

## BACKGROUND

Think Brick Australia (TBA) represents the clay brick and paver manufacturers of Australia. Safety is a major issue and concern for our members.

TBA is aware of the safety concerns from activities associated with brick, block or paver's cutting works, and encourage the industry to take steps to protect workers from exposure to respirable crystalline silica.









Crystalline silica is a common mineral that is contained in earth, sand, stone, concrete, and mortar. Respirable Crystalline Silica (RCS) are very small particles that can be created when cutting, sawing, grinding, drilling, and crushing concrete, brick, block, paver and mortar.

The silica dust hazard arises due to the inhalation and build-up of tiny silica particles in the lungs. Health Risks from Silica exposure include Chronic Obstructive Pulmonary Disease, Silicosis, Lung Cancer and Renal Disease.

This factsheet outlines the health hazards associated with silica dust, presents the key requirements from legislations and provide suggestions for alternative installation methods to control the silica component exposure level.


## SUGGESTED ADJUSTMENTS TO INSTALLATION AND METHODOLOGY


Besides the implementation of WSH 2011 regulations 38 & 52 (Reviewing control measures), the following implementations could help reduce dust generation and increase safety within the Masonry industry:


-  Water suppression cutting systems that limit the amount of respirable crystalline silica that gets into the air;
-  High velocity low volume (HVLV) hoods for dust collection to:
  -  Ensure that silica concentration is within the WSH 2011 Regulation limits (Table 1);
  -  Reduce the need for site management issues (e.g. frequent wet sweeping and congested site due to numerous exclusion zones.)
-  Reducing on-site cutting or drilling works by:
  -  Pre-cutting or drilling works in factories;
  -  Routing electrical wiring over the wall when possible; and
  -  Placing the correct type of ventilation on-site to exhaust silica- contaminated air and avoid dust clouds.

## PCBU Requirements

Workplace Health and Safety Laws stipulate that the employer or Persons Conducting a Business or Undertaking (PCBU) should control the hazards to minimise the risks from silica exposure<sup>[1]</sup>. The silica related clauses can be found in Chapters 3 and 7 of the Work and Safety (WHS) 2011 Regulations<sup>[5]</sup>. The following regulations must be strictly followed to minimise the silica exposure level to workers:

-  **Identifying all silica hazards**


The PCBU must use a Safety Data Sheet (SDS) to identify and label silica hazards.
-  **Labelling, recording and registering hazardous chemicals and SDS**

Proper housekeeping, warning signage, restricting the time of exposure and rotation of staff away from dusty areas.
-  **Managing the risk**



Proper ventilation, use of Personal Protective Equipment and respiratory protective equipment rated P1 in accordance with AS/NZS 1715:2009 and AS/NZS 1716:2012 will help manage the risks associated with silica dust.


-  **Health monitoring & records for exposed workers**

For Workers exposed to silica over the Regulation Limits (Table 1), the PCBU must inform and provide the worker with a registered medical practitioner for health monitoring.




-  **Reviewing control measures for silica**

Minimise silica exposure<sup>[3]</sup>. Control measures can include and are not limited to:

-  Regular wet sweeping to prevent dust from spreading and accumulating.
  -  Placing signs to remind workers to remove work clothes and leave them on site to prevent silica dust from spreading.
- Vacuums used without HEPA filtration, dry sweeping or shovelling may cause dust to spread and accumulate increasing workers silica dust exposure.

-  **Induction, information, training and supervision about silica**

Workers should be trained to understand:

  -  How to identify different silica hazards
  -  Control measures to prevent silica exposure and spreading
  -  What to do in the event of silica exposure.



## OTHER AUTHORITY REQUIREMENTS

SafeWork Australia Workplace Exposure Standards<sup>[6]</sup> outlines the exposure limits for silica related chemical components (shown in Table 1), to protect workers from silica-related works. The 8-hour time weighted average airborne concentration of silica shall not exceed the concentration limit (shown in Table 1).

### 🕒 8-Hour Time-Weighted Average (TWA)

Eight hour time-weighted average exposure standards are the average airborne concentration of a particular substance that is permitted over an eight-hour working day, and a 5 day working week.

## TESTING AND MONITORING PROGRAMMES SERVICE

**Haztek, a health, hygiene and safety consultancy** have the expertise to assist organisations in developing silica hazard identification, assessment and monitoring programmes to meet industry requirements. Their contact details are:

Tel: 1300 55 3001  
 Website: [www.haztek.com.au](http://www.haztek.com.au)

\* We do not recommend or endorse any companies for their engineering, testing services or products. The provision of these contact details does not mean that we endorse or recommend these companies.

Chemical Name	Concentration Limit Over 8 hours (mg/m <sup>3</sup> )
<b>Silica - Amorphous</b>	
Diatomaceous Earth (Uncalcined)	10
Fumed Silica (Thermally Generated)	8
Respirable Dust	2
Fumed Silica (Respirable Dust)	2
Precipitated Silica	10
Silica Gel	10
<b>Silica - Crystalline</b>	
Cristobalite	0.1
Quartz	0.1
Tridymite	0.1

Table 1: Silica Concentration Limits indicated by Safe Work Australia <sup>[6]</sup>.



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## REFERENCES TO LEGISLATION, CODES OF CONDUCT AND INDUSTRY GUIDES

- [1] Workplace Health and Safety Queensland (2013), Silica – Technical guide to managing exposure in the workplace, Queensland Government
- [2] Workplace Health and Safety Queensland (2013), Silica – Identifying and managing crystalline silica dust and exposure, Queensland Government
- [3] Department of Commerce (2010), Code of Practice: Concrete and Masonry cutting and drilling 2010, Perth, Government of Western Australia.
- [4] SafeWork NSW (n.d), Crystalline Silica, Gosford, NSW Government
- [5] Work Health and Safety Regulations 2011 (2017), Australian Government
- [6] Safe Work Australia (2018), Work Place Standards for Airborne Contaminants, Canberra
- [7] United States Department of Labor, Occupational Safety and Health Administration, OSHA Factsheet - OSHA's Respirable Crystalline Silica Standard for Construction, United States.