



MANAGING RESPIRABLE CRYSTALLINE SILICA ON CONSTRUCTION SITES

The Paynters Journey February 2016

Case study conducted found

- Very little end user education and information within the study.
- Supplier information and knowledge conflicted with legislation and Australian standards



Outcome

SAFETY INFORMATION

SAFETY HIGHEST PRIORITY

Subject: Silica Dust

Date: February 2016

Back Ground:

Silica is a commonly used hazardous chemical used in the manufacturing of various building products, these include but are not limited to:

- Fibre Cement Sheetting
- Bricks and Blocks
- Concrete
- Hebel
- Tiles
- Cement based products

The health risks to workers become present when dust is generated from working with the products e.g. cutting, grinding, drilling, breaking. When workers are exposed to silica dust they are at risk of chronic obstructive lung disease including chronic bronchitis and emphysema.

Controls:

To minimise the generation of silica dust the following controls are to be implemented:

- Use a score and snap technique or shears if possible
- Wet cut (wet vacuum immediately after)
- Wear P2 masks
- Isolate the area from other workers
- Use a fully hooded dustless saw with a H class HEPA filtered vacuum attached
- Use a backing board under the material being cut (reduces the amount of dust being generated on the underside of the material)

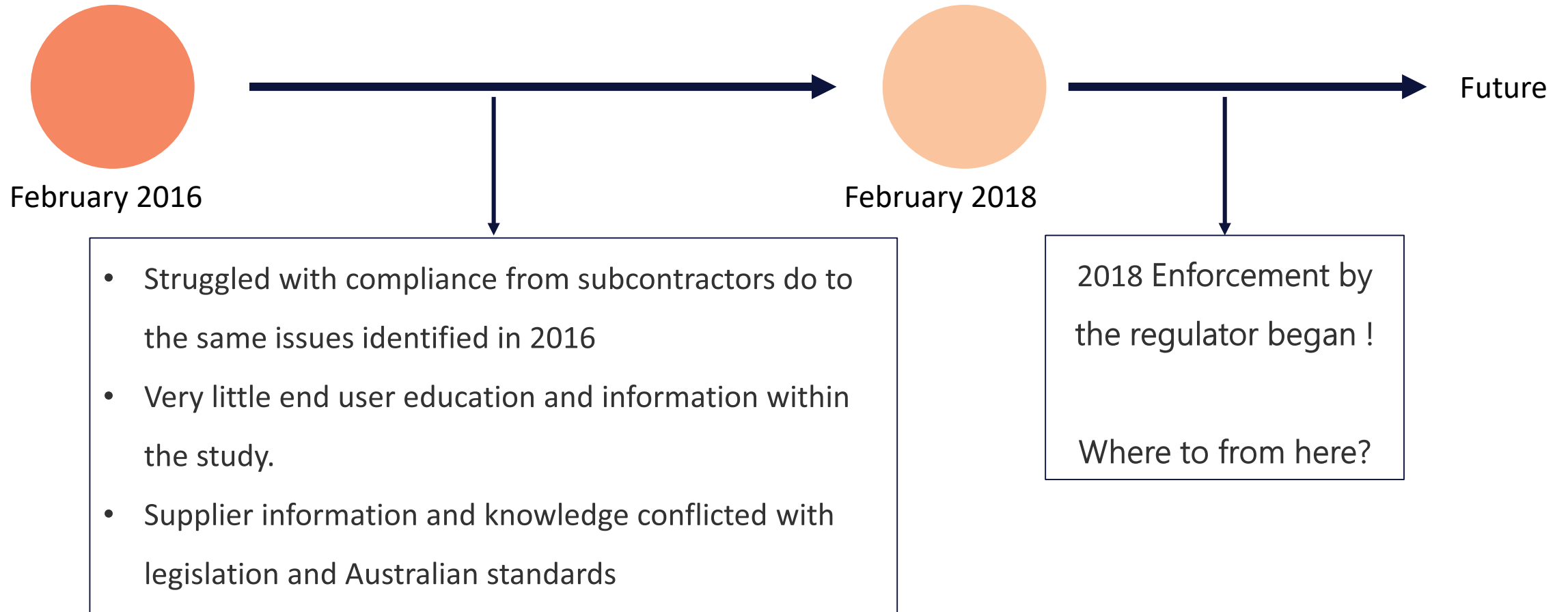


NEVER:

- Dry cut or grind without the above list saw and vacuum.
- Use any other vacuum except H class HEPA filtered vacuum.

For further information please contact Daniel Dunne – HSEQ Manager
Mob: 0448 109 384 Email: daniel.dunne@paynter.com.au

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Formed a working group to identify key issues with achieving compliance

Key issues identified:

- Subcontractor knowledge of RCS
- Subcontractor knowledge of tools and equipment available
- Subcontractor knowledge of tasks where exposure is likely

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Develop an Action Plan



SILICA DUST ACTION PLAN

Back Ground

Products widely used within the construction industry contain silica, some examples of these products are concrete; bricks; blocks; tiles; fibre cement sheeting; hebel and cement. Health risks to workers become present when dust is generated from working with the products e.g. cutting, grinding, drilling, breaking. When workers are exposed to Respirable crystalline silica (RCS) they are at risk of chronic obstructive lung disease including chronic bronchitis and emphysema. Manufacturers of these products have identified Silica in their product Safety Data Sheets and the controls that are required to manage the risk associated with RCS.

To assist Paynters staff and subcontractors in managing the risk to workers, an action plan and an RCS Awareness Package has been developed.

Action Plan

1. Consult staff, HSEQ Committee subcontractors and suppliers
2. Develop a Silica Safety Alert
3. Develop a Risk Register for Trades
4. Develop a Silica Awareness Toolbox Talk including supplier's extraction and PPE examples
5. Add Safety Alert, Risk Register and Toolbox Talk to Subcontract Order contract schedule item 1 - Other documents
6. HSEQ committee to review and approve Alert, Risk Register and Toolbox talk
7. Management to review and approve Alert, Risk Register and Toolbox talk
8. Deliver Training to Project teams and site staff via team meetings and zoom
9. Site staff and HSEQ staff to deliver site toolbox talks
10. Monitor implementation and uptake by subcontractors over a 3 month education and awareness period.
11. Enforce compliance on site after 3 month education and compliance period
12. Formal review by HSEQ Committee after 6 months.

Should you require any assistance and on Silica Dust please contact either myself or Amy Matthews at any time.

Regards
Daniel Dunne
HSEQ Manager
PAYNTERS PTY LTD

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Delivery



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Action Plan

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Action Plan Item 2: Develop Safety Alert



HSEQ ALERT

HEALTH & SAFETY – SILICA DUST

BACK GROUND:

Silica is a commonly used hazardous chemical used in the manufacturing of various building products, these include but are not limited to:

- Fibre Cement Sheeting
- Bricks and Blocks
- Concrete
- Hebel
- Tiles
- Cements
- Renders
- Stone Benchtops
- Cement based products

The health risks to workers becomes present when dust is generated from working with the products e.g. cutting, grinding, drilling, breaking. When workers are exposed to silica dust they are at risk of chronic obstructive lung disease including chronic bronchitis and emphysema.

CONTROLS:

To minimise the generation of silica dust the following controls are to be implemented:

- Where possible cut materials in a well-ventilated area away from workers not directly involved in the activity;
- Use a score and snap technique or shears if possible;
- Wet cut (wet vacuum immediately after);
- Wear a face fitted minimum P2 mask;
- Use on tool extraction devices with a minimum of M class with HEPA filtered vacuum attached;
- Use a backing board under the material being cut (reduces the amount of dust being generated on the underside of the material);
- Clean (Vacuum) work area progressively throughout the day and at the end of each day.



NEVER:

- Dry cut or grind without the above list controls in place.
- Use compressed air to remove dust e.g. work area, clean out holes

Note: Silica Dust is to be identified in the Safe Work Method Statement as a hazard and have appropriate controls referenced.

Action Plan Item 3: Develop Risk Register for Trades



STEP	Activity step <i>Break the activity down into steps. List the steps in this column.</i>	Hazards Identification <i>Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this column, and enter the risk rating in the next column.</i>	Initial risk rating (1-25)	Controls Implemented <i>Decide what controls to use to eliminate or minimise the risks. Detail the controls in this column, and enter the revised risk rating in the next column. Note: If the risk rating is still 18-25, do not begin work.</i>	Revised risk rating (1-25)	Person responsible
1	Demolition Removal of structures and associated components such as concrete, mortar, bricks, blocks, pavers, tiles, natural/composite stone benchtops and cement-based materials such as fibre-cement sheeting.	Respirable crystalline silica dust (RCS)	22H	<ul style="list-style-type: none"> • Use wet cutting methods for brick/block, tile, stone and concrete. • Install on-tool extraction devices. • Fully enclose work area from other trades using floor to ceiling plastic sheeting. • Where work area cannot be completely isolated, utilise air scrubbers. • NO DRY SWEEPING (of immediate work area). • Use H-Class or M-Class vacuum with HEPA filter to remove dust during housekeeping. • Bag waste debris prior to disposing in skip bin. • Locate skip bins outdoors and utilise a water misting system where required. • Wear Respiratory Protective Equipment (Particulate/Supplied Air/Powered Air) and ensure fit testing has been undertaken within the previous twelve months. Fit testing to be undertaken on the exact make and model of respirator worn. • Use water suppression for all outdoor mechanical demolition activities. 	15S	Demolition Supervisor

STEP	Activity step <i>Break the activity down into steps. List the steps in this column.</i>	Hazards Identification <i>Identify any potential hazards associated with each step – and any related risks. Detail the hazards and risks in this <u>column</u>, and enter the risk rating in the next column.</i>	Initial risk rating (1-25)	Controls Implemented <i>Decide what controls to use to eliminate or minimise the risks. Detail the controls in this <u>column</u>, and enter the revised risk rating in the next column. Note: If the risk rating is still 18-25, do not begin work.</i>	Revised risk rating (1-25)	Person responsible
2	Concreting Concrete cutting. Housekeeping after pours (Cleaning tools/remove excess concrete). Drilling into cement based/masonry products. General site housekeeping	Respirable crystalline silica dust (RCS) Uncontrolled movement of concrete slurry	22H	<ul style="list-style-type: none"> Use wet cutting methods for cutting concrete. Capture concrete slurry and dispose of appropriately. Remove all excess concrete from area whilst wet and place into skip bin. Install on-tool extraction devices. Bag <u>cement based</u> debris/dust prior to disposing in skip bin. Wear Respiratory Protective Equipment (Particulate/Supplied Air/Powered Air) and ensure fit testing has been undertaken within the previous twelve months. Fit testing to be undertaken on the exact make and model of respirator worn. NO DRY SWEEPING (of immediate work area). Use H-Class or M-Class vacuum with HEPA filter to remove dust during housekeeping. 	15S	Concrete Supervisor

5	Formwork	Respirable crystalline silica dust (RCS)	22H	<ul style="list-style-type: none"> • Install on-tool extraction devices. • Bag <u>cement based</u> debris/dust prior to disposing in skip bin. • Exclude other trades from stripping area. Monitor weather conditions during stripping process and use water misting system where required. • Set up separate area away from other trades to clean formwork components. • Where work area cannot be completely isolated, utilise air scrubbers. • Ensure dustless grinders are utilised for concrete patching tasks. • Wear Respiratory Protective Equipment (Particulate/Supplied Air/Powered Air) and ensure fit testing has been undertaken within the previous twelve months. Fit testing to be undertaken on the exact make and model of respirator worn. • NO DRY SWEEPING (of immediate work area). • Use H-Class or M-Class vacuum with HEPA filter to remove dust during housekeeping. 	15S	Formwork Supervisor
	Drilling into concrete slab/masonry products. Stripping Formwork components. Cleaning Formwork components. Patching concrete. General site housekeeping.					

Action Plan Item 4: Develop Toolbox Talk and extraction and PPE examples



RESPIRABLE CRYSTALLINE SILICA DUST (RCS) TOOLBOX TALK

RCS – WHAT IS IT?

Crystalline Silica (Quartz) is a common mineral found in most rocks, sands and clays; products such as concrete, mortar, brick, blocks, pavers, tiles, natural and composite stone benchtops; cement-based materials such as fibre-cement sheeting and autoclaved-aerated concrete.

Dust containing respirable crystalline silica (RCS) is generated by high-energy processes such as cutting, sawing, grinding, drilling, polishing, scabbling and crushing of silica-containing materials.

RCS particles are so small they cannot be seen under ordinary lighting and stay airborne long after larger particles have settled to the ground – the small particle size means it is easily inhaled deep into the lungs.

WHAT ARE SOME HEALTH EFFECTS OF RCS?

- Silicosis usually follows exposure to RCS over many years, but extremely high exposures across the short-term can cause it to develop rapidly.
- Exposure to RCS has been linked to lung cancer, renal cancer and chronic obstructive pulmonary disease.



HOW CAN WE MANAGE EXPOSURE?

- **Control the risks** – Eliminating exposure to RCS is the most effective control measure for managing the risk of work related illness.
- **Stopping or reducing the dust** – Order the right sized products to avoid cutting/preparation on site; use fibre cement sheers instead of circular saws; avoid dry sweeping and instead try vacuuming dust and silica debris using an M or H-class vacuum cleaner; bag waste materials prior to disposing into the skip bin; locate bins outdoors; use water misting systems to keep waste materials damp where possible.
- **Control the dust** - Install on-tool extraction devices such as a local exhaust ventilation system that fits directly on to the tool OR a dust trap shroud; Use water suppression or wet cutting methods; fully enclose work processes with floor to ceiling plastic sheeting; use suitable respiratory protective equipment that you have been fit tested for within the previous twelve months.



TOOLS AND EQUIPMENT

SHEARS

	
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Hitachi Electric Shears
(\$695.00)

Sheet cutter
(\$23.50 - Bunnings)

ON TOOL EXTRACTION DEVICES

	
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Hilti TE-CD (SDS PLUS) For hammer drills,
installing chemical anchors – no requirement
to vacuum dust after drilling hole.
(From \$140.70)

Hilti TE-YD (SDS MAX) For hammer drills,
installing chemical anchors – no requirement
to vacuum dust after drilling hole.
(From \$353.45)










Milwaukee M18 HAMMERVAC Dust
Extraction Head – For rotary hammer drills.
(\$210.00 – Trade Tools)




Milwaukee M12 12V Dust Extractor
Attachment Skin – for SDS Plus Rotary
Hammer drills & some corded hammer drills.
(\$230.00 – Trade Tools)

	
Milwaukee Dust Trap – for SDS Plus rotary hammers and SDS Plus drill bits up to 203mm length. Can be used with or without vacuum. (\$29.00 – Trade Tools)	
	
Makita 18V Rotary Hammer Dust extraction skin (\$115.00 – Trade Tools)	Hilti DG 150 – Diamond grinder for floor and wall grinding. (From \$3662.00)
	
Hilti Grinder Dust Extraction Hood DC-EX 125/5°C (From \$133)	Hilti Grinder Dust Extraction Hood DC-EX 125/5°M (From \$291)
	

	
Hilti Grinder Dust Extraction Hood DG-EX125/5° Grinding (From \$136)	
	
Hitachi Easy Bevel attachment for Fiber Cement Sheeting (From \$225)	
	
Hilti DCH 300 – Dry electric hand-held diamond cutter. Up to 120mm cutting depth with 305mm blade. (From \$2279.00)	Hilti DCH 180-SL – Diamond slitting machine for the installation of cables, conduits and pipes in concrete. Max depth 60mm/60mm. (From \$2604.00) DC-SE 20 model Max depth 40mm/46mm
	
Makita 185mm Dustless Circular Saw 1400W (\$699.00 – Trade Tools)	Hilti TE DRS-B – Dust removal system. (From \$411.92)

VACUUMS (H-CLASS OR M-CLASS)	
	
Hilti – VC 40-U M-Class Wet & Dry (From \$1798.00)	Makita 30L 1200 Watt M-Class Wet & Dry Vacuum (\$729.00 – Trade Tools)
	
Metabo ASR 35H ACP H-Class Vacuum (\$1699.00 – Trade Tools)	DeWalt 38L Construction Dust Extractor M-Class (\$799.00 – Trade Tools)
	

SPECIALISED FIBRE CEMENT BLADES	
	
ISOLATE WORK AREAS	
	
Protecta-Screen Zip Pole System	HEPA Filter Air scrubbers Available for Hire from Remeed Solutions Ph: 0408 076 339

RESPIRATORS	
	
Disposable	Half-face reusable (From \$30)
	
Full-face reusable	
THE EFFECT OF FACIAL HAIR ON PROTECTION	
	
Facial hair, including beards, moustaches, sideburns and stubble, will stop a respirator from sealing properly. Workers who are required to wear tight-fitting respirators, must be clean shaven to allow a good seal of the respirator to the face.	
FACE FIT TESTING	
GCG HEALTH SAFETY AND HYGIENE: 1300 424 474	
HAZSURE: 3191 4684	
RSEA: 3295 0800	

Action Plan Item 5: Add Safety Alert, Risk Register and Toolbox material to Subcontract order

CONTRACT SCHEDULE											
1.	Other documents (if any) forming part of the Subcontract. (See clause 1(a)(5)) (List Opposite)										
	<ul style="list-style-type: none">• Paynters Standard Preliminaries.• Terms and Conditions of Contract July 2016.• Drug and Alcohol Procedure BMS-PRO-007-002• Subcontractors Insurances and Business Particulars Form.• Agreement to issue Recipient Created Tax Invoice.• BMS-FRM-006-001-03 - HSEQ Management Plan• BMS-FRM-006-001-06 - Safe Work Method Statement Review Checklist• BMS-FRM-003-002-02 - Precontract Award Assessment• Silica Awareness Pack (Alert, Risk Register, Toolbox Talk, Tools and Equipment examples)										
2.	Liquidation Damages										
	<ul style="list-style-type: none">• Daily rate of Liquidation Damages. (See clause 8 (e)).	At cost									
3.	Subcontractor's Defects Liability Obligations										
	Defects Liability period (See clause 9(b) and 9(d)).	«Defects_Liability» weeks									
4.	Variations										
	Percentage margins for overheads and profit for work carried out as day work. (See clause 12).	«Variations» %									
5.	Progress Payments										
	Progress payments may be made. (See clause 17(a)).	«Progress_Payments»									
6.	Provisional Sums										
	Provisional Sums. (See clause 15).										
	<table><tr><th colspan="2">Description of Work Item</th><th>Sum</th></tr><tr><td>1.</td><td>«Provisional_Sums»</td><td>\$«PS_Amount»</td></tr><tr><td>2.</td><td></td><td>\$Nil</td></tr></table>	Description of Work Item		Sum	1.	«Provisional_Sums»	\$«PS_Amount»	2.		\$Nil	
Description of Work Item		Sum									
1.	«Provisional_Sums»	\$«PS_Amount»									
2.		\$Nil									
7.	Contract Sum										
	<ul style="list-style-type: none">• The Subcontractors will be paid on the following basis. (See clause «Contract_Sum_Clause»).	«Type_of_Contract»									
	TOTAL FIXED CONTRACT SUM (EXCLUDING GST)	\$«Total»									
	«Total_in_words»										

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Action Plan Items:

6. HSEQ committee to review and approve Alert, Risk Register and Toolbox talk

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The Paynters Journey 2018



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2016



2019

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2019





Questions

A large yellow crane is lifting a heavy load, likely a roof section, over a school building. The building is under renovation, with scaffolding and blue structural elements visible. The scene is set against a backdrop of a blue sky with white clouds. In the background, another building with scaffolding and the 'Paynters' logo is visible. The foreground shows greenery and a road.

THANKYOU