April 2025

Position paper

Regulatory approach to crystalline silica Regulation compliance and enforcement

Introduction and purpose

The NSW Government commenced the model national crystalline silica amendments for working with a crystalline silica substance (CSS) on 1 September 2024. These amendments comprise Chapter 8A of the Work Health and Safety Regulation 2017 and ensure duty holders under the *Work Health and Safety Act 2011* have specific control measures in place to prevent, as far as reasonably practicable, workers processing a CSS from being exposed to hazardous concentrations of respirable crystalline silica dust (RCS) at work.

The Resources Regulator previously issued a position paper titled Preventing worker exposure to respirable crystalline silica in October 2024, which also provided guidance on compliance with the crystalline silica provisions under the WHS Regulation, in the context of the existing requirements of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022. Some sections of the previous position paper overlap with the positions outlined in this paper, however the positions are consistent and both documents can be read in conjunction.

This paper provides further detail on the Regulator's compliance and enforcement position on the crystalline silica provisions in Chapter 8A of the WHS Regulation. An itemised list of the contents of Part 8A.1 of Chapter 8A is provided in conjunction with the Regulator's position in relation to each section, in the context of determining compliance with the conditions by mine operators.

WHS Regulation Part 8A.1 compliance position

The following constitutes the Regulator's position on Part 8A.1 of the WHS Regulation.

529A Meaning of 'processing' in relation to a crystalline silica substance and related terms

(1) In this chapter, *processing*, in relation to a CSS, means—

(a) the use of power tools or mechanical plant to carry out an activity involving the crushing, cutting, grinding, trimming, sanding, abrasive polishing or drilling of a CSS, or

(b) the use of road headers to excavate material that is a CSS, or

(c) the quarrying of a material that is a CSS, or

(d) mechanical screening involving a material that is a CSS, or

(e) tunnelling through a material that is a CSS, or

(f) a process that exposes, or is reasonably likely to expose, a person to respirable crystalline silica during the manufacture or handling of a CSS.

(2) In this part, *crystalline silica substance (CSS)* means material that contains at least 1% crystalline silica, determined as a weight/weight (w/w) concentration.

(3) In this part, *crystalline silica*—

(a) means crystalline polymorphs of silica, and

(b) includes the following substances—

(i) cristobalite,

(ii) quartz,

(iii) tridymite,

(iv) tripoli.

The Regulator considers any of the activities listed in section 529A(1) above to be representative of the task of 'processing' a CSS. This definition is designed to capture all activity with a CSS that has the potential to generate and expose workers or others at the workplace to RCS.

The Regulator considers any material that contains a crystalline silica concentration (determined by a weight/weight analysis of parent material) of 1% or greater to be deemed a CSS. This definition includes materials extracted at the site, and/or materials and products used at the site. The term crystalline silica refers to all form of crystalline silica, including cristobalite, quartz, tridymite and tripoli.

Mine operators are required to identify all tasks and processes at their site that meet the definition of processing of a CSS.

529B When processing of a CSS is controlled

(1) In this part, the processing of a CSS is *controlled* if—

(a) control measures to eliminate or minimise risks arising from the processing are implemented so far as is reasonably practicable, and

(b) at least 1 of the following measures is used during the processing—

(i) the isolation of a person from dust exposure,

(ii) a fully enclosed operator cabin fitted with a high-efficiency air filtration system,

(iii) an effective wet dust suppression method,

(iv) an effective on-tool extraction system,

(v) an effective local exhaust ventilation system, and

(c) a person still at risk of being exposed to respirable crystalline silica after 1 or more of the measures in paragraph (b) are used—

(i) is provided with respiratory protective equipment, and

(ii) wears the respiratory protective equipment while the work is carried out.

(2) **Despite subsection (1), if the measures in subsection (1)(b) are not reasonably practicable, the processing of a CSS is controlled if a person who is at risk of being exposed to respirable crystalline silica during the processing—**

(a) is provided with respiratory protective equipment, and

(b) wears the respiratory protective equipment while the work is carried out.

(3) **In this section—**

***respiratory protective equipment* means personal protective equipment that—**

(a) **is designed to prevent a person wearing the equipment from inhaling airborne contaminants, and**

(b) **complies with—**

(i) **AS/NZS 1716:2012*, Respiratory protective devices*, and**

(ii) **AS/NZS 1715:2009*, Selection, use and maintenance of respiratory protective equipment*.**

In determining whether a mine process meets the definition of controlled processing of a CSS, the Regulator will assess each component of section 529B, to ensure:

- Controls measures are implemented as far as reasonably practicable, and the mine can provide verification of the effectiveness of the controls, and
- At least one of the following higher order controls are used:
  - (a) isolation
  - (b) enclosed operator cabin with HEPA air filtration
  - (c) wet dust suppression method
  - (d) on-tool extraction
  - (e) Local exhaust ventilation (LEV) system, and
- Where higher order controls (as per 1(b)) are proven ineffective through monitoring or have failed, or are not reasonably practicable, and a person is still at risk of being exposed to respirable crystalline silica (as per (2)), workers are provided with respiratory protective equipment (RPE) (compliant with the design requirements of AS1716, and compliant with the selection of RPE type as per requirements of AS1715), and
- Workers wear the RPE while carrying out the work, and
- RPE is worn in compliance with AS1715 requirements – e.g. type: tight fitting RPE – requires clean shaven, fit-testing, etc, and
  - a) workers are trained in use and maintenance of the RPE provided, and
  - b) evidence is available to verify the RPE is worn by workers during the entirety of exposure (i.e.. supervisor observations).

Mine operators must ensure all tasks and processes at their site that meet the definition of processing of a CSS are controlled as per the minimum requirements listed in section 529B.

529C Duty for processing of CSS to be controlled

A person conducting a business or undertaking must not carry out, or direct or allow a worker to carry out, processing of a CSS unless the processing is controlled.

Notwithstanding the requirement for the control of tasks and activities defined as processing of a CSS, the following section outlines further specific obligations for mine operators in terms of controlling worker exposure to RCS.

529CA Identifying processing of CSS that is high risk

(1) A person conducting a business or undertaking at a workplace must assess the processing of a CSS carried out by the business or undertaking at the workplace to determine if the processing is *high risk*.

(2) In assessing whether the processing of a CSS is *high risk*, the person must have regard to the following—

- (a) the specific processing that will be undertaken,
- (b) the form or forms of crystalline silica present in the CSS,
- (c) the proportion of crystalline silica contained in the CSS, determined as a weight/weight (w/w) concentration,
- (d) the hazards associated with the work, including the likely frequency and duration that a person will be exposed to respirable crystalline silica,
- (e) whether the airborne concentration of respirable crystalline silica that is present at the workplace is reasonably likely to exceed half the workplace exposure standard,
- (f) any relevant air and health monitoring results previously undertaken at the workplace,
- (g) any previous incidents, illnesses or diseases associated with exposure to respirable crystalline silica at the workplace.

(3) In assessing whether the processing of a CSS is high risk, the person must not—

- (a) rely on the control measures implemented under section 529B(1)(b), and
- (b) have regard to the use of personal protective equipment and administrative controls used to control the risks associated with respirable crystalline silica.

(4) The person must ensure that a risk assessment conducted under subsection (1) is recorded in writing.

(5) If a person conducting a business or undertaking is unable to determine whether the processing of a CSS carried out at the workplace is high risk, the processing is taken to be high risk until the person determines that the processing is not high risk.

Mine operators are required to further assess all tasks and processes identified at their site that meet the definition of processing' of a CSS, to determine if the CSS process is considered ***high risk***.

The Regulator defines high risk processing of a CSS as any processing of a CSS that is reasonably likely to result in a risk to the health of a person at the workplace.

To satisfy the definition of a high risk CSS process, mine operators must undertake a risk assessment that considers the following as a minimum:

a) the specific processing that will be undertaken – does it meet the processing definition outlined in section 529A?

b) the form or forms of crystalline silica present in the CSS – does the substance contain cristobalite, quartz, tridymite or tripoli?

c) the proportion of crystalline silica contained in the CSS, determined as a weight/weight (w/w) concentration, - is the concentration of crystalline silica ≥1% w/w?

d) the hazards associated with the work, including the likely frequency and duration that a person will be exposed to respirable crystalline silica

e) whether the airborne concentration of respirable crystalline silica that is present at the workplace is reasonably likely to exceed half the workplace exposure standard

f) any relevant air and health monitoring results previously undertaken at the workplace

g) any previous incidents, illnesses or diseases associated with exposure to respirable crystalline silica at the workplace.

RPE and higher order controls MUST NOT be considered during the risk assessment to determine if a process is defined as high risk.

The risk assessment to determine high risk CSS processes must be documented as part of the sites' airborne contaminants principal hazard management plan.

If a site is unable to decide if a process is high risk, it must be taken to be high risk until determined otherwise.

529CB Silica risk control plan required for processing of CSS that is high risk

(1) A person conducting a business or undertaking carrying out the processing of a CSS that is high risk must, before the processing commences, ensure that a silica risk control plan for the processing—

(a) is prepared, or

(b) has already been prepared by another person.

(2) A silica risk control plan must—

(a) identify all the processing of a CSS carried out at the workplace that is high risk, and

(b) include the risk assessment undertaken under section 529CA for all processing of a CSS that is high risk, and

(c) document what control measures will be used to control the risks associated with the processing that is high risk and how the measures will be implemented, monitored and reviewed, and

(d) be set out and expressed in a way that is readily accessible and understandable to persons who use it.

(3) A silica risk control plan is not required to be prepared before the processing of a CSS that is high risk commences if—

(a) the processing that is high risk is also high risk construction work, and

(b) **a safe work method statement is prepared, or has already been prepared by another person, before the processing commences, and**

(c) **the safe work method statement satisfies the requirements in subsection (2).**

The Regulator considers mine operators compliant with the conditions of section 529CB (above) if the sites' air quality and other airborne contaminants principal hazard management plan (PHMP) developed under section 28 and Schedule 1, Part 2 (5) of the WHS (MPS) Regulation, also includes:

- identification of all tasks and processes at the site that meet the definition of a CSS process (as per s529A)
- identification of all high risk CSS processing tasks and activities as per s529CA, and includes the risk assessment used to determine the high risk CSS processing activities
- the control measures used to control the exposure risks associated with each CSS processing activity and high risk CSS processing activity
- details on how each control measure will be implemented, monitored and reviewed.

The PHMP must be documented and expressed in a way that can be readily understood by the people who use it.

529CC Compliance with the silica risk control plan

(1) **A person conducting a business or undertaking carrying out the processing of a CSS that is high risk must put in place arrangements for ensuring that the processing is carried out in accordance with the silica risk control plan, including by ensuring that the silica risk control plan is—**

(a) **available to all workers, and**

(b) **provided to all workers before they commence the processing.**

(2) **If the processing of a CSS that is high risk is not carried out in accordance with the silica risk control plan that applies to the processing, the person must ensure that the processing is—**

(a) **stopped immediately or as soon as it is safe to do so, and**

(b) **resumed only in accordance with the silica risk control plan.**

(3) **A person conducting a business or undertaking must ensure that a silica risk control plan is reviewed and as necessary revised if relevant control measures are revised under section 38, WHS Regulations.**

Mine operators need to ensure that what is set out in the air quality and other airborne contaminants PHMP (as part of the site safety management system) is followed in practice. Implementation of the Air Quality and Other Airborne Contaminants PHMP includes ensuring that nominated risk controls are used and maintained.

The operator must review the Air Quality and Other Airborne Contaminants PHMP at least once every three years (as per s22 WHS (MPS) Regulation) or after an incident or other circumstances (s15 WHS (MPS) Regulation). The review shall determine whether the controls continue to be suitable, consistent with current good practice and effective in managing the risks associated with air quality.

Mine operators must ensure that workers are informed about any updated documents and are provided with training or retraining where required.

529CD Duty to train workers about risks of crystalline silica

(1) A person conducting a business or undertaking must ensure that a worker receives crystalline silica training if the person reasonably believes that the worker may be—

(a) involved in the processing of a CSS that is high risk, or

(b) at risk of exposure to respirable crystalline silica because of the processing of a CSS that is high risk.

(2) The person must ensure that a record is kept of the training undertaken by the worker—

(a) while the worker is carrying out the processing of a CSS that is high risk, and

(b) for 5 years after the day the worker ceases working for the person.

(3) The person must keep the record available for inspection under the Act.

(4) In this section— *crystalline silica training* means training that is accredited, or training approved by the regulator, in relation to the following—

(a) the health risks associated with exposure to respirable crystalline silica,

(b) the need for, and proper use of, any risk control measures required by this regulation.

Mine operators must ensure all workers involved in activities associated with high risk CSS processing, or likely to be at risk of exposure to high risk CSS processing receive **crystalline silica training**.

The Regulator recognises mine operators will have existing training programs in place for workers as per the requirements of s106 and s107 of the WHS (MPS) Regulation regarding the site safety management system. Specifically, training workers in the associated risks and controls implemented by the mine operator in the air quality and other airborne contaminants PHMP.

The Regulator considers mine or petroleum site operators compliant with the crystalline silica training requirements outlined in section 529CD if their existing training (as per s106 and s107) is revised to ensure the following learning outcomes are achieved:

- Workers can demonstrate knowledge and understanding of the adverse health effects of RCS exposure, including:
  - identify the health risks associated with exposure to RCS, including signs and symptoms of silicosis.
- Workers can demonstrate the ability to apply basic crystalline silica risk management techniques, including:
  - how to determine if a material contains crystalline silica as per s529A, common materials and products known to contain crystalline silica
  - understand the meaning of processing of a CSS as per s529A, how RCS is generated and how workers can be exposed
  - understand the basics of exposure monitoring and exposure standards

  - requirements for exposure monitoring, health monitoring and reporting of exposure exceedances or adverse health monitoring results
  - knowledge of where to find risk management processes and other relevant information regarding crystalline silica (i.e. air quality and other airborne contaminants PHMP).
- Workers can demonstrate the ability to control crystalline silica hazards associated with the CSS processing, including:
  - meaning of controlled processing of a CSS
  - knowledge of how high risk CSS processing activities and tasks are determined
  - understanding the high risk CSS processes and activities identified at the site
  - understanding of the control measures used at the site, how they work and how to use them (as per Airborne Contaminants PHMP)
  - general housekeeping and cleaning methods to eliminate or minimise risk of exposure to crystalline silica
  - suitable respiratory protective equipment available for use at the site (as per AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment)
  - requirement for fit-checking, fit-testing and facial-hair requirements for tight-fitting RPE in compliance with AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment.

The Regulator also approves SafeWork NSW crystalline silica training to be used by mine or petroleum site operators, where relevant.

Mine operators are required to keep records of crystalline silica training for each worker who carries out high risk processing of a CSS, and/or each worker at risk of exposure to crystalline silica because of the high risk processing of a CSS. Records must be kept for each worker while they remain engaged at the site, and for 5 years after the day the worker ceases working for the mine operator. Training records should be made available to the worker and the Regulator on request.

529CE Monitoring in relation to processing of CSS that is high risk

A person conducting a business or undertaking that is carrying out, or directing or allowing a worker to carry out, the processing of a CSS that is high risk must—

(a) undertake air monitoring for respirable crystalline silica in accordance with section 50, and

(b) provide air monitoring results to the regulator, in a form approved by the regulator, if the airborne concentration of respirable crystalline silica has exceeded the workplace exposure standard as soon as reasonably practicable and no more than 14 days from the date that the air monitoring result was reported to the person conducting the business or undertaking, and

(c) provide health monitoring for all workers carrying out the processing of a CSS that is high risk in accordance with Part 7.1, Division 6.

The Regulator considers a mine or petroleum site who has undertaken compliance-based exposure monitoring for respirable crystalline silica (under s89 of the WHS (MPS) Regulation), and/or risk-based exposure monitoring of workers for respirable crystalline silica (under s50 of the WHS Regulation) to be compliant with section 529CE(a) above, provided the similar exposure groups

(SEGs) identified as being at risk of crystalline silica exposure from high-risk processing of a CSS have been included in the monitoring.

However, if, after completing the risk assessment to determine the high risk CSS processes undertaken at the site (to satisfy s529CA) the mine operator identifies a high risk CSS processing task/group that has not previously not been included in respirable crystalline silica exposure monitoring, then monitoring of the identified high risk processing task must be undertaken to satisfy the conditions of section 529CE(a) above.

The Regulator considers the notification requirements around worker exposure monitoring exceedances of the RCS exposure standard (within 7 days) under section 124(5)(s) WHS (MPS) Regulation equivalent to section 529CE(b) of the WHS Regulation. All exceedances of the crystalline silica workplace exposure standard must be reported to the Regulator even if workers are wearing appropriate and correctly fitted respiratory protective equipment, which provides protection from exposure to RCS.

To satisfy the conditions of section 529CE(c) Mine operators should review their health control plan (as required under s30(3) and Schedule 2(1)(d) of the WHS (MPS) Regulation) to ensure all workers who carry out the processing of a CSS that is high risk are included in health monitoring.

Further to this position paper, the following supporting documents are available on the Regulator's website:

- Frequently asked questions – Chapter 8A Silica Regulations (March 2025)
- Position paper – Preventing worker exposure to respirable crystalline silica (October 2024)