MANAGEMENT OF SILICA DUST ON SITE

BACKGROUND

Concrete Masonry Association of Australia (CMAA) represents the concrete masonry manufacturers. Safety is a major issue and concern for our members.

CMAA is collaboratively working with masonry manufacturers and Work Health and Safety officials to ensure that the masonry industry leads the way when it comes to safeguarding against 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. As a result, it has become a prominent workplace safety issue, requiring immediate action.

This factsheet presents key legislative requirements and provide suggestions to mitigate exposure levels to silica dust.

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. The silica related clauses can be found in Chapters 3 and 7 of the Work and Safety (WHS) 2011 Regulations. 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**
  - Use of Respiratory Protective Equipment (RPE), in particular face masks, complying with AS/NZS 1715:2009 and AS/NZS 1716:2012 will help manage the risks associated with silica dust:
    - Be aware that different types of masks offer different levels of protection;
    - Ensure masks are stored in a clean environment;
    - Half-face RPE wearers need to be clean shaven;
    - The quality of masks are consistent and they’re replaced when necessary;
    - Workers must be trained in how to use and maintain RPE.

- **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.

- **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.

SUGGESTED WORKPLACE ADJUSTMENTS

- Familiarise yourself with the WHS 2011 regulations 38 & 52 for more detailed reviewing of control measures. Refer to manufacturers’ Safety Data Sheets (SDS) for recommended safe working practices.

- Use tools and equipment capable of capturing and extracting silica dust:
  - Use adequate ventilation to provide silica dust with an outlet;
  - Use water suppression cutting systems to limit airborne silica dust; and
  - Use high velocity low volume hoods for dust collection.

- Scheduling and site control:
  - Pre-cutting or drilling works in factories where possible.
  - No uncontrolled or unplanned dry cutting;
  - Routing electrical wiring over the wall where possible;
  - Wash down your site constantly with water and/or use Class M or H vacuum cleaners;
  - Regular wet sweeping to prevent dust from spreading; and
  - Remind workers to leave clothes on site to prevent silica dust exposure.
OTHER AUTHORITY REQUIREMENTS
SafeWork Australia Workplace Exposure Standards 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.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Concentration Limit Over 8 hours (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica - Amorphous</td>
<td></td>
</tr>
<tr>
<td>Diatomaceous Earth (Uncalcined)</td>
<td>10</td>
</tr>
<tr>
<td>Fumed Silica (Thermically Generated)</td>
<td>8</td>
</tr>
<tr>
<td>Respirable Dust</td>
<td>2</td>
</tr>
<tr>
<td>Fumed Silica (Respirable Dust)</td>
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</tr>
<tr>
<td>Precipitated Silica</td>
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</tr>
<tr>
<td>Silica Gel</td>
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<tr>
<td>Cristobalite</td>
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<tr>
<td>Quartz</td>
<td>0.1</td>
</tr>
<tr>
<td>Tridymite</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Table 1: Silica Concentration Limits indicated by Safe Work Australia.

REFERENCES TO LEGISLATION, CODES OF CONDUCT AND INDUSTRY GUIDES


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

* 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.

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