



Technical Bulletin

Prohibition of the use of engineered stone

Prepared by: Michael Sander, Technical Lead, Engineering

Reviewed by: Andrew Parker, Senior Forensic Engineer

Approved by: Tim Butler, Head of CRD

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For the purposes of this bulletin, engineered stone is defined* as:

An artificial product containing crystalline silica (in any quantity) and:

(1) is created by combining natural stone materials with other chemical constituents such as water, resins or pigments

(2) undergoes a process to become hardened

but excludes:

- a. *concrete/cement products*
- b. *bricks, pavers and other similar blocks*
- c. *ceramic or porcelain wall/floor tiles*
- d. *roof tiles*
- e. *grout, mortar or render*
- f. *plasterboard*

**based on SafeWork NSW definition, 14 December 2023*

INTRODUCTION

Over the past 10-15 years, engineered stone has become a popular construction material for kitchen, bathroom and laundry benchtops.

The material was developed in the 1980s and later, as an alternative to natural granite, marble or laminated benchtops. It was marketed as more durable than laminated particle board (brands such as Laminex® or Polytec®), and more cost effective than naturally occurring cut and polished stone.

Engineered stone was resistant to damage by heat, abrasion by most household chemicals and scratching by cutlery. It was harder than some natural stones and non-porous, meaning less cracking and absorption of stains.

It was marketed in Australia under many brands, some of which include Caesarstone[®], Essastone[®], Smartstone[®] and countless others, in a variety of colours, grains and patterns.

COMPOSITION

Engineered stone is typically constructed from naturally obtained stone (quartz, marble etc), which is crushed and combined with an adhesive binder.

The binder is typically a crystalline silica, mixed with other resins, creating a relatively homogenous, isotropic slab, which is then cut and polished similar to natural stone.

Each manufacturer has a proprietary mix ratio of components, some including metallic or light-reflecting particles for aesthetic properties, or epoxy-style ribbons for marbling properties.

HEALTH CONCERNS

In 2015, The National Institute for Occupational Safety and Health (NIOSH) published HazardAlert (2015-106), identifying average silica contents which widely varied between 45% and 93%, compared to natural Granite (10% - 45%).

Stone	Average % Silica
Engineered Stone	>93%
Quartzite	95
Quartzite Sandstone	90
Sandstone	60
Granite	10-45

In Australia, calls for a review into respiratory diseases caused by airborne dust particles have been growing, resulting in a National Dust Disease Taskforce being established, reporting in June 2021.

The primary concern was large amount of silica dust which are released during the cutting and polishing of Engineered Stone, penetrating deep into the lungs and causing silicosis. Many silicates, including talc, kaolinite and asbestos, are formed from the combination of silicone-dioxide (SiO₂) and other elements.

Natural stone also includes silica in its geological formation, but as the constituents of engineered stone have already been crushed prior to forming the engineered slab, the grinding and polishing after the slab is cured releases dust with extra fine particles compared to the dust from natural stone.

We noted that other non-stone materials, such as concrete/cement also release fine dust particles during mixing and cutting, so care should be taken by all workers involved.

LEGISLATION

A national ban on engineered stone has been introduced, effective 1 July 2024. This makes Australia one of the earliest countries to proposed/enact legislation on this topic.

Transition periods are in place which vary between states and territories between 31 December 2023 to 31 December 2024. These can be found in detail on the Department of Employment and Workplace Relations website:

<https://www.dewr.gov.au/engineeredstone/what-does-mean-my-state-or-territory>

Importantly, dust minimisation methods such as “wet cutting” have been required for engineered stone for some time, but many in the industry stated that these methods were not universally applied or enforced.

The ban is not intended to apply to repairs, minor modification, removal or disposal of engineered stone.

Each state/territory jurisdiction implement the ban separately through their respective WHS regulations.

Further, stronger regulations applying to materials with at least 1% crystalline silica will be implemented from 1 September 2024.

PROHIBITED WORKS

Workers are prohibited from working with new engineered stone slabs, panels and benchtops, including:

- Installing
- Manufacturing
- Processing
- Supplying:

In addition, workers are prohibited from:

- Dry processing stone substitute products (engineered stone, porcelain, sintered stone) using power tools and/or mechanical processes.
- Uncontrolled processing of other crystalline silica materials using power tools or other mechanical methods.

ALLOWABLE WORKS

Work on existing products that are already installed, may proceed, but appropriate safety requirements must be in place. These works include:

- Demolition and removal
- Disposal
- Repairs
- Minor modifications

All workers processing engineered stone must be provided with and wear respiratory Personal Protective Equipment (PPE). See: <https://www.safeworkaustralia.gov.au/esban>

All works involving hazardous materials must be assessed by the contractor's safety staff and a Safe Work Method Statement (SWMS) must be produced prior to works commencing. This is mandatory for all Persons Conducting a Business or Undertaking (PCBU) as defined in each state's WHS legislation.

ALLOWABLE WORKS

Specific requirements apply for:

- Stone substitute products (including non-prohibited products, porcelain, sintered stone without resin)
- Legacy/installed engineered stone
- Other crystalline silica materials such as concrete, cement products, tiles, pavers or blocks

For the above, safety controls include:

- Water delivery for wet processing
- Wet dust suppression
- Class H vacuum attached to tools
- (Class M for less than 25% silica)
- Local exhaust/ventilation
- Physical isolation from other workers
- Respiratory protective equipment

ALLOWABLE WORKS (EXAMPLES)

- Crack repairs to engineered stone kitchen benchtop with liquid resin and repolishing
- Drilling a hole in benchtop to install a new powerpoint or sink
- Cutting up benchtop for demolition and disposal.

State base WHS (such as SafeWork NSW) must be notified prior to undertaking the above works.

INSURER'S RESPONSE

Insurer's response will vary similar to the following:

- Like-for-Like replacement is not allowable for prohibited engineered stone products.
- Minor repairs are allowable for cracks and localised damage repairs.
- Specify nearest available silica-free, stone-like product where the original is unavailable (Evo Stone[®], Meganite[®], Corian[®], Dekton[®], Neolith[®]) or engineered product with less than 1% silica content.
- Natural stone is not recommended (increased long term maintenance and poor chemical resistance).
- All WHS local and state requirements must be followed.
- **Builders must take care when replacing cabinets to preserve the benchtop, minimising the need for replacement where possible.**

CRD GUIDANCE

CRD Building Consultants and Engineers notes the following key items with regards to specifying engineered stone:

1. Products containing above 1% crystalline silica are prohibited.
2. Scope of Works documents should require the builder to obtain fully certified documentation from the product supplier that confirms the product complies with the local legislation, both for material constituents and for on-site processing
3. Activities to repair, modify, remove, and dispose of engineered stone that do not require processing is permitted, but seek further guidance from local state WHS authority.
4. Processing means using a power tool or other mechanical plant (for example a crusher) to crush, cut, grind, trim, sand, abrasive polish or drill the stone.
5. Safety-In-Design legislation is already in force nationally, and must be adhered to (see below).
6. Repair works which are allowable under the legislation must be accompanied by a Safe Work Method Statement, to be submitted to the Insurer.
7. The local state WHS authority must be notified of the works (except Victoria).

SAFETY IN DESIGN

Safety In Design (SID) is the integration of hazard identification and risk assessment methods early in the design process to eliminate or minimise the risks of injury throughout the life of the product being designed.

SID (or equivalent) legislation is currently in force in all states (Victoria has similar legislation but is not as yet harmonised with other states).

SID references a PCBU (Persons Carrying on Business or Undertaking), designers, manufacturers, importers, suppliers, installers, officers or workers, including Engineers and Project Managers.

SID must take account of the entire product life cycle, including manufacture, installation, maintenance and eventual demolition.

In the case of engineered stone, the Scope of Works must demonstrate that the product can remain compliant throughout its life.

Installation prior to 1 July 2024 might not remove SID obligations for maintenance and demolition.

On this basis, CRD recommends that alternative products are specified in the Scope of Works, commencing immediately.

SUMMARY AND CONCLUSION

The ban on engineered stone is now in effect.

Products containing more than 1% crystalline silica are prohibited from being manufactured, supplied or installed.

Minor repairs are permitted, but local WHS authorities must be notified (except Victoria).

Works which do not require processing to crush, cut, grind, trim, sand, abrasive polish or drill the stone are generally permitted.

Safety In Design may apply, even prior to the ban taking force.

CRD recommends engineered stone is excluded from all Scopes of Works, effective immediately, to comply with the ban and current SID legislation.

FURTHER REFERENCES

- Department of Employment and Workplace Relations
<https://www.dewr.gov.au/engineeredstone/>
- Safe Work Australia
<https://www.safeworkaustralia.gov.au/esban>

The information and advice in this Bulletin is of a general nature only, and has not been prepared with specific needs or requirements in mind. You should always obtain specialist advice to ensure that the materials and installation requirements referred to in this Technical Bulletin meet your specific requirements.

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Building Consultants & Engineers

L14, 28 The Esplanade Perth WA 6000

Tel: 08 9329 4500

Email: info@crdbce.com.au

CRD Building Consultants and Engineers

A.C.N. 002 317 113 • A.B.N. 11 002 317 133

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