

Construction dust: stage 2 enforcement procedure

Work Health and Safety Act and Regulation 2011



Purpose

This procedure provides consistent enforcement guidance for the assessment of workers' personal exposure risks from processes that generate respirable crystalline silica (RCS).

Background

Crystalline silica is a basic component of soil, sand, granite, and many other minerals. Quartz is the most common form of crystalline silica and is found in a range of building materials including:

- Concrete & concrete products such as autoclaved aerated concrete (e.g. Hebel)
- Fibre-cement sheeting
- Bricks, blocks, tiles and pavers
- Bagged materials such as cement, tile adhesive and mortar

Respirable crystalline silica (RCS) is the portion of dust that is too small to be seen under normal lighting, its size allows it to stay airborne for long periods of time, and it is easily inhaled deep into the lungs.

Many construction work processes generate airborne dust which contains RCS.

Exposure to RCS can lead to a range of respiratory diseases including silicosis, chronic obstructive pulmonary disease (COPD) and lung cancer (RCS is a carcinogen).

Silicosis is a serious and irreversible lung disease that causes permanent disablement and early death, and it is made worse by smoking. Silicosis is commonly caused from exposure to RCS over many years, but extremely high exposures across the short-term can cause it to develop rapidly

Targeted RCS-generating processes

All of the processes below are known to produce airborne RCS:

- Power tools (including scabblers, grinders, saws, drills and rotary hammers) used on silica-containing materials
- Mixing of concrete, adhesive or mortar using dry-bagged products.
- Housekeeping involving dry sweeping, compressed air or blowers on dusts likely to contain silica.

Note: Workers' exposure to RCS must be controlled at all times, even for short term or one off tasks.

Key information to collect

- Correct details for PCBU with management or control of the process
- Full names of workers involved in the work process being assessed
- Description (and photo) of task, including type of activity, materials being used, and location
- Make, model and description of controls being used, including photos
- Evidence of fit-testing for any tight-fitting respirators provided by the PCBU (including date of test, make and model fitted to, and details of the person who did the testing)
- Copies of any air-monitoring reports for the task (Contact Carolyn Topping for assistance with interpretation of air monitoring reports before accepting them as being indicative of workers' exposure levels)
- Clear description of any deficiencies identified with existing controls (e.g. dust not being captured,), description of controls that should be in place, photos if applicable.
- Copy of safe work method statement for the process.

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Part 1 – Prohibited Activity

Check the following elements. If the answer is YES to all four criteria (i.e. no effective controls are in place) then a prohibition notice must be issued:

- Criteria 1 - Workers are performing work in the immediate vicinity of visible dust the inspector reasonably believes contains RCS, **and**
- Criteria 2 - No engineering controls (dust extraction or water suppression) are being used, or, the engineering controls are not preventing visible amounts of airborne dust, **and**
- Criteria 3 - There is no RPE being used or the RPE is being worn in a manner that it is not effective (wearing over a beard or non-shaved skin), **and**
- Criteria 4 - The employing PCBU cannot provide air monitoring that shows the personal exposures do not exceed the exposure standard.

The prohibited activity is:

Working in an environment that contains airborne respirable crystalline silica (RCS).

Matters giving rise to the risk:

The risk of serious illness from inhalation of RCS is managed.

Contravention

WHSR- s351(1)

WHSR- s19(1) and 32

Basis for belief

Must describe evidence to support inspector's reasonable belief. For example:

I observed workers cutting concrete generating clouds of dust. I observed that there were no dust extraction or water suppression controls in place. The workers were not wearing respirable protective equipment. Your site supervisor told me that no air monitoring for RCS has been conducted.

Direction example:

Manage risks to health from the inhalation of RCS in accordance with Part 3.1 of the Work Health and Safety Regulation 2011.

Part 2 – Contravention checks

There are nine provisions to assess. If the inspector forms a reasonable belief that a person is contravening a provision, then an improvement notice should be issued (where the issue cannot be resolved before the inspector leaves the site).

1. Check suitable engineering controls are used to manage risks from RCS- WHSR s 351(1)
2. If used, check dust extraction plant is fit for purpose WHSR s351(1)
3. Check RPE is supplied- WHSR s351(1)
4. If supplied, check RPE is worn - WHSR s44(2)
5. If supplied, check RPE is suitable for the work and hazards (P1 filtration)- WHSR s44(2)
6. If supplied, check tight fitting RPE is a suitable fit (beards)- WHSR s44(2)
7. If supplied, check that RPE has been fit-tested for each worker- WHSR 44(2)
8. Check if a safe work method statement for RCS work is prepared – WHSR s299(1)
9. Check the RCS work is being done in compliance with safe work method statement – WHSR s300(2)

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1. Check suitable engineering controls are used to manage risks from RCS

Check the following elements. If the answer is YES to criteria 1, 2 and 3, and at least one of criteria 4, then the improvement notice referred to below should be issued.

- Criteria 1 - Workers are performing a RCS handling or generating process, **and**
- Criteria 2 – Workers are using RPE (properly, and if tight-fitting are also clean shaven at the face-seal) **and**
- Criteria 3 - The employing PCBU cannot provide air monitoring that shows the personal exposures do not exceed the exposure standard, **and**
- Criteria 4 - Any ONE of the following is present:
 - Either no water suppression or dust extraction methods are used, **or**
 - Water suppression is used BUT the water suppression is not effective because the water flow is either (1) insufficient or (2) not well directed, **or**
 - Dust extraction is used BUT the extraction is not effective because: (1) it is not capturing the majority of visible dust generated (can be caused by the extraction unit not having sufficient capacity or deficiencies in the capture hood design or placement), or (2) the extractor is damaged, missing filters or collection bags, or is full to capacity (visible dust is escaping from the extractor)

Issue a notice under s351 (1) WHS Regulation 2011 (linked to WHSA s19 (1) and 32 or 33) – reference to work involving hazardous chemicals has not been managed in accordance with part 3.1 (s35(b) management of risk).

Brief description example:

You have not minimised risks to health, so far as is reasonably practicable, associated with handling or generating respirable crystalline silica (RCS) dust.

*I observed workers performing (insert RCS generating process) Select applicable issue/s: There are no controls in place to suppress or control the dust at the source, **OR** the controls are ineffective due to water suppression being insufficient or not well directed **OR** dust extraction unit does not have sufficient capacity to handle the amount of dust generated **OR** the capture hood design or placement is deficient (describe) **OR** the dust extraction unit is damaged, missing filters or collection bags, or is full to capacity.*

You stated that no air-monitoring has been conducted to ensure that personal exposure levels are below the exposure standard for RCS with existing controls in place.

Direction example:

You must manage risks associated with RCS dust in accordance with Part 3.1 of the Work Health and Safety Regulation 2011.

2. If used, check dust extraction plant is fit for purpose

Check the following elements. If the answer is YES to criteria 1 & at least one of criteria 2, then the improvement notice referred to below should be issued

- Criteria 1 - Workers are performing a RCS handling or generating process, and
- Criteria 2 - Dust extraction plant (vacuum cleaner/dust extraction unit) is used where the plant or plant filter system does not meet the requirements of at least m-class (h-class is also acceptable) as described in AS 60335.2.69 **OR** (for drills only) tool-mounted dust extractor is not fitted with a HEPA filter.

Issue a notice under s351 (1) WHS Regulation 2011 (linked to WHSA s19 (1) and 32 or 33) – work involving hazardous chemicals has not been managed in accordance with part 3.1 (s37(a) maintenance of control measures).

Brief description example:

You have not managed risks to health associated with handling or generating respirable crystalline silica (RCS) by ensuring control measures are fit for purpose.

I observed workers performing (insert RCS generating process) using a (describe dust extraction plant and filter system) to control RCS exposure. This extraction system is not designed to meet the requirements of at least m-class as described in AS 60335.2.69 and therefore is not fit for purpose.

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Direction example:

You must manage risks associated with RCS dust in accordance with Part 3.1 of the Work Health and Safety Regulation 2011.

3. Check RPE is supplied

Check the following elements. If the answer is YES to criteria 1, 2 and 3, then the improvement notice referred to below should be issued.

- Criteria 1 - Workers are performing a RCS handling or generating process, **and**
- Criteria 2 - The employing PCBU cannot provide air monitoring that shows existing higher order controls (substitution, isolation, engineering or administrative controls- ref WHSR s36), if any, are preventing personal exposures from exceeding the exposure standard for RCS, **and**
- Criteria 3 - RPE is not provided for use by the PCBU or another person to control the remaining RCS risk.

Issue a notice under s351(1) WHS Regulation 2011 (linked to WSHA s19(1) and 32 or 33) – work involving hazardous chemicals has not been managed in accordance with part 3.1 (s36(5)- if a risk remains, the provision and use of suitable PPE).

Brief description example:

You have not managed risks to health associated with handling or generating respirable crystalline silica (RCS) by ensuring the provision and use of suitable Personal (Respiratory) Protective Equipment (RPE) to workers where this risk remains.

I observed workers performing (describe RCS generating process). (if applicable) I observed some controls (describe) for the risk of workers inhaling RCS. You told me that no air-monitoring has been conducted to ensure that personal exposure levels are below the exposure standard for RCS with existing controls in place. I was told by workers that no RPE has been provided.

Direction example:

You must ensure risks from exposure to respirable crystalline silica are managed in accordance part 3.1 of the Work Health and Safety Regulation 2011.

4. If supplied, check RPE is worn

Check the following elements. If the answer is YES to criteria 1-4, then the improvement notice referred to below should be issued.

- Criteria 1 - Workers are performing a RCS handling or generating process, **and**
- Criteria 2 - RPE is provided for use by the PCBU to control the remaining RCS risk, **and**
- Criteria 3 - RPE is not worn or used by a worker(s), **and**
- Criteria 4 - There is no reasonably practicable reason for the PCBU to not ensure the RPE is worn or used.

Issue a notice under s44(2) WHS Regulation 2011 – referencing s44(3)(c) – PCBU must ensure that RPE provided is used or worn by the worker, so far as is reasonably practicable.

Brief description example:

You have not ensured Respiratory Protective Equipment (RPE) provided to workers is used or worn, so far as is reasonably practicable where there is a risk to health from respirable crystalline silica (RCS) dust.

I observed workers performing (insert RCS generating process). You told me that RPE (describe type) is provided to workers. I observed worker(s) undertaking this work without RPE. The worker(s) told me they often don't use the RPE provided as it is uncomfortable.

The direction is:

You must ensure workers use RPE in accordance with s44 of the Work Health and Safety Regulation 2011.

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5. If supplied, check RPE is suitable for the work and hazards (P1 filtration)

Check the following elements. If the answer is YES to criteria 1-2 then the improvement notice referred to below should be issued.

- Criteria 1 - Workers are performing a RCS handling or generating process, **and**
- Criteria 2 - RPE provided for use by the PCBU does not have at least P1 filtration (P2 and P3 are also suitable)

Issue a notice under WHSR s44(2) referencing s44(3)(a)(i) – PCBU must provide PPE that is selected as suitable having regard to the nature of the work and any hazard associated with the work.

Brief description example

You have not selected Respiratory Protective Equipment (RPE) with regard to the hazards associated with handling or generating respirable crystalline silica (RCS) dust.

I observed workers performing (insert RCS generating process). I observed that RPE provided for use does not have a minimum of P1 filtration and is therefore not suitable for RCS dust.

Direction example

You must ensure workers are provided with RPE in accordance with s44 of the Work Health and Safety Regulation 2011.

6. If supplied, check tight fitting RPE is a suitable fit (beards)

Check the following elements. If the answer is YES to criteria 1, 2 and 3, then the improvement notice referred to below should be issued.

- Criteria 1 - Workers are performing a RCS handling or generating process, **and**
- Criteria 2 - The worker has been supplied with tight-fitting RPE by the PCBU, **and**
- Criteria 3 - Worker(s) is wearing tight-fitting RPE in a manner that it is not a suitable fit (wearing over a beard or non-shaved skin).

Issue a notice under WHSR s44(2), referencing s44(3)(a)(ii) – PCBU must provide PPE that is selected to minimise risk to health and safety by ensuring the equipment is a suitable fit for the worker who is to wear it.

Brief description example:

You have not selected Respiratory Protective Equipment (RPE) that is a suitable fit for the workers who wear it when handling or generating respirable crystalline silica (RCS) dust.

I observed workers performing (insert RCS generating process) using (describe tight fitting RPE). I observed worker(s) using this RPE who were bearded and/or not clean shaven. This type of RPE is not a suitable fit for workers who are bearded and/or not clean shaven.

Direction example:

You must ensure workers are provided with RPE in accordance with s44 of the Work Health and Safety Regulation 2011.

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7. If supplied, check that RPE has been fit-tested for each worker

Check the following elements. If the answer is YES to criteria 1, 2 and 3 then the improvement notice referred to below should be issued.

- Criteria 1 - The worker is performing a RCS handling or generating process, **and**
- Criteria 2 - The worker has been supplied with tight-fitting RPE by the PCBU, **and**
- Criteria 3 - The worker has not been fit-tested for the RPE (The fit test must meet AS1715)

Issue a notice under WHSR s44(2), referencing s44(3)(a)(ii) – PCBU must provide PPE that is selected to minimise risk to health and safety by ensuring the equipment is a suitable fit for the worker who is to wear it.

Brief description example:

You have not ensured Respiratory Protective Equipment (RPE) is a suitable fit for the workers who wear it when handling or generating respirable crystalline silica (RCS) dust.

I observed workers performing (insert RCS generating process) using (describe tight fitting RPE). These workers told me that they had not undertaken fit testing for the RPE.

Direction example:

You must ensure workers are provided with RPE in accordance with s44 of the Work Health and Safety Regulation 2011, including ensuring fit testing is conducted to ensure the fit of the RPE for the worker who is to use it.

Recommendation example:

Ensure tight-fitting respirators are fit-tested by a competent person in accordance with AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment

8. Check if a safe work method statement for RCS work is prepared.

Check the following elements. If the answer is yes to criteria 1 & 2, then the improvement notice referred to below should be issued.

- Criteria 1 - The work is construction work that is carried out in an area that may have an atmosphere contaminated with RCS (RCS handling or generating work=high risk construction work-ref WHSR s291(l)), **and**
- Criteria 2 - A safe work method statement:
 - has not been prepared for the work before the work commences by the PCBU carrying out the high risk construction work (ref WHSR s299(1)(a)) , **or**
 - has not been prepared for the work before the work commences by another person (ref WHSR s299(1)(b)), **or**
 - does not:
 - identify the high risk construction work (contaminated atmosphere- RCS) (ref WHSR s299(2)(a)), **or**
 - state the hazards relating to the contaminated atmosphere and the associated risks (ref WHSR s299(2)(b)), **or**
 - describe the control measures (ref WHSR s299(2)(c)), **or**
 - describe how the control measures are to be implemented, monitored and reviewed (ref WHSR s299(2)(a)).

Issue a notice under WHSR s299(1) - PCBU has not prepared a safe work method statement for the high risk construction work.

Brief description example:

You have failed to ensure that a Safe Work Method Statement (SWMS) has been prepared for construction work that is carried out in a contaminated atmosphere before the work commenced.

*I observed workers performing (insert RCS generating process) on a construction site. You told me that no SWMS has been prepared for this work by you or any other person, **OR** The SWMS prepared for this work does not (insert section(s) of s299 (2) not included in the SWMS).*

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9. Check the RCS work is being done in compliance with safe work method statement

Check the following elements. If the answer is YES to criteria 1, 2 and 3 and NO to criteria 4, then the improvement notice referred to below may be issued.

- Criteria 1 - The work is construction work that is carried out in an area that may have an atmosphere contaminated with RCS (RCS handling or generating work= high risk construction work-ref WHSR s291(l)), **and**
- Criteria 2 - A safe work method statement has been prepared in accordance with s299 of the WHS (make copy). Identify the control measures to be implemented to control the risks associated with this high risk construction work, **and**
- Criteria 3 - One or more of the control measures has not been implemented, **and**
- Criteria 4 - The high risk construction work was not stopped by the PCBU immediately or as soon as it was safe to do so for any control measures not implemented, and resumed only in accordance with the SWMS.

Issue a notice under WHSR s300(2)- Person must ensure if work is not carried out in accordance with the SWMS for the work, the person must ensure the work is stopped immediately or as soon as it is safe to do so, and resumed only in accordance with the SWMS.

Brief description example:

You have failed to ensure that work not being carried out in accordance with the safe work method statement was stopped immediately, or as soon as it was safe to do so.

I observed workers performing (insert RCS generating process) on a construction site. The SWMS prepared for this work stated the following control measures (state control measures not carried out). I observed (describe work being carried out without stated control measures).