

October 2024

Position paper

Preventing worker exposure to respirable crystalline silica

Introduction and purpose

This paper details the Resources Regulator's (the Regulator) position on compliance with the crystalline silica provisions in Chapter 8A of the Work Health and Safety Regulation 2017 (WHS Regulation) in the context of the existing requirements to manage worker exposure to airborne contaminants under the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 (WHS (MPS) Regulation). This paper also outlines the extent to which the Regulator considers compliance with the WHS (MPS) Regulation to achieve compliance with Chapter 8A of the WHS Regulation.

Working with crystalline silica substances – WHS Regulation

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 WHS Regulation 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.

Chapter 8A of the WHS Regulation requires persons conducting a business or undertaking (PCBU) to:

- assess if workers are carrying out high risk processing of a CSS
- determine control measures using the hierarchy of controls when processing a CSS
- have a silica risk control plan in place for workers carrying out high risk processing of a CSS
- conduct training for workers in silica health risks, exposure and control
- conduct worker exposure and health monitoring and report exceedances.

These requirements apply to all mines and petroleum sites in NSW.

Resources Regulator's position

The Regulator considers compliance with sections 28, 106, 107, 124, schedule 1(8) and schedule 2(1) of the WHS (MPS) Regulation to be compliant with clauses 529A-529CE of the WHS Regulation with the following exceptions:

1. *Respirable protective equipment (RPE)* is to comply with AS/NZS 1716:2012, *Respiratory protective devices*, and AS/NZS 1715:2009, *Selection, use and maintenance of respiratory protective equipment*

2. A CSS contains at least 1 percent crystalline silica, determined as a weight/weight (w/w) concentration.

To ensure compliance with Chapter 8A of the WHS Regulation the Regulator recommends that mine or petroleum site operators:

- review their airborne contaminants principal hazard management plan (PHMP) and their RPE program (if applicable) to ensure it complies with AS/NZ 1716:2021 and AS/NZ 1715:2009
- demonstrate they are not processing a CSS by determining the substance is less than 1 percent crystalline silica as a w/w concentration.

Note: The Regulator will understand that workers are carrying out processing of a CSS if the operator of a mine or petroleum site has not made a w/w determination.

Definitions

The following terms are defined in Chapter 8A of the WHS Regulation and included below to ensure that mines and petroleum sites have a clear understanding of these terms.

Crystalline silica substance (CSS) – means material that contains at least 1 per cent crystalline silica, determined as a weight/weight (w/w) concentration, per clause 529A(2) and (3) of the WHS Regulation.

Crystalline silica training – means training that is accredited, or training approved by the Regulator, in relation to the health risks associated with exposure to respirable crystalline silica and the need for, and proper use of, any risk control measures required, per clause 529CD of the WHS Regulation.

Processing of a CSS – the processing of a CSS, as set out in clause 529A(1) of the WHS Regulation, means 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
- the use of roadheaders to excavate material that is a CSS, or
- the quarrying of a material that is a CSS, or
- mechanical screening of a CSS, or
- Tunnelling through material that is a CSS, or
- a process that exposes, or is reasonably likely to expose, a person to respirable crystalline silica during the manufacture or handling of a CSS .

Silica risk control plan – means developing a plan to control the processing of a CSS that is considered to be high risk, per clauses 529CA and 529CB of the WHS Regulation.

Respirable protective equipment (RPE) – as set out in clause 529B(3) of the WHS Regulation, respirable protective equipment means personal protective equipment that is designed to prevent a person wearing the equipment from inhaling airborne contaminants, and complies with AS/NZS 1716:2012, *Respiratory protective devices*, and AS/NZS 1715:2009, *Selection, use and maintenance of respiratory protective equipment*.

How the crystalline silica amendments affect mining and petroleum sites

There are elements of Chapter 8A of the WHS Regulation which mine or petroleum site operators already meet by complying with the WHS (MPS) Regulation. This includes the requirement for operators of a mine or petroleum site to have an airborne contaminants PHMP, a health principal control plan, reporting exposure monitoring exceedances and specific worker training.

Mine or petroleum site operators must take several further steps to achieve full compliance with Chapter 8A of the WHS Regulation, such as the RPE requirements.

Silica risk control plan is equivalent to an airborne contaminants PHMP

All mine or petroleum site operators that have identified workers conducting a high-risk CSS process must implement a silica risk control plan per clauses 529B, 529C, 529CA, 529CB, and 529CC of the WHS Regulation.

The Regulator considers mine or petroleum site operators compliant with the specific clauses in Chapter 8A of the WHS Regulation described above where they have an airborne contaminants principal hazard management plan (PHMP) in place per section 28 and schedule 1(8) of the WHS(MPS) Regulation.

An operator of a mine or petroleum site requires a silica risk control plan if a CSS contains at least 1 percent crystalline silica, determined as a weight/weight (w/w) concentration. The mine or petroleum site operator's airborne contaminants PHMP must address all the matters required for a silica risk control plan. See Table 1 in the Appendix for further detail.

Worker exposure and health monitoring for respirable crystalline silica

The Regulator considers a mine or petroleum site providing worker exposure monitoring for RCS as required under section 89 of the WHS (MPS) Regulation to be compliant with clause 529CE(a) of the WHS Regulation. The Regulator also considers worker health monitoring for RCS as part of the health principal control plan required under section 30(3) and Schedule 2(1)(d) of the WHS (MPS) Regulation equivalent to clause 529CE(c) of the WHS Regulation. In addition, 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 clause 529CE(b) of the WHS Regulation. Table 2 in the Appendix provides further detail.

Use of RPE as part of controlling worker respirable crystalline silica exposure

Chapter 8A of the WHS Regulation states that RPE can only be relied upon to control a CSS process once all other higher-order control measures in the hierarchy of controls (see below) are in place and a residual worker exposure risk 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 the [Fact Sheet: Facial hair and respiratory protective equipment](#)).

Under clause 529B of the WHS Regulation, PCBUs must use at least one of the following control measures 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.

Worker crystalline silica training requirements

Sections 106 and 107 of the WHS (MPS) Regulation establish specific training requirements for workers regarding risk management and control measures for principal hazards encountered in a mining or petroleum workplace. Table 3 in the Appendix provides further detail.

The Regulator considers mine or petroleum site operators compliant with the silica training requirements in clause 529DC of the WHS Regulation if their crystalline silica training required under sections 106 and 107 of the WHS (MPS) Regulation achieves the following learning outcomes:

- Demonstrates knowledge and understanding of the adverse health effects of RCS exposure
- Demonstrates the ability to apply basic crystalline silica risk management techniques
- Demonstrates the ability to control crystalline silica hazards associated with the CSS processing tasks being carried out.

The Regulator also approves SafeWork NSW [approved worker crystalline silica training](#) to be used by mine or petroleum site operators, where relevant.

The Regulator may in the future publish on its website accredited or approved crystalline silica worker training for mining or petroleum sites.

The Regulator provides additional information on its website for use as training reference material for [airborne contaminants](#), [dust diseases](#) and [health control plans](#) including monitoring of worker exposure and health.

Compliance and enforcement

Four-month transition period

The Regulator will provide a 4-month implementation period for mine or petroleum site operators to verify compliance with Chapter 8A of the WHS Regulation by 1 January 2025. Mine or petroleum site operators should review their airborne contaminants principal hazard management plans and implement any identified improvements within this time period.

The Regulator will conduct site visits to verify compliance

As part of the Regulator's incident prevention strategy a compliance priority program will be initiated for crystalline silica substances in 2025. The program will involve proactively assessing mine or petroleum site operator's compliance with the crystalline silica amendments.

Appendix

Table 1 - Silica risk control plan comparison to an airborne contaminants PHMP

WHS Regulation clauses 529B,C,CA,CB,CC Silica Risk Control Plan	WHS(MPS) Regulation Airborne Contaminants PHMP
Identifies specific high risk crystalline silica tasks or processes required to be undertaken	Describes the nature of the PH and how it relates to mining operations at the site (section 28(3)(a) and (b) WHS (MPS) Regulation).
Identifies the forms of RCS present	Identifies types of dust and concentration of contaminants in the air from natural or introduced sources (Schedule 1(8) WHS (MPS) Regulation). Section 28(3)(c) WHS (MPS) Regulation describes the analysis methods used in identifying the principal hazard.
Identifies proportion of RCS in substance. CSS contains at least 1% crystalline silica, determined as a weight/weight (w/w) concentration	
Identifies the frequency and duration of worker exposure for each task/work	Identify the length of exposure regarding shift length and recovery periods (Schedule 1(8) WHS (MPS) Regulation).
Uses information on previous worker exposure/health monitoring results	Includes personal airborne dust monitoring (baseline data and ongoing monitoring as necessary) as required by: <ul style="list-style-type: none"> • clause 50 WHS Regulation • section 89 WHS(MPS) Regulation and health monitoring required by: <ul style="list-style-type: none"> • clause 368 WHS Regulation • section 112 WHS(MPS) Regulation (by notice or Order in the Government Gazette).
Uses information on previous cases of illness/disease/incidents associated with workplace exposure	This is covered by the <u>Health Principal Control Plan (PCP)</u> as outlined in schedule 2(1)(c) of the WHS (MPS) Regulation, which requires monitoring of the existence of the health hazards associated with mining operations or petroleum operations at the mine or petroleum site and the exposure of workers to the hazards.
Identifies control measures using the hierarchy of controls	Section 28 (3)(e) and (f) of the WHS (MPS) Regulation describes the control measures and identifies the investigation and analysis methods used to determine the control measures required by section 28(3)(g) WHS (MPS) Regulation describes how information, training and instruction will be provided (in relation to control measures).
Explains how control measures are implemented	
Must be readily accessible and understandable to people who use it	Section 106 (1)(c) of the WHS (MPS) Regulation, requires the PHMP to be readily accessible to all workers at the mine. Section 28 (2)(b) requires the PHMP to be readily understandable by persons who use it.

Table 2 – Worker exposure and health monitoring for crystalline silica

<i>WHS Regulation cl 529CE</i>	WHS(MPS) Regulation
Silica worker exposure monitoring in accordance with clause 50 WHS Regulation (clause 529CE(a) WHS Regulation)	Clause 50 WHS Regulation applies. Mine or petroleum site operators are required to carry out worker exposure monitoring under section 89 and schedule 6 of the WHS(MPS) Regulation.
Reporting silica worker exposure monitoring exceedances of the RCS exposure standard to the regulator within 14 days (clause 529CE(b) WHS Regulation)	Mine or petroleum site operators to notify silica worker exposure monitoring exceedances of the RCS exposure standard to the regulator within 7 days under section 124(5)(s) WHS(MPS) Regulation. NOTE: This requirement continues to apply
Silica worker health monitoring in accordance with Part 7.1, Division 6 of the WHS Regulation (clause 529CE(c) WHS Regulation)	Worker health monitoring is required in mine or petroleum sites health principal control plan section 30(3) schedule 2(1)(d) WHS(MPS) Regulation.

Table 3 – Worker crystalline silica training requirements

WHS Regulation cl529DC	WHS(MPS) Regulation
Training of workers involved in processing a CSS is to be accredited or approved by the regulator. It is to include health risks and proper use of risk controls. Records are to be kept	Section 106 of the WHS(MPS) Regulation requires workers to receive information and training on each PHMP and PCP. Section 107 of the WHS(MPS) Regulation requires each worker engaged by the operator is trained, and is competent, in basic risk management techniques used and control of hazards associated with tasks carried out by the worker.

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