

Fact sheet

Tier 3 quarries

January 2025

Preventing worker exposure to respirable crystalline silica

The Work Health and Safety Regulation 2017 was amended to further prevent, as far as reasonably practicable, worker exposure to respirable crystalline silica. These amendments are found in Chapter 8A of the WHS Regulation.

This fact sheet describes what tier 3 quarries will need to do to comply with the crystalline silica WHS Regulation.

What are the WHS crystalline silica Regulations?

The WHS crystalline silica Regulations require persons conducting a business or undertaking (PCBUs) to:

- determine if processing a crystalline silica substance (CSS) is undertaken by workers at the workplace
- implement control measures using the hierarchy of controls if processing a CSS is undertaken
- identify if any CSS processing tasks are classed as high risk
- have a silica risk control plan in place for workers carrying out high-risk processing of CSSs
- conduct training for workers in silica health risks, exposure and control
- conduct worker exposure and health monitoring.

What is a crystalline silica substance? A CSS is any material that contains at least 1% crystalline silica, determined as a weight/weight concentration¹.

What does processing a CSS mean? Processing a CSS² means any of the following:

- Using power tools or machinery to crush, cut, grind, trim, sand, abrasive polish or drill a CSS.
- Using a road header to excavate material that is a CSS.
- Quarrying a material that is a CSS.
- Mechanical screening of a CSS.

¹ As per clause 529A(2) and (3) of the WHS Regulation

² As set out in clause 529A(1) of the WHS Regulation

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- Tunnelling through material that is a CSS.
- A process during manufacturing or handling a CSS that exposes, or is reasonably likely to expose, a person to respirable crystalline silica.

What is a high risk CSS process? To decide if a CSS process is classed as high risk, PCBUs need to assess several factors³ including the results of dust monitoring. If exposing workers to crystalline silica is likely to exceed half of the workplace exposure standard (without the use of controls or PPE) it is considered high-risk.

What is a silica risk control plan? A silica risk control plan⁴ details the control measures that will be used during the high-risk processing of CSSs to protect workers from exposure to crystalline silica in the workplace.

What do tier 3 quarry operators need to do?

To ensure compliance with the WHS Silica Regulation, the Regulator recommends that operators of a tier 3 quarry undertake the following:

1. Determine if they are processing a CSS at their site.

The mine operator must demonstrate if they are, or are not, processing CSSs by determining the concentration of crystalline silica in the materials used or processed at the site. A CSS substance is any material that contains more than 1% crystalline silica as a weight/weight concentration.

Note: The Regulator will presume that workers are carrying out processing of a CSS if the operator of a tier 3 quarry has not made a w/w determination.

2. Review systems, procedures, plans, and other control measures that will be used to control crystalline silica risks.

PCBUs must review their systems, procedures and plans used to protect workers from exposure to dust or other airborne contaminants⁵ to ensure at least one of the following higher-order control measures are implemented during CSS processing:

- The isolation of a person from dust exposure.
- A fully enclosed operator cabin fitted with a high-efficiency air filtration system.
- An effective wet dust suppression method.
- An effective on-tool extraction system.
- An effective local exhaust ventilation system.

If a worker is determined to still be at risk of exposure to crystalline silica after one or more of the above higher-order controls have been implemented, the worker must be provided with suitable respiratory protection and wear the respiratory protection while the CSS processing is being carried out.

³ As set out in clause 529CA of the WHS Regulation

⁴ As per clauses 529CA and 529CB of the WHS Regulation

⁵ As per section 178(3)(e) of the WHS(MPS) Regulation

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3. Does your site need a silica risk control plan?

All tier 3 quarry operators who have identified workers conducting a high-risk CSS process must implement a silica risk control plan.

The Regulator considers tier 3 quarry operators compliant with the requirements for a silica risk control plan if the systems, procedures, plans and other control measures already in place to protect workers from exposure to dust or other airborne contaminants⁶ includes the risk of crystalline silica, and:

- identifies all high-risk CSS processing activities at the site
- includes the risk assessments used to determine what activities are high risk
- documents the control measures that will be used to control risk (including how they will be implemented, monitored and reviewed)
- is easy to understand and accessible for the people that will use it.

Further information on the requirements of a silica risk control plan can be found in the [Guide: Working with crystalline silica substances. Guidance for PCBU's](#) (SafeWork, December 2024).

4. Review the respiratory protection used to control crystalline silica exposure to ensure it complies with AS/NZ 1716:2021 and AS/NZ1715:2009

The WHS Regulation states that respiratory protective equipment (RPE) can only be relied upon to control a CSS process once control measures are implemented so far as reasonably practicable, and at least one of the higher-order controls (see above) are used, and a worker exposure risk still remains.

RPE must be used in accordance with AS/NZS 1716:2012 and AS/NZS 1715:2009. This includes the requirements for workers to be clean shaven and fit-tested when any form of tight-fitting respiratory protection, including powered air purifying respirators (PAPR), are used (refer to our [Fact sheet: Facial hair and respiratory protective equipment](#)).

5. Review health monitoring arrangements for workers carrying out high-risk processing of crystalline silica

The WHS silica Regulation states that all workers carrying out high-risk processing of a CCS must undergo health monitoring (including chest X-rays and lung function checks) that are supervised by a registered medical practitioner⁷.

6. Review and provide training for workers in crystalline silica health risks

Mine operators must provide training for workers who carry out CSS activities that are high risk, or any workers that may be at risk from exposure from high-risk CSS processes. This training must include:

- information on the adverse health effects of RCS exposure
- how to apply basic crystalline silica risk management techniques

⁶ As per section 178(3)(e) of the WHS(MPS) Regulation

⁷ As per Part 7.1, Division 6 of the WHS Regulation

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- how to control crystalline silica hazards associated with the CSS processing tasks being carried out at the site.

The Regulator also approves SafeWork NSW approved worker crystalline silica training to be used by mine or petroleum site operators, where relevant. The Regulator provides additional information on its web site for use as training reference material for airborne contaminants, dust diseases and worker exposure and health monitoring.

7. Continue to monitor dust exposures and notify the Regulator of any exceedances

Mine operators must continue to provide personal exposure monitoring of workers for crystalline silica, (as required under section 89 of the WHS (MPS) Regulation) and report any exposure monitoring exceedances to the Regulator within 7 days (under section 124(5)(s) WHS (MPS) Regulation).

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