



Engineered Stone Worker

Engineered stone bench tops contain up to **95** percent crystalline silica. Natural stone such as granite may contain from 20 to 60 per cent. When engineered stone is worked by cutting, grinding and polishing with power tools, airborne dust is generated that can cause serious lung conditions if inhaled over time.

Dry cutting of engineered stone is extremely hazardous and is now illegal in many States.

In addition, workers can also be exposed to RCS from poor cleaning practices, including dry brooming of dust and the use of compressed air. Worker exposures must be prevented by using protective controls methods.

Engineered Stone dust and respirable crystalline silica (RCS)

Engineered stone dust is made from crystalline silica with resin and comprises of a mixture of different sized particles. Grinding produces a significant concentration of the smaller respirable sized fraction of the silica dust – respirable crystalline silica (RCS). This can result in the development of serious lung diseases, including progressive massive fibrosis, silicosis, accelerated silicosis, chronic obstructive pulmonary disease (COPD), lung cancer, as well as kidney and auto immune diseases. These diseases may cause permanent disability and early death.

Engineered Stone workers are required to have medical examinations by competent occupational physicians, see State regulations.

It is estimated in Australia that over 230 workers die every year from exposure to silica dust.

Inhaling any dust can lead to lung irritation, asthma and other acute and chronic respirable conditions.

Engineering controls

Water suppression:

- Automate systems for large cut outs and use water for dust suppression and, if necessary, local exhaust ventilation.
- Water is key for dust suppression and minimizing RCS exposures. Cutting and grinding devices must be fitted attached with an integrated water supply to minimize dust exposures.

Local exhaust ventilation (LEV):

- Enclose the dusty process and use an extraction system that draws the dust laden air away from the work area.
- Depending on the task, use integrated LEV which encloses the grinding wheel. A vacuum source is attached to remove dust generated by the grinder at the source of emission.

Safe working methods

- Avoid and prevent dry cutting of engineered stone
- Keep good housekeeping and minimize dust collection on benches etc.
- Use low pressure water, wet sweeping or with dry dust, in certain cases, M class rated vacuum cleaner to clean floors, walls and other surfaces
- Isolate workers from dust generating processes. Provide distance between workers using powered hand tools and other workers at the workplace.

PPE

- Risk assess the tasks and also refer to Australian Standard AS/NZ 1715 for RPE guidance.
- Use half face respirator with a P2 rated filter as a minimum for low dust emission tasks,
- Workers should be clean shaven to get the appropriate RPE protection.
- Consider using a PAPR respirator with P2 respirator for higher dust emission tasks,
- Wearers must be Face Fit Tested to ensure the RPE affords each individual the anticipated level of protection.
- Launder dusty or contaminated work clothes at the workplace or use a commercial laundry to avoid taking them home.

Preferred control measures

- Water suppression with supplemental RPE. On tool LEV with supplemental RPE for grinding work.

Training & communication, supervision, maintenance & testing of controls and **air monitoring*** are all vital aspects of managing the risk, in addition to health surveillance which can be a requirement in certain circumstances.

Air monitoring*

Air monitoring is a specialist activity. It may be needed as part of a risk assessment, as a periodic check on control effectiveness and to assess compliance with relevant WES, or where there has been a failure in a control (for example if a worker reports respiratory symptoms). A qualified Occupational Hygienist can ensure it is carried out in a way that provides meaningful and helpful results.

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WORKPLACE EXPOSURE STANDARDS (WES) & EXPOSURE LEVELS

Agent or substance	Control/Exposure	Exposure Levels
Silica-RCS	0.05 mg/m ³ (8hrTWA).	Exposure to RCS is dependent on the silica content of the material being worked, which varies eg Engineered stone (>90% crystalline silica), Granite (20 – 60 % silica) and marble (around 2%). Grinding and cutting without water suppression will produce the highest levels of dust, and risk of exposure to RCS is also affected by the frequency and duration of the work.

Further HSE information

Safe Work Australia

www.safeworkaustralia.gov.au/doc/working-silica-and-silica-containing-products

Victoria

www.worksafe.vic.gov.au/dust-containing-crystalline-silica-construction-work

www.worksafe.vic.gov.au/resources/working-reconstituted-stone

New South Wales

www.safework.nsw.gov.au/news/pre-27-sept-2018-media-releases/safety-taskforce-to-protect-stone-industry-workers

Queensland

www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/managing-respirable-crystalline-silica#benchtop

South Australia

www.safework.sa.gov.au/health-safety/hazards-risks/air-quality/managing-respirable-crystalline-silica-exposures

Tasmania

www.worksafe.tas.gov.au/_data/assets/pdf_file/0008/450674/Silica-Dust.pdf

Western Australia

www.commerce.wa.gov.au/sites/default/files/atoms/files/gn_stone_product_fabrication.pdf

www.commerce.wa.gov.au/publications/stone-benchtop-fabrication-and-installation-checklist

Image supplied by NSW Government.