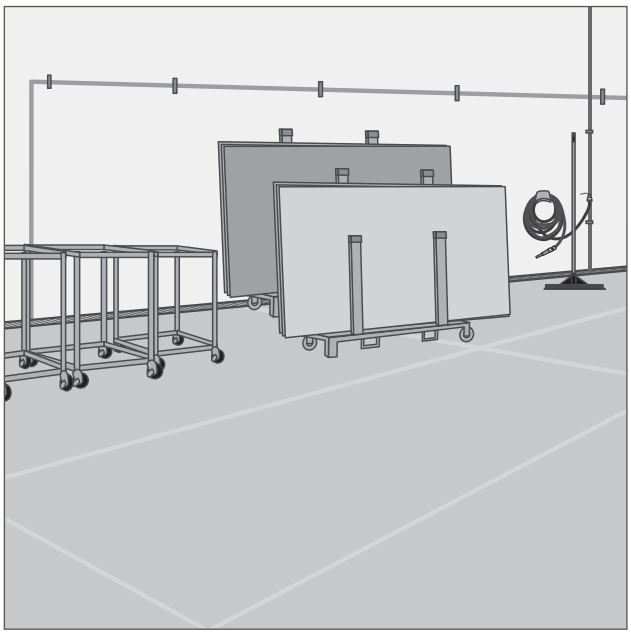


*Figure 14: Good housekeeping*

# Part 3 – Working with engineered stone

## Personal decontamination

190. Personal decontamination needs to be undertaken each time a person leaves the engineered stone processing area to ensure dust is not transferred to break rooms, other areas of the workplace or into the home.

191. At the exits of processing areas, employers should provide:

- Dust Class H vacuums for removing excess dust from aprons, boots and any other PPE
- running water for washing hands, face and hair
- a low pressure hose or tray of water for cleaning the bottom of footwear.

192. All PPE should be cleaned after each use to ensure dust does not accumulate. For example, by using a low pressure hose to spray down aprons and boots.

193. Work clothes should not gather dust if exposure is appropriately controlled during processing work. However, if silica dust has settled on clothing, the contaminated clothing should be dampened, bagged, and labelled with 'Silica dust hazard'. Either launder on site or use a commercial laundry. Talk to the commercial laundry first about how they want to receive clothing.

*Figure 15: Spray down with a low pressure hose to decontaminate PPE*

# Part 3 – Working with engineered stone

## Managing waste contaminated by silica dust

194. An employer must ensure that containers of waste produced or generated at a workplace from a hazardous substance, including silica dust, are identified. OHS Regulations r161 The identification needs to reflect the nature of the waste as closely as possible, for example the label should identify the substance as 'Silica dust hazard'.

195. Waste contaminated by silica dust can include any disposable clothing or PPE, rags used to clean the work area or tools or equipment that cannot be decontaminated or are no longer required.

196. Employers need to have a waste management system in place that eliminates the risk of respirable crystalline silica being released and becoming airborne.

197. Bags used for containing waste need to be strong enough to ensure they will not tear and release dust. To minimise the risk of a bag tearing or splitting, bags should not be filled more than half full and excess air gently evacuated from the bag in a way that does not cause the release of dust.


*Figure 16: Waste contaminated by silica dust needs to be bagged and labelled*

### Wet slurry

198. Wet slurry is the resultant waste from dust generating processes that are water suppressed. While it is wet the slurry is not hazardous. If it is allowed to dry, some dust may be disturbed and become airborne, although it usually becomes cake or clay-like with minimal airborne dust generation.

199. If slurry waste is collected in a solid form that does not release dust it can be disposed of in general waste directly. If there is any risk of exposure to dust for people who may handle the waste (eg employees, waste collectors or waste transfer station staff) the waste needs to be bagged before it is disposed.

200. Wet slurry needs to be managed by:

- capture or containment through floor bunding, grading, grates, curbing and channelling
- keeping floors and surfaces wet
- regular cleaning, including at the end of each day to prevent wet slurry drying overnight.

# Part 3 – Working with engineered stone

## Recycled water

201. Water recycled onsite for use in water suppression needs to be effectively filtered to remove silica particles and prevent contaminated water continually passing through the system with an increasing silica concentration.

202. Water recycling systems can filter slurry so that crystalline silica and other dust particles are removed from the water before it is reused (see figure 17). These systems include:

- a pit that collects slurry from drains and
- a slurry collection tank and filter press that compacts silica and other particles into a solid block for disposal (see method 1 in figure 17), or
- a slurry settlement tank and waste bag, where waste forms into a solid block (see method 2 in figure 17), and
- a filtered water tank that recirculates clean water back into the water supply.

203. Some products, such as commercially available flocculants, will consolidate crystalline silica particles in recycled water.

204. Water that is recycled needs to be visually assessed to ensure it is clear. If the water has a cloudy or milky appearance this means it is likely to contain a high concentration of respirable crystalline silica particles, and creates a risk that airborne particles will be released in the workplace.

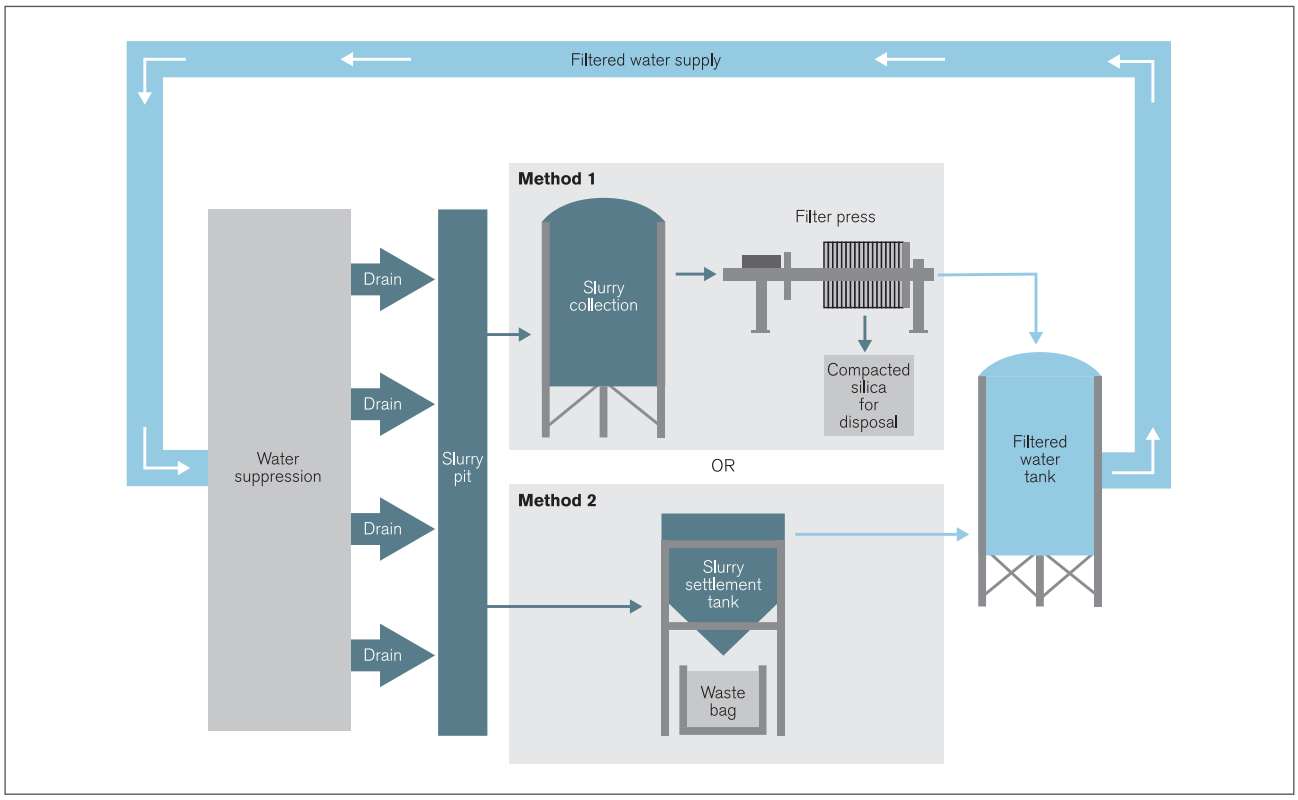



*Figure 17: Water recycling system*

## 3.6 Maintaining effective control measures

205. When the control measures prescribed under regulation 319C(2)(a) of the OHS Regulations are used to control the use of power tools for cutting, grinding or polishing engineered stone, duties apply to ensure those controls are properly designed, installed, used and maintained (see Part 3.3 of this Code). OHS Regulations r319C(3)

206. Employers also have a general duty to ensure that any control measures used to reduce risk in their workplace are properly installed (if applicable), used and maintained. OHS Regulations r18

207. Employers need to have an ongoing maintenance procedure for all control measures used in the workplace, to ensure any defects are detected as early as possible. Inspections, maintenance and cleaning should be performed in accordance with the manufacturer's instructions.

208. The maintenance procedure should include:

- daily visual checks
- frequent inspections of plant and equipment, performed at least once every three months
- supervision to ensure risk controls that rely on human behaviour are being properly applied
- testing of equipment
- preventative maintenance of engineering controls (such as hand tools) and RPE
- any necessary remedial work to ensure physical controls continue to operate effectively.

For information about inspecting plant, see the Plant compliance code.

209. In particular, dust control systems, such as water suppression or LEV, need to be inspected regularly to confirm they are working effectively. For example by checking the water flow rate or extraction air flow. Inspections should also check for:

- wear and tear, corrosion or damaged parts
- air leaks in pneumatic tools
- kinks, holes or leaks in water suppression or dust extraction equipment
- filters that need to be replaced
- damage to guards and flaps that contain water spray.

210. Hand held power tools should be regularly inspected, repaired or replaced when necessary, and any damaged or worn parts (such as grinding wheels) replaced.

211. RPE needs to be maintained, repaired or replaced to ensure it continues to be effective. A maintenance program should include procedures for daily cleaning and inspection of RPE for wear and damage, and identification and repair or replacement of any worn or defective components. For more information about maintaining RPE see paragraphs 177 to 179.

212. Employers should keep a record of any inspections and maintenance carried out, and should:

- be kept for the life of each item of plant or equipment
- be in a clear and accessible format that can be readily accessed
- provide a clear understanding of what has taken place in relation to the inspection and maintenance activities.

# Part 3 – Working with engineered stone

## Review and revision of risk controls

213. Employers must review risk controls to make sure they are working as planned, and revise them if necessary in the following circumstances:

- before any alteration is made to a system of work that is likely to result in changes to risk associated with the use of hazardous substances (eg where the concentration of respirable crystalline silica in the workplace is increased)
- if advice is received from a registered medical practitioner that adverse health effects have been identified by health monitoring
- following a notifiable incident involving hazardous substances (eg an incident that results in a person requiring medical treatment within 48 hours of exposure to a substance, or injury requiring immediate inpatient treatment in a hospital)
- if for any other reason, the risk control measures do not adequately control the risks, or
- after receiving a request for review from an HSR. An HSR can make a request if they believe, on reasonable grounds, that:
  - any of the circumstances listed above exist
  - the employer has failed to properly review the risk controls, or
  - in conducting a review of or revising the risk controls, the employer has failed to take into account any of the circumstances listed above (eg the HSR believes that the employer has failed to consider a change to a work system that may result in an increase in risks, during their review of risk controls).

  OHS Regulations r164

214. Employers can review the effectiveness of risk controls by, for example, conducting regular safety inspections and asking for feedback from employees utilising the risk controls.

# Part 4 – Health monitoring

215. Health monitoring is the process of checking the health of employees who have been exposed to respirable crystalline silica, to detect early signs of health effects and where possible, prevent the development of silicosis.

216. Health monitoring for exposure to respirable crystalline silica primarily screens for silicosis. However there are other conditions associated with exposure, including chronic obstructive pulmonary disease, autoimmune and kidney disease.

217. Regular monitoring is particularly important for people working with engineered stone, which has a high crystalline silica content. High exposure work, such as kitchen benchtop fabrication, can lead to serious and sometimes life threatening health conditions. In many cases, employees with silicosis do not experience any symptoms until the disease is advanced. Early identification and treatment of respiratory disease, including silicosis, can improve health outcomes.

218. An employer must ensure that:

- health monitoring is carried out under the supervision of a registered medical practitioner
- the registered medical practitioner prepares a health monitoring report
- a copy of the report is given to the employer. OHS Regulations r169

219. Employers have an obligation to provide their employees with information about the purpose, and the type or nature, of the health monitoring being provided. OHS Regulations r19(2) The medical examination or other health monitoring is to be undertaken at the employer's expense. OHS Regulations 19(3)

## When health monitoring is required

220. Under the OHS Regulations, an employer must ensure that health monitoring is carried out for an employee if exposure to respirable crystalline silica is likely to have an adverse effect on the employee's health. OHS Regulations r169

221. Due to the high silica content of engineered stone, it is recommended that employers provide health monitoring to all employees who work in the vicinity of engineered stone processing work. This includes, but is not limited to, employees directly involved in engineered stone processing tasks, as well as other employees such as supervisors, labourers, forklift operators, cleaning and maintenance staff, office and sales staff.

222. Health monitoring needs to be provided when an employee is hired with a new employer, before they start work, to establish a baseline from which changes in their health can be detected. Baseline monitoring may not be necessary if results from previous monitoring undertaken within the last six months are available, and the health monitoring report is provided to the new employer.

223. Ongoing monitoring needs to be undertaken regularly while the employee remains in the job. The frequency of regular monitoring will be determined by the medical practitioner.

224. A final monitoring session needs to be undertaken when the employee finishes working for the employer, unless previous monitoring was within the last six months and the results of any tests that were undertaken are available.

# Part 4 – Health monitoring

## What health monitoring involves

225. The types of medical tests required for employees who have been exposed to respirable crystalline silica can vary according to their medical and family history, the period over which the exposure has occurred and the level of exposure. These factors will be assessed by the registered medical practitioner overseeing the health monitoring, who will determine which tests are required.

226. Health monitoring for exposure to crystalline silica may involve:

- collection of demographic data (for example age, gender)
- a review of work and medical histories
- a review of workplace exposure, including air monitoring data (where available)
- physical examination with emphasis on the respiratory system
- lung function testing (spirometry and gas transfer tests)
- chest x-rays and/or CT scans.

**Best practice health monitoring for respirable crystalline silica exposure**

Known best practice for the types of tests that may be used for health monitoring is developing, so the advice from your medical practitioner may differ to the guidance in this code. For more information on the recommended tests go to the WorkSafe website at **worksafe.vic.gov.au**.

## Suitable medical practitioners

227. Employers must ensure health monitoring is undertaken by a registered medical practitioner. OHS Regulations r169(2)(a)

228. Health monitoring should be carried out by an occupational physician who is a fellow of the Australasian Faculty of Occupational and Environmental Medicine (AFOEM), with expertise in respiratory and silica exposure health monitoring. A list of practitioners can be found on the Royal Australasian College of Physicians website at **racp.edu.au**. Employers should speak to the occupational physician to ensure they have experience with silicosis and other silica dust diseases.

229. Employers should consult with their employees when selecting a medical practitioner.

230. Information provided to the medical practitioner should include:

- the name and address of the business
- the name and date of birth of the employee
- a description of any of the employee's tasks that relate to crystalline silica
- how long the employee has been doing the work
- air monitoring data from the workplace (where available)
- any previous results of health monitoring the employee has undertaken for exposure to crystalline silica.

# Part 4 – Health monitoring

## Refusal to participate in health monitoring

231. Employees must take reasonable care for their own health and safety, and cooperate with their employer's actions to comply with their duties under the OHS Act and OHS Regulations. OHS Act s25

232. Some employees may be reluctant to participate due to anxiety about medical results or the impact of the results on their job. Employers should encourage employees to participate in health monitoring, as early detection and treatment can prevent more serious and life-threatening conditions from developing.

233. Employers should support employees in these circumstances by:

- ensuring they understand how health monitoring will benefit them
- making the process easy to follow
- making sure interpreters are available to assist employees who speak English as their second language
- reminding employees that their workplace, family and community want them to be as safe and healthy as possible
- ensuring HSRs (if any) are involved in supporting the health monitoring process and encouraging employees to participate.

234. If employees are still not willing to participate, employers can request WorkSafe to attend the workplace and speak with their employees about the importance of health monitoring. Employers can also arrange for the medical practitioner to speak to employees about their concerns.

235. If the steps above are taken and still do not result in employees agreeing to take part in health monitoring, employers may need to consider removing the employee from work that will expose them to crystalline silica.

## Health monitoring report

236. The employer must ensure that the health monitoring report is prepared by the registered medical practitioner and a copy of the report is given to the employer. OHS Regulations r169(2)(b) For a template of the Hazardous substances health monitoring report see Appendix D.

237. An employer must provide a copy of the report to the employee as soon as reasonably possible after they receive it. OHS Regulations r20(2)(a)

238. Employers must ensure the health monitoring report includes:

- any indications of adverse health effects that may be related to respirable crystalline silica exposure
- any recommendations on measures the employer should take to ensure that the employee is not exposed to respirable crystalline silica for a specified period
- an interpretation of the results of the health monitoring, including a statement of opinion as to whether the employee should continue working with engineered stone. OHS Regulations r169

239. For privacy reasons, and because it is not necessary for the employer, the report an employer receives from the medical practitioner will not contain detailed medical results.

240. If the medical practitioner advises that adverse health effects have been identified, employers must review, and if necessary, revise the measures implemented to control the risk of employees' exposure to respirable crystalline silica. OHS Regulations r164(b) For information about the review and revision of risk controls, see paragraph 213.

# Part 4 – Health monitoring

241. The employer must provide a copy of the health monitoring report to WorkSafe if they receive a recommendation:
    - that an employee is removed from work involving exposure to respirable crystalline silica
    - to take action to ensure an employee is not exposed to respirable crystalline silica for a specified period of time. OHS Regulations r170
242. Employers must keep any health monitoring reports they are given for 30 years. OHS Regulations r171 WorkSafe inspectors may request that reports are produced to demonstrate that adequate health monitoring has been undertaken.

**Employees should obtain a copy of detailed test results**

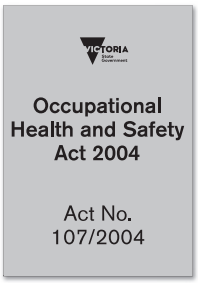
It is recommended that employees are provided with a copy of the detailed assessment and results of any testing undertaken as part of their health monitoring. This will be useful information to bring to appointments with GPs or other medical practitioners.

Employees should request a copy of the results directly from the medical practitioner overseeing the health monitoring, as employers do not have access to this information.

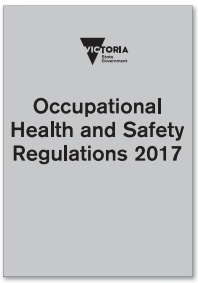
## Removing an employee from exposure

243. If the health monitoring report recommends that an employee is removed from work that involves exposure to crystalline silica, employers should action this straight away. For example, by transferring the employee to other work or a location where there is no risk of exposure.
244. In addition to removal from exposure to crystalline silica, employees should be removed from exposure to other potentially hazardous dusts, fumes or vapours until they are provided with a final diagnosis and management plan by the medical practitioner.
245. Employers should consult with the employee and medical practitioner throughout the removal, to ensure that the employee is not returned to working with silica-containing material until cleared to do so by the medical practitioner.
246. Employers need to continue to provide employees who have been removed from work or transferred to other work with information about their health monitoring.
247. Employees who have been diagnosed with a silica-related disease may be entitled to workers compensation. For more information about how to make a claim go to the WorkSafe website at **worksafe.vic.gov.au.**

# Appendix A – The compliance framework

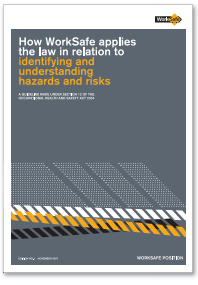



**The Occupational Health and Safety Act 2004 (OHS Act)** sets out the key principles, duties and rights in relation to occupational health and safety.




**The Occupational Health and Safety Regulations 2017 (OHS Regulations)** specify the way in which a duty imposed by the OHS Act must be performed, or prescribe procedural or administrative matters to support the OHS Act (eg requiring licences for specific activities, the keeping of records or giving notice).


**Compliance codes** provide practical guidance to duty holders. If a person complies with a provision of a compliance code, they are deemed to comply with the OHS legislative duty covered by the code provision. However, compliance codes are not mandatory, and a duty holder may choose to use some other way to achieve compliance.




**WorkSafe positions** are guidelines made under section 12 of the OHS Act that state how WorkSafe will apply the OHS Act or OHS Regulations or exercise discretion under a provision of the OHS Act or OHS Regulations. WorkSafe positions are intended to provide certainty to duty holders and other affected parties.


**Non-statutory guidance** includes information published by WorkSafe aimed at building people's knowledge and awareness of OHS issues, risks to health and safety, and the disciplines and techniques that can be applied to manage and control risks. Non-statutory guidance is not mandatory, nor does it provide any *deemed* to *comply* outcomes for duty holders. This guidance does, however, form part of the *state* of *knowledge* about OHS.

# Appendix B – References

## Australian Standards

- AS/NZS 1716 *Respiratory protective devices*
- AS/NZS 1715 *Selection, use and maintenance of respiratory protective equipment*
- AS 2985 *Workplace atmospheres – Method for sampling and gravimetric determination of respirable dust*
- AS/NZS 60335.2.69 *Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use*

## National guidance

- SWA: Workplace exposure standards for airborne contaminants
- SWA: Health monitoring for exposure to hazardous chemicals – Guide for medical practitioners
- SWA: Health monitoring for exposure to hazardous chemicals – Guide for workers
- SWA: Crystalline silica health monitoring
- SWA: Working with silica and silica containing products

## Professional associations

- Australian Institute of Occupational Hygienists: **aioh.org.au**
- Australasian Faculty of Occupational and Environmental Medicine: **racp.edu.au**
- National Association of Testing Authorities: **nata.com.au**

# Appendix C – Silica containing products

| Material | % silica content |
|---|---|
| **Engineered stone** | Up to 95% |
| **Sandstone** | 70% to 90% |
| **Granite** | 25% to 60% |
| **Slate** | 20% to 40% |
| **Marble** | Less than 5% |

# Appendix D – Hazardous substance health monitoring report

Occupational Health and Safety Regulations 2017 (Regulation 169)

## Hazardous substance health monitoring report

### 1. General Information and Instructions

The employer must ensure that:

(a) any health monitoring is performed under the supervision of a registered medical practitioner

(b) that a report of the health monitoring is prepared by the registered medical practitioner and a copy given to the employer

(c) a copy of the completed report is given to the employee examined

(d) the completed report is provided to WorkSafe Victoria if the report includes any recommendations relating to the need for the employer to take measures to ensure that the employee is not exposed to the substance for a specified period of time.

### 2. To be completed by the employer and supplied to the Registered Medical Practitioner before the health monitoring

| Employee family name | Given name/s | Date of birth | Gender |
|---|---|---|---|
| | | | |

Hazardous substance requiring health monitoring (tick appropriate box):

- ☐ isocyanates
- ☐ crystalline silica
- ☐ organophosphate pesticides
- ☐ benzene
- ☐ vinyl chloride
- ☐ 4,4'methylene bis (2-chloroaniline) (MOCA)
- ☐ inorganic arsenic
- ☐ cadmium
- ☐ inorganic mercury
- ☐ asbestos
- ☐ other (specify)

Process hazardous substance used in

Length of time employed in the above process

| Employer's legal name | Trading ss | ABN |
|---|---|---|
| | | |

| Employer address | Postcode |
|---|---|
| | |

| Telephone | Email |
|---|---|
| | |

| Employer signature | Date |
|---|---|
| | |

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# Appendix D – Hazardous substance health monitoring report

### 3. To be certified and signed by the Registered Medical Practitioner at the time of the health monitoring

| Date of Health Monitoring | Test or examinations performed, and results |
|---|---|
| | |

### 4. Certification

I certify that I have examined the person whose name appears above in Section 1, and that in my opinion this employee (tick appropriate box):

- ☐ (a) is fit to continue to work with the hazardous substance
- ☐ (b) is fit to return to work with the hazardous substance
- ☐ *(c) displays indications of adverse health effects that may be attributed to the hazardous substance and must not be exposed to the hazardous substance for (specify period of time) _____
- ☐ *(d) is not fit for work with the hazardous substance on medical grounds.

* If (c) or (d) is selected, then the employer must send a copy of this form to WorkSafe Victoria (see contact details below).

| Recommended date of follow up appointment | Name of Registered Medical Practitioner |
|---|---|
| | |

| Address | Postcode |
|---|---|
| | |

| Signature | Date |
|---|---|
| | |

### 5. Collection of personal and health information

Personal and health information collected by WorkSafe Victoria in connection with this report will be used for the administration and enforcement of legislation, functions and programs administered by WorkSafe Victoria.

WorkSafe Victoria may disclose personal information to its contractors; to a court or tribunal; to other regulatory or law enforcement agencies, or emergency services to prevent a threat to the health, safety or welfare of an individual or the public. This information may also be disclosed to any person authorised by the individual to whom it relates, or if required, authorised or permitted by law.

Collection of personal and health information on this report is required under the *Occupational Health and Safety Act 2004* and associated regulations (legislation). Failure to provide the information required is a failure to comply with a duty or obligation under the legislation and is an offence to which penalty applies.

You have rights to have access to any personal or health information WorkSafe Victoria holds about you. If you wish to do so please contact WorkSafe's Freedom of Information Team at foi@worksafe.vic.gov.au. You can access WorkSafe Victoria's Privacy Policy at worksafe.vic.gov.au.

# Appendix D – Hazardous substance health monitoring report

**Contact Details**

If required, submit your completed form to:
WorkSafe Victoria
Occupational Hygiene Unit
PO Box 279
Geelong, Victoria 3220

If you require further information, please contact the WorkSafe Advisory line on:
Toll free 1800 136 089
Email info@worksafe.vic.gov.au

Further information relevant to health monitoring is available at **worksafe.vic.gov.au**.

This document is intended for general guidance purposes only. The Code provides practical guidance for those who have duties or obligations in relation to the *Occupational Health and Safety Act 2004* and the Occupational Health and Safety Regulations 2017. Employers and employees should always check the legislation and make their own assessment about what action they need to take to ensure compliance with the law.

# WorkSafe Victoria

**WorkSafe Agents**
Agent contact details are all available at
**worksafe.vic.gov.au/agents**

**Advisory Service**
Toll-free 1800 136 089
Email info@worksafe.vic.gov.au

**Head Office**
1 Malop Street, Geelong 3220
Phone (03) 4243 7000
Toll-free 1800 136 089
Website worksafe.vic.gov.au

**Information in your language**
For information about WorkSafe in your own language, call our Translating and Interpreting Service (TIS National) on **131 450**.

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