

Category 1: Work Health and Safety

Control of Respirable Dusts

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Stabilised Pavements of Australia



2021 AustStab Awards of Excellence

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Overview

The risks to health associated with worker exposure to occupational dust have been researched and publicised since the early twentieth century.

The findings of the 2017 Queensland Inquiry into the identification of Coal Workers' Pneumoconiosis (the CWP Inquiry), the August 2017 New South Wales (NSW) Parliamentary First Review of the Dust Diseases Scheme, and the outbreak of diagnoses of accelerated silicosis amongst stone benchtop fabricators identified the need for businesses to manage the risks associated with exposure to occupational dust.

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Objectives

- Assess the risks posed from respirable dusts during our activities
- Educate our people
- Develop baseline controls that are practical and cost effective
- Maintain controls across all operational areas

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SPA's journey

SPA's journey into the control of respirable dust commenced in May 2019 at our national senior management meeting.

A presentation on the topic of emerging diseases associated with dusts was presented to the group and the QSE training team was tasked with working collaboratively with businesses and state government bodies to collate and review hygiene monitoring data.

Once all the data was collated, the QSE team and the senior management team evaluated the information and, in conjunction with our operational staff, collaboratively developed and implemented key operational controls.

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Operating environment

- Undertake construction activities that can generate dusts which potentially contain respirable particles, potentially including silica dioxide
- Activities undertaken include using earth moving equipment, including mixers, profilers, excavators and skid steer loaders, and working with concrete and other construction based activities

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Key controls

- Workers working within a 10 meter exclusion zone of operational plant are to be wearing an appropriate P2 mask
- Increased use of watercarts
- When operating machines, windows and doors to be closed at all times
- Only allowing the use of wet cutting and use of on-tool extraction systems
- Implementing a quantitative fit testing program for P2 masks
- Further strengthening our health surveillance to incorporate chest x-rays and spirometry at designated intervals

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Challenges

- Geographical location of operations (SQLD/NQLD/NSW/WA/Vic/Tas).
- Awareness / Facial Hair (employment contracts)
- Costs – monitoring/protection and implementation
 - Option 1: Portacount Respirator Fit Tester 8038 unit cost – \$20K, excluding calibration
 - Option 2: FT30 Bittrex – qualitative fit test kit unit cost – \$500
- Types of respiratory protection

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SPA's respirable dust control plan

- Development and implementation of a traffic light risk assessment system for activities that could potentially generate dusts

Green Activities: Activities that generate minimal or no silica or dust.

General Activities: Mowing, whipper-snipping and or mixing glass beads.

Controls: None required.

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SPA's respirable dust control plan

- Transition to amber: Activities that may generate respirable dusts

Activity: Opening bags and mixing of concrete, mortars or grout.

Controls: Good house-keeping, handling and personal hygiene practices to prevent dust build-up in the workplace and on clothing.

Additional critical controls include:

- Use ventilation, either dilution or extraction, to control dust spread and dust release (dependent on location and quantity)
- Personal protective equipment as directed by the Safety Data Sheet
- Implement and delineate any exclusion zones

Dust Source: Aggregate

- Product (cement, mortar or grout)

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SPA's respirable dust control plan

- Transition to amber: Activities that may generate respirable dusts

Activity: Cleaning (e.g. sweeping or blowing) of concrete, asphalt, bitumen.

Controls: Good house-keeping, handling and personal hygiene practices to prevent dust build-up in the workplace and on clothing.

Additional critical controls include:

- Use wet processes to prevent dust generation
- Use water suppression to prevent dust spread
- Position personnel so they are out of the dust either in enclosed cabins or so they are working upwind of dust emission
- P2 efficiency masks for workers within the exclusion zone or working within dusty environment.

Dust Source: Aggregate

- Soil, Earth minerals, Sand, Aggregate

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SPA's respirable dust control plan

■ Amber: Activities that generate significant respirable dusts

Activity: Cutting, grinding, drilling, mixing and or profiling Respirable Crystalline Silica materials.

Critical controls:

- Use wet processes to prevent dust generation
- Use water suppression to prevent airborne dust spread
- As a minimum P2 efficiency respirator for workers within the exclusion zone
- Establish exclusion zones specific to the types of controls being applied (3m if working method or using Local Exhaust Ventilation (LEV) or 10m if wet method or LEV are not being used)
- Good house-keeping, handling and personal hygiene practices to prevent dust build-up within the workplace or on clothing
- Use tools that minimise the generation of large quantities of fine dust

• Wet Method or LEV

Dust Source: Aggregate

- Concrete, Asphalt

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SPA's respirable dust control plan

■ Red: Activities that generate large amounts of respirable dust

Activity: Cutting, grinding, drilling, mixing and or profiling Respirable Crystalline Silica materials.

Critical controls:

- Any activities listed in Amber will require mandatory surveillance medicals for workers
 - Use water suppression to prevent airborne dust spread
 - As a minimum P2 efficiency respirator for workers within the exclusion zone
 - Establish exclusion zones specific to the types of controls being applied (3m if working method or using Local Exhaust Ventilation (LEV) or 10m if wet method or LEV are not being used)
 - Good house-keeping, handling and personal hygiene practices to prevent dust build-up within the workplace or on clothing
 - Use tools that minimise the generation of large quantities of fine dust
 - Wet Method or LEV
- Dust Source: Aggregate
- Concrete, Asphalt

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Evidence of success

- As a business through collaboration, SPA developed a Respirable Dust Management Plan which has been rolled out nation-wide. The document outlines all obligations and responsibilities associated with the management of respirable dusts. All the agreed controls have been implemented.
- In addition, SPA is developing our own fit-testing training packs and fit-test cards.

Respirator Fit Test Record

This is to certify that

NAME: Nick French

Was successfully fit-tested and trained in the proper use, care and limitations of this respirator.
(OSHA 29CFR1910.134 / AS/NZS 1715:2009)

MAKE: Honeywell

MODEL: 5000 series P2

TESTER'S NAME: Greg Kowalczuk

DATE TESTED: 17th March 2021

DATE FOR RETEST: 17th March 2022



2 TABLE OF CONTENTS

1	TITLE PAGE	1
2	TABLE OF CONTENTS	2
3	PURPOSE / SCOPE	3
4	BACKGROUND	3
5	DEFINITIONS	4
6	OUR PEOPLE	5
6.1	GENERAL RESPONSIBILITIES TO MANAGE HEALTH RISKS	5
6.2	KEY SPA STAFF RESPONSIBILITIES SPECIFIC TO MANAGING HEALTH RISKS	5
6.2.1	Directors	5
6.2.2	General Manager	5
6.2.3	Safety Manager	5
6.2.4	Training Manager	6
6.2.5	SPA Regional Managers	6
6.2.6	SPA Operations Managers / Engineers	6
6.2.7	Supervisors / Foreman	7
6.2.8	Plant Operators / Drivers	7
6.2.9	HR Advisor	7
6.2.10	Plant Manager / Workshop Staff	7
6.2.11	Suppliers / Contractors	7
	CONTROLS	8
7.1	WET METHOD	8
7.2	VENTILATION / ON-TOOL DUST EXTRACTION	8
7.3	SEPARATION / ISOLATION	9
7.4	RESPIRATORY PROTECTIVE EQUIPMENT	9
7.5	FIT TESTING	9
7.6	MONITORING OF THE CONTROLS	10
7.7	HEALTH SURVEILLANCE	10
7.8	WASTE HANDLING & DISPOSAL	11
	SPA QSE MANAGEMENT SYSTEMS & IMPACTS	11
8.1	TRAINING & COMPETENCY	11
8.2	CONTRACTOR MANAGEMENT	11
8.3	INCIDENT REPORTING	12
	NON - COMPLIANCE	12

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