

# Review of the engineered stone prohibition

Report

**JULY 2025**

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**Report**

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# Executive Summary

## Background

On 13 December 2023, work health and safety (WHS) ministers agreed to amend the model Work Health and Safety Regulations (WHS Regulations) to implement a world-first engineered stone prohibition in all jurisdictions across Australia.

The decision to implement the highest level of control – eliminating the source of the risk to workers' health and safety – was driven by thorough consultation, comprehensive evidence gathering, and the expertise of WHS professionals and scientists.

The aim of the prohibition is to protect workers from being exposed to significant amounts of respirable crystalline silica (RCS) when processing engineered stone benchtops, panels and slabs.

On 22 March 2024, WHS ministers approved the amendments to the WHS Regulations as drafted.

On 22 March 2024, WHS ministers also tasked Safe Work Australia to review the prohibition to ensure it is operating effectively, to identify any unintended consequences and review the health risks to workers associated with processing benchtops, panels and slabs made from alternative materials which may contain or be free from crystalline silica.

WHS ministers directed that this review (the Review) be completed by 31 July 2025.

## Methodology

To conduct the Review, Safe Work Australia consulted widely with a range of stakeholders directly impacted by the prohibition and those with an interest in it. The views emerging from this consultation are considered under the heading '*Stakeholder responses*' at each section of this report.

Safe Work Australia sourced jurisdictional WHS data relating to compliance and enforcement activities by WHS regulators relevant to the prohibition, including new notification obligations.<sup>1</sup> This data is considered at sections 2.6 and 2.7 of this report.

A desktop review of scientific literature and manufacturers' technical and safety information on engineered stone and alternative products, where available, was undertaken to inform the Review.

Additionally, Safe Work Australia engaged the University of Wollongong to conduct research into the composition of, and health risks associated with, processing alternative benchtops, panels and slabs that have been or are being introduced into the Australian market.

The University of Wollongong compared the constituents of airborne contaminants produced from processing these materials, along with those produced from processing natural stone and prohibited engineered stone. A discussion of the outcomes of the University of Wollongong's research can be found at section 2.8 of this report.

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<sup>1</sup> Model WHS Regulations: Part 8A.3 Regulator to be notified of particular processing of engineered stone. Part 8A.3 outlines requirements for notifying a WHS regulator when a person conducting a business or undertaking will be processing prohibited engineered stone or becomes aware, after work has been carried out, that it involved prohibited engineered stone.

At the time of writing, the engineered stone prohibition had been in effect for less than 12 months in the Commonwealth, Victoria, Queensland and Australian Capital Territory, and less than 6 months in New South Wales, Western Australia, South Australia, Tasmania, and Northern Territory where there was a transition period before the full implementation of the prohibition.<sup>2</sup>

This means that definitive conclusions are difficult to draw. However, the Review provides an evidentiary baseline for future research and data collection to build on over time to inform ongoing efforts to ensure the health and safety of those working with legacy engineered stone and alternative products.

This report has been structured around the key themes that arose during the stakeholder consultation process of the Review.

They are:

- the definition, marketing, identification and testing of engineered stone
- reinstallation of engineered stone
- public awareness and communication
- waste management and disposal of engineered stone
- the national notification framework and legacy engineered stone
- compliance and enforcement
- alternatives to prohibited engineered stone, and
- other considerations and future research.

The approach taken in this report is to outline the current situation relating to each theme, followed by stakeholder insights and experiences on that matter. A discussion follows with any findings or recommendations supported by existing research and jurisdictional data, where available. The theme 'other considerations and future research' is structured slightly differently, providing a high-level overview of other considerations raised during the review process.

While, fundamentally, the Review concludes that the prohibition of engineered stone benchtops, slabs and panels is working as intended at this early stage of implementation, there are 11 findings and 6 recommendations arising from it. Suggestions for 3 future areas of research are also identified.

The recommendations are made where Safe Work Australia considers immediate action is required.

The findings are made where Safe Work Australia considers a more comprehensive investigation of the issues raised is required.

Subject to WHS ministers' consideration of the report, Safe Work Australia will work with its Members to develop timelines and approach to actioning its findings and recommendations.

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<sup>2</sup> The Commonwealth provided for transition arrangements which mirrored individual state and territory transitional arrangements and applied depending on the jurisdiction where the work was physically performed.

## Findings

### **The definition, marketing, identification and testing of engineered stone**

**Finding 1:** Further research and ongoing data collection is needed to understand the long-term effectiveness of the prohibition.

**Finding 2:** Simple and practical information (e.g. cheat sheet, infographics) is needed to support persons conducting a business or undertaking (PCBUs), workers and other stakeholders working with products to determine if they are permitted where it is not readily apparent (e.g. certain prefabricated sinks, prefabricated shower bases).

### **Public awareness and communication**

**Finding 3:** Further education and public awareness campaigns, including those with a culturally and linguistically diverse focus, are required to address complacency and misunderstandings around the need to engage in safe practices when processing engineered stone and alternative products, and to promote safe disposal practices.

**Finding 4:** Further efforts are required to better target workers' education and awareness of the risks respirable crystalline silica poses to them.

### **Waste management and disposal of engineered stone**

**Finding 5:** Proactive engagement and collaboration between the three tiers of government with responsibility for waste management is needed to ensure the appropriate disposal of engineered stone.

### **National notification framework and legacy engineered stone**

**Finding 6:** Consistent implementation of the national notification framework across jurisdictions, including the revised model notification form of 1 September 2024, will support stakeholder understanding of the framework, and facilitate the collection of data at a national level to provide valuable oversight of the permitted work.

**Finding 7:** Ongoing data collection and evaluation of the notification framework and engineered stone prohibition is needed to build a robust evidence base.

### **Compliance and enforcement**

**Finding 8:** Regular, detailed jurisdictional data collection is needed to inform compliance and enforcement efforts, facilitate monitoring and reporting, and ensure meaningful evaluation in the future.

**Finding 9:** Safe Work Australia should consider, in consultation with WHS regulators, whether there is a legislative gap in relation to the suitability of compliance notices to address the conduct of prohibited work

### **Alternatives to prohibited engineered stone**

**Finding 10:** Further and ongoing independent research, including longitudinal studies, are required to characterise the components of alternative products on the market and associated health risks with particular attention on porcelain, sintered stone and products identified as low or no silica.

### **Other considerations and future research**

**Finding 11:** Improve collaboration between relevant government agencies and departments, such as Safe Work Australia, Australian Border Force and WHS regulators

## Recommendations

There are 6 recommendations arising from the Review:

### **The definition, marketing, identification and testing of engineered stone**

**Recommendation 1:** Safe Work Australia should drive work to develop an urgently needed, nationally recognised, standard testing criteria that determines if a product is engineered stone; this may involve multiple laboratory techniques to test for the presence of crystalline silica and/or binders.

**Recommendation 2:** Safe Work Australia should engage with Commonwealth, state and territory consumer protection agencies and other relevant bodies to highlight the need for the marketing and labelling of engineered stone and alternative products to be accurate, reliable and consistent.

**Recommendation 3:** Upstream duties of manufacturers, importers and suppliers should be enforced to ensure accurate and meaningful labelling of constituents present when processing alternative products.

**Recommendation 4:** The model WHS laws should be amended to require the use of consistent labelling and/or safety data sheets for engineered stone and alternative products.

### **Reinstallation of engineered stone**

**Recommendation 5:** Safe Work Australia should develop amendments to model WHS Regulations 529E and 529F to allow for the reinstallation of legacy engineered stone benchtops, panels and slabs to address an unintended consequence of the prohibition.

### **Waste management and disposal of engineered stone**

**Recommendation 6:** Consistent and clear guidance should be developed within and between jurisdictions on the approach to disposing of engineered stone and silica more broadly.

## Future research

Suggestions for future research identified through the Review.

### **Future research**

**Research Area 1:** There is a need for more robust respiratory health monitoring and surveillance and continued investment in long-term epidemiological studies into occupational exposures, including potential exposures from working with alternative products, and associated diseases.

**Research Area 2:** There is a need for research to determine best practice diagnostic imaging for health monitoring under the WHS Regulations.

**Research Area 3:** There would be benefit in conducting research to undertake the necessary exposure testing to develop a controls table for those working with engineered stone and alternative products.

## Links to the Silica National Strategic Plan 2024-2030

The *Silica National Strategic Plan 2024-2030* was developed by the Australian Government's Asbestos and Silica Safety and Eradication Agency (ASSEA) and represents the commitment of Commonwealth, state and territory governments, along with experts and support groups, to address and ultimately eliminate silica-related disease in Australia.<sup>3</sup>

The Silica National Strategic Plan has 5 priorities, each outlining action items:

- Priority 1 – workplace risk reduction
- Priority 2 – education and awareness
- Priority 3 – health monitoring, screening, surveillance and support
- Priority 4 – research and development
- Priority 5 – international collaboration.

Given the breadth of the Silica National Strategic Plan, all findings from this Review are relevant to the 5 priorities. It is noted the Review itself goes to Priority 1, Action 1-B<sup>4</sup> as it addresses the effectiveness of the model WHS laws for the prohibition on engineered stone.

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<sup>3</sup> 'Silica National Strategic Plan 2024-30', Asbestos and Silica Safety and Eradication Agency (2024), <https://www.asbestossafety.gov.au/silicasafety/silica-national-strategic-plan-2024-30>

<sup>4</sup> Silica National Strategic Plan Action 1-B: Review the effectiveness of model WHS laws for the prohibition on engineered stone, and any other model WHS laws for respirable crystalline silica agreed by Safe Work Australia Members and WHS ministers.

Furthermore, some Review findings are directly relevant to actions under the plan. For example, Recommendation 2 links to Action 1-E<sup>5</sup> where ASSEA is leading work on product labelling and warning information. Findings 6 and 7 on public awareness and communication are relevant to actions under Priority 2 led by ASSEA and Safe Work Australia. Findings 8 and 9 require further research, engagement and collaboration. Safe Work Australia will continue to collaborate with ASSEA to support the delivery of these findings.

## Conclusion

The engineered stone prohibition is operating as intended, noting it is still in its initial stages of implementation.

PCBUs appear to have ceased the supply of engineered stone and have transitioned, or are transitioning, to non-prohibited alternatives, including products with less than 1% crystalline silica.

General awareness of the risk of RCS among workers, PCBUs and the general public has heightened, however many acknowledge the need for further education.

The prohibition has also led to an improved understanding among PCBUs and workers of their WHS obligations and rights when conducting processing activities that expose them to RCS.

Further research, including longitudinal studies and data collection over time, is needed to conclusively determine whether the prohibition continues to be effective and to understand the risk to workers' health and safety from processing alternative products.

Key elements of the prohibition – including the engineered stone definition, the national notification framework and the exemption framework – are operating with moderate effectiveness. Notifications for permitted work with legacy engineered stone are being submitted, providing regulators with increased visibility of this work. However, there are opportunities to improve the practical implementation of the framework.

Urgent work is needed to establish a nationally recognised standard approach to test for engineered stone. This is essential to support the implementation of the prohibition.

Further attention and effort is needed to provide clarity on the waste disposal pathways for engineered stone and silica more broadly, and to require accurate, reliable labelling and product information for alternative products.

Safe Work Australia considers that responding to the findings and actioning recommendations outlined in this report will assist in addressing issues raised and will ensure that the objectives of the prohibition are fully realised into the future.

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<sup>5</sup> Silica National Strategic Plan Action 1-E: Examine the availability and visibility of product label and warning information, such as Safety Data Sheets, across the supply chain by: (i) Investigating current requirements for product labels and warnings on crystalline silica substances. (ii) Using investigation results, develop and implement a nationally consistent requirement for product labels and warnings for crystalline silica substances. (iii) Implementation should include nationally consistent compliance, education and awareness campaigns on product labels and warning targeting product and chemical suppliers.

# 1. Introduction

## 1.1 About Safe Work Australia

Safe Work Australia is a national policy body established by the *Safe Work Australia Act 2008* (Cth) to lead the development of policy to improve WHS and workers' compensation arrangements across Australia.

Safe Work Australia is an independent Australian Government statutory agency jointly funded by the Commonwealth, state and territory governments through an Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety.

Safe Work Australia is responsible for maintaining the model WHS laws (the model WHS Act, model WHS Regulations and model Codes of Practice). It is governed by a tripartite body comprising 15 Members:

- the Chair
- nine Members representing the Commonwealth and each state and territory
- two Members representing the interests of workers
- two Members representing the interests of employers, and
- the Chief Executive Officer of Safe Work Australia.

Safe Work Australia's functions include:

- developing, evaluating and revising national WHS and workers' compensation policies and strategies
- monitoring and improving the model WHS legislative framework and developing supportive WHS materials
- improving workers' compensation arrangements and promoting national consistency
- collecting, analysing and publishing national data
- conducting and publishing research
- developing national education and communication strategies and initiatives
- working collaboratively with the Commonwealth, states and territories and other national and international bodies, and
- advising WHS ministers on national WHS and workers' compensation policy matters.

The model WHS laws have been implemented in the Commonwealth and all states and territories except Victoria, which has similar laws in place.

Safe Work Australia does not regulate WHS laws or workers' compensation arrangements. The Commonwealth, states and territories have responsibility for compliance with and enforcement of WHS laws and administering workers' compensation schemes in their respective jurisdictions.

## 1.2 Review context

### World-first engineered stone prohibition

From 1 July 2024, Australia became the first country in the world to prohibit the manufacture, supply, processing and installation of engineered stone benchtops, panels and slabs. The decision to implement the prohibition was unanimously agreed by WHS ministers in December 2023 in response to a marked increase in silicosis diagnoses among engineered stone workers in Australia.

The engineered stone prohibition builds on and complements a range of broad duties owed by PCBUs under the model WHS laws to ensure the health and safety of workers while they are at work and others that may be affected by the carrying out of work.<sup>6</sup>

The prohibition came after an earlier amendment to the model WHS laws made in May 2023 to prohibit the uncontrolled processing of engineered stone.<sup>7</sup> This amendment built on similar restrictions already in place in New South Wales and Victoria and it was progressively implemented in all other Australian jurisdictions during 2023 and 2024.

The engineered stone prohibition is part of a broader commitment by Commonwealth, state and territory governments to reduce the incidence of silicosis and other dust diseases through a comprehensive range of regulatory and non-regulatory actions.<sup>8</sup>

This includes further amendments to the WHS Regulations that took effect from 1 September 2024, which provided for the stronger regulation of crystalline silica substances (CSS). The CSS regulations apply to permitted work with legacy engineered stone<sup>9</sup> products, as well as work with other products containing crystalline silica that are not subject to the engineered stone prohibition.

A timeline outlining the various steps that led to the engineered stone prohibition is at Appendix 1.

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<sup>6</sup> 'Duties under WHS laws', Safe Work Australia, <https://www.safeworkaustralia.gov.au/law-and-regulation/duties-under-whs-laws>

<sup>7</sup> 'Explanatory Statement model WHS Regulations (Engineered Stone) Amendment 2023', Safe Work Australia, <https://www.safeworkaustralia.gov.au/law-and-regulation/legislation/amendments-model-whs-laws>

<sup>8</sup> 'National Dust Disease Progress Report April 2022 – December 2023', Department of Health, Disability and Ageing (2024), <https://www.health.gov.au/resources/publications/national-dust-disease-progress-report-april-2022-december-2023?language=en>

<sup>9</sup> Legacy engineered stone includes any engineered stone benchtop, panel, or slab installed prior to the prohibition or held by PCBUs (stockpiles).

## The rationale for the prohibition

While silicosis cases occur in workers across a range of industries and those who are exposed to a range of silica-containing materials, a disproportionate number of silicosis diagnoses have been reported in Australian engineered stone workers. For example, a recent analysis found that most workers recently diagnosed with silicosis in Victoria were employed by the stone countertop industry and 95% of them primarily worked with engineered stone.<sup>10</sup> The analysis also reported that of the 536 workers' compensation claims for silicosis in Victoria between 1991 and 2022, 482 (90%) were received between 2015 and 2022. These findings are also broadly consistent with national data which has shown a surge in silicosis cases since 2018-19, many of which were reported among engineered stone workers.<sup>11</sup>

Silica is an inexpensive and abundant resource, used in many new industrial applications and occupational settings.<sup>12</sup> Engineered stone emerged on the Australian market in the late 1990s after its manufacturing process was developed in Italy in the early 1970s.<sup>13</sup> Prior to its prohibition in Australia, engineered stone contained high levels of crystalline silica (up to 90% by weight) together with other minerals, resins and pigments. The composite nature of engineered stone results in a softer more malleable product, producing RCS with different physical and chemical properties in comparison to natural stone. Scientific literature shows the processing of engineered stone can generate substantial volumes of RCS, including a greater proportion of very small (nanoscale) particles that can penetrate more deeply into the lungs. Exposure can lead to serious respiratory diseases such as silicosis, progressive massive fibrosis, chronic obstructive pulmonary disease, as well as chronic kidney disease, chronic bronchitis, and lung cancer.<sup>14,15,16,17</sup> Compared to workers exposed to silica from natural sources, silicosis diagnosed among engineered stone workers is associated with a shorter duration of exposure to silica, faster disease progression and higher mortality.<sup>18</sup>

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<sup>10</sup> Hoy R, Tomic D, Gwini S, Dimitriadis C, Abramson M, Collie A, Barnes H, Glass D, Hore-Lacy F, Kinsman N, Sim M and Walker-Bone K (2025) 'The rapid rise of silicosis in Victoria, Australia associated with artificial stone countertop industry work', *American Journal of Industrial Medicine*, 68:358-367.

<sup>11</sup> 'Decision RIS - Prohibition on the use of engineered stone', Safe Work Australia (2023), [https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/decision\\_ris\\_-\\_prohibition\\_on\\_the\\_use\\_of\\_engineered\\_stone\\_-\\_27\\_october\\_2023.pdf](https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/decision_ris_-_prohibition_on_the_use_of_engineered_stone_-_27_october_2023.pdf)

<sup>12</sup> Hoy R, Tomic D, Gwini S, Dimitriadis C, Abramson M, Collie A, Barnes H, Glass D, Hore-Lacy F, Kinsman N, Sim M and Walker-Bone K (2025) 'The rapid rise of silicosis in Victoria, Australia associated with artificial stone countertop industry work', *American Journal of Industrial Medicine*, 68:358-367.

<sup>13</sup> Fazio J, Viragh K, Houlroyd J, Gandhi S (2025) 'A review of silicosis and other silica-related diseases in the engineered stone countertop processing industry', *Journal of Occupational Medicine and Toxicology*, 20:9.

<sup>14</sup> Ramkissoon C, Gaskin S, Thredgold L, Hall T, Rowett S and Gun R (2022) 'Characterisation of dust emissions from machined engineered stones to understand the hazard for accelerated silicosis', *Scientific Reports* 4351-1-4351-10.

<sup>15</sup> Carrieri M, Guzzardo C, Farcas D, and Cena L (2020) 'Characterization of Silica Exposure during Manufacturing of Artificial Stone Countertops', *International Journal of Environmental Research and Public Health* 4489.

<sup>16</sup> Hall S, Stacey P, Pengelly I, Stagg S, Saunders J and Hambling S (2022) 'Characterizing and Comparing Emissions of Dust, Respirable Crystalline Silica, and Volatile Organic Compounds from Natural and Artificial Stones', *Ann. Work Expo. Health*, 66, 139-149.

<sup>17</sup> Thompson D, and Q Ci (2023) 'Characterization of the emissions and crystalline silica content of airborne dust generated from grinding natural and engineered stones', *Ann. Work Expo. Health*, 67, 266-280.

<sup>18</sup> Hoy R, Dimitriadis C, Abramson M, Glass D, Gwini S, Hore-Lacy F, Jimenez-Martin J, Walker-Bone K and Sim M (2023) 'Prevalence and risk factors for silicosis among a large cohort of stone benchtop industry workers', *Occup Environ Med*; 80:439-446.

The nature of the engineered stone industry has also contributed to the hazards and detrimental health outcomes that workers have experienced. As engineered stone is easier to process than natural stone, a workforce can process more stone in one shift, leading to higher exposure to dust. Additionally, a lower level of skill is required. Thus, many workers in this industry do not have formal stonemasonry qualifications and can lack the associated training to work safely with potential hazards. Many workers in the industry are from a culturally and linguistically diverse (CALD) background. This is important as studies have found CALD workers are at an increased risk of occupational disease.<sup>19,20,21</sup> The nature of the engineered stone industry and its associated workforce has meant that some of the mechanisms in the model WHS laws designed to promote WHS risk management in workplaces are less likely to be in place.

## Scope of the prohibition

Engineered stone is a composite material that combines natural stone aggregates with resins and pigments to create a durable, non-porous surface.

Under the engineered stone prohibition, a PCBU must not carry out, or direct or allow a worker to carry out, work that involves the manufacture, supply, processing, or installation of engineered stone benchtops, panels, and slabs.

The prohibition applies to engineered stone benchtops, panels and slabs. For the purposes of the WHS Regulations, engineered stone is defined as an artificial product that:

1. contains at least 1% crystalline silica as a weight/weight concentration, and
2. is created by combining natural stone materials with other chemical constituents (such as water, resins, or pigments), and
3. becomes hardened.

Therefore, to be prohibited, a product must be in benchtop, panel or slab form and meet criteria (1) to (3) of the engineered stone definition.

## Summary of exclusions and exceptions

As indicated above, engineered stone benchtops, panels and slabs that contain less than 1% crystalline silica as a weight/weight concentration are not subject to the prohibition.

The prohibition does not apply to engineered stone products that are not benchtops, panels or slabs, such as finished products including jewellery, garden ornaments, sculptures and kitchen sinks. The prohibition does not apply to these types of finished products because they are not intended to be further processed to be used or installed.

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<sup>19</sup> Hargreaves S, Rustage K, Nellums L, McAlpine A, Pocock N, Devakumar D, Aldridge R, Abubakar I, Kristensen K, Himmels J, Friedland J and Zimmerman C (2019) 'Occupational health outcomes among international migrant workers: a systematic review and meta-analysis', *Lancet Global Health*, 7:872-882.

<sup>20</sup> Fazio J, Gandhi S, Flattery J, Heinzerling A, Kamangar N, Afif N, Cummings K and Harrison R (2023) 'Silicosis among immigrant engineered stone (quartz) countertop fabrication workers in California', *JAMA Internal Medicine*, 183:991-998.

<sup>21</sup> Hua J, Rose C and Redlich C (2023) 'Engineered stone-associated silicosis – a lethal variant of an ancient disease', *JAMA Internal Medicine*, 183:908-910.

The engineered stone prohibition also does not include:

- a. concrete and cement products
- b. bricks, pavers, and other similar blocks
- c. ceramic wall and floor tiles
- d. sintered stone (provided it does not contain resin)
- e. porcelain products (provided they do not contain resin)
- f. roof tiles
- g. grout, mortar, and render, and
- h. plasterboard.

There are limited exceptions to the prohibition for which work with engineered stone benchtops, panels or slabs is permitted under the WHS Regulations. For example, provided that the processing of engineered stone is controlled, the following exceptions apply:

- for research and analysis
- to sample and identify engineered stone
- for the removal, repair and minor modification of installed engineered stone, and
- for the disposal of engineered stone, whether it is installed or not.

The exception for the supply and installation of engineered stone applies only:

- for research and analysis, and
- to sample and identify engineered stone.

## Summary of exemptions

As part of the engineered stone prohibition, there are 2 main types of exemptions that may apply: firstly, those for specific engineered stone products, and, secondly, those for the reinstallation of engineered stone in certain circumstances.

### ***Exemptions for specific engineered stone products***

Under the WHS Regulations, a person may apply for an exemption from the prohibition for a type of engineered stone product. A WHS regulator may grant an exemption if certain criteria are met. An exemption granted by a WHS regulator for a type of engineered stone in one jurisdiction is recognised in all jurisdictions except Victoria.<sup>22</sup>

### ***Exemptions for the reinstallation of engineered stone in certain circumstances***

The general power is used under the WHS Regulations to grant exemptions for the reinstallation of engineered stone in certain circumstances. See section 2.3 for further detail.

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<sup>22</sup> Victoria is the only jurisdiction that does not provide for the mutual recognition of an exemption from the prohibition granted by another WHS regulator with respect to a type of engineered stone. A person would need to separately apply for an exemption in Victoria.

## Additional regulatory considerations

The domestic engineered stone prohibition commenced on 1 July 2024, with all jurisdictions except Victoria, Queensland and Australian Capital Territory implementing transition periods between 1 July 2024 and 31 December 2024.<sup>23</sup> During the transition periods, work involving the manufacture, supply, processing or installation of the engineered stone products was not prohibited provided the contract for the work was entered into before 31 December 2023 and the work was finished by 31 December 2024.

As previously noted, new amendments to the WHS Regulations also took effect from 1 September 2024, which provided for the stronger regulation of CSS. The CSS regulations apply to permitted work with legacy engineered stone products, as well as work with other products containing crystalline silica that are not subject to the engineered stone prohibition.<sup>24</sup>

To complement the domestic engineered stone prohibition and the stronger regulation of all CSS, a customs prohibition on engineered stone commenced from 1 January 2025.<sup>25</sup> This measure was introduced as most engineered stone on the Australian market is imported from other countries.

### 1.3 Review scope

In March 2024, WHS ministers agreed that, by 31 July 2025, Safe Work Australia will:

- review the operation of the prohibition to ensure it is operating effectively
- identify and assess any unintended consequences of the prohibition, and
- review the health risks to workers associated with processing benchtops, panels and slabs made from alternative materials which may contain or be free from crystalline silica.

The engineered stone prohibition is part of a comprehensive range of measures being implemented by Commonwealth, state and territory governments to reduce the incidence of silicosis and other dust diseases. However, a detailed examination of each of these measures is not in scope of the Review.<sup>26</sup>

The primary objective of the prohibition is to reduce workplace exposure to RCS from engineered stone in Australia, with the ultimate aim of eliminating silicosis, a preventable disease, and other silica-related diseases in engineered stone workers.<sup>27</sup>

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<sup>23</sup> The Commonwealth provided for transition arrangements which mirrored individual state and territory transitional arrangements and applied depending on the jurisdiction where the work was physically performed.

<sup>24</sup> Manufactured products containing CSS that are not subject to the prohibition include engineered stone that is not in the form of benchtops, panels and slabs as well as concrete, bricks, mortar, natural stone, glass, pottery, pavers and certain types of tiles.

<sup>25</sup> 'Prohibited Goods – Engineered Stone', Australian Border Force, <https://www.abf.gov.au/prohibited-goods-subsite/Pages/engineered-stone.aspx>

<sup>26</sup> 'National Dust Disease Progress Report April 2022 – December 2023', Department of Health, Disability and Ageing (2024), <https://www.health.gov.au/resources/publications/national-dust-disease-progress-report-april-2022-december-2023?language=en>

<sup>27</sup> 'Decision Regulation Impact Statement: Prohibition on the use of engineered stone', Safe Work Australia (2023), <https://www.safeworkaustralia.gov.au/doc/decision-regulation-impact-statement-prohibition-use-engineered-stone>

The Review acknowledges the short amount of time since the prohibition commenced and that ongoing data collection, monitoring and evaluation will be required to comprehensively assess whether the objective is being met. The Review provides an early assessment of the engineered stone prohibition to ensure it is operating effectively from its outset and to ensure any relevant policy, regulatory and legal considerations, including unintended consequences, are taken into account.<sup>28</sup>

The Review also provides an opportunity to begin to assess the health risks to workers associated with processing benchtops, panels, and slabs made from alternative materials which may contain or be free from crystalline silica. Common examples of alternative products which are in focus for this Review include porcelain, sintered stone, natural stone, recycled glass products and acrylic-based products.<sup>29</sup>

The Review is focused on Australia's workplace policy settings for engineered stone which is the responsibility of WHS ministers. While the importation prohibition of engineered stone is relevant to potential future policy directions for engineered stone in Australia, responsibility for implementing this measure rests with Australian Border Force (ABF), not WHS ministers. Accordingly, the import prohibition on engineered stone is not discussed in detail in this Review.

## 1.4 Review methodology

In March 2024, Commonwealth, state and territory WHS ministers tasked Safe Work Australia to review the operation of the engineered stone prohibition to ensure it is operating effectively, to assess any unintended consequences and review health risks posed to workers from processing benchtops, panels and slabs made from alternative products. The completed report, due by 31 July 2025, was considered by Safe Work Australia Members prior to being provided to WHS ministers.

### Reviewing the operation of the prohibition

Safe Work Australia consulted with a wide range of stakeholders to gain an understanding of the operation of the prohibition and possible unintended consequences. Specifically, a notice calling for written submissions from the public was published on Safe Work Australia's website on 10 February 2025 with a due date of 31 March 2025. This notice invited members of the public and other stakeholders to provide written feedback via a questionnaire and/or by uploading a standalone submission. This notice also invited members of the public to participate in one of three 1-hour online public forums hosted by Safe Work Australia.

Simultaneously, Safe Work Australia undertook targeted consultations with a range of Commonwealth, state and territory WHS regulators, other government agencies, industry representatives, unions, stone manufacturing companies, public health groups, and academics. Information obtained from this consultation process was then analysed by Safe Work Australia and grouped thematically.

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<sup>28</sup> 'Work Health and Safety Meeting of Ministers – 22 March 2024', Department of Employment and Workplace Relations, <https://www.dewr.gov.au/work-health-and-safety/resources/work-health-and-safety-meeting-ministers-22-march-2024>

<sup>29</sup> Alternative materials (or products) refer to a broad category of benchtops, panels and slabs that are not subject to the engineered stone prohibition. Alternative products may or may not contain crystalline silica such as timber, stainless steel, porcelain, sintered stone, natural stone and concrete. Alternative products also include artificial stone products that contain less than 1% crystalline silica. Not all alternative products are discussed in detail in this review.

Safe Work Australia separately requested specific data from Commonwealth, state and territory WHS regulators pertaining to notifications, compliance and enforcement activities and exemption requests covering the period from 1 July 2024 to 31 March 2025.

## Reviewing the health risks from alternative materials

Additional research to inform the Review was obtained through a variety of sources, including research by the University of Wollongong, desktop searches undertaken by Safe Work Australia, and sources identified during the consultation process.

Due to the lack of existing scientific literature regarding engineered stone and alternative products, Safe Work Australia commissioned the University of Wollongong to characterise the constituents of airborne contaminants, such as particulates, vapours and gases generated during common processing tasks. The university processed alternative benchtop, panel and slab products and compared them to the emission profiles of natural stone and prohibited engineered stone products. A desktop assessment of the emission profiles was completed as part of this work to address the toxicological profiling of the dust emissions. It was not possible to conduct specific analyses on the impact of dust on lung tissue (e.g. lung assays) due to the time constraints of the Review. The University of Wollongong's research paper is undergoing a peer review process.

## 2. Themes

### 2.1 Consultation overview

A wide range of stakeholders engaged with the Review's consultation process including PCBUs, unions, workers, peak bodies, medical professionals, academics and government entities (see Appendix 5 for the list of stakeholders who submitted to the public consultation).

Many stakeholders noted the short amount of time the prohibition has been in effect and that ongoing data collection, monitoring and evaluation is needed to comprehensively assess its effectiveness in the longer term. Nevertheless, the general feedback Safe Work Australia received through the consultations indicates there is broad support for the prohibition among most stakeholder groups and a consensus that it is operating as intended.

Of the 39 written submissions that addressed whether the prohibition has met its objectives to protect workers from RCS, over 56% agreed. There was also the general view that the prohibition is largely operating as intended and has increased awareness of silicosis and of the risks posed by exposure to RCS.

Of the written submissions, 44% stated the prohibition has not met its objectives with some pointing to a lack of guidance on various topics such as disposal and removal of legacy engineered stone, and ongoing non-compliance.

Most of the stakeholders who believed the prohibition was not meeting its objectives noted the problem is broader than engineered stone and pointed to numerous other permitted products that expose a worker to RCS that they believe should be addressed.

Eight distinct themes emerged following the analysis of stakeholder feedback received and issues raised through written submissions, public forums and targeted meetings.

#### The definition, marketing, identification and testing of engineered stone

- The definition of engineered stone and how it applies in practice.
- The marketing, identification and testing of engineered stone which are integral to accurately identifying the prohibited product and its defining characteristics.
- The need for a standardised series of tests to reliably determine whether a product contains crystalline silica and resins is particularly important in the context of the prohibition.

#### Reinstallation of engineered stone

- The need to address an unintended consequence of the prohibition which prohibits the reinstallation of legacy engineered stone removed to work on underlining cabinetry and plumbing to provide an enduring and consistent solution.

## Public awareness and communication

- The need for ongoing public awareness and communication to address potential complacency and misunderstandings to ensure potential risks of working with permitted products are appropriately controlled to ensure worker safety.

## Waste management and disposal

- The inconsistent and unclear approaches to waste management and disposal practices for legacy engineered stone within and across jurisdictions.
- The increased disposal costs and the stockpiling of legacy engineered stone.

## The national notification framework for legacy engineered stone

- The inconsistent approaches to the implementation of the national notification framework across jurisdictions, which undermine the potential benefit of the framework for regulators and as a source of nationally comparable data.

## Compliance and enforcement

- The compliance and enforcement actions taken by WHS regulators post-prohibition as supported by jurisdictional data and anecdotal stakeholder feedback suggest overall improvement in compliance and enforcement, but there is a need for further data collection and monitoring.

## Alternatives to prohibited engineered stone

- The limited research available on the constituents of alternative products, such as sintered stone, porcelain and products containing less than 1% crystalline silica, and the potential health effects of processing these products.

## Other considerations and future research

- Ahead of future action, further and ongoing research and data collection is required to help ensure the operation of the prohibition is effective and that future work in this area is evidence based.

## 2.2 The definition, marketing, identification and testing of engineered stone

### Current situation

#### ***Definition of engineered stone***

The prohibition applies to engineered stone benchtops, panels and slabs. For the purposes of the WHS Regulations, engineered stone is defined as an artificial product that:

- contains at least 1% crystalline silica as a weight/weight concentration, and
- is created by combining natural stone materials with other chemical constituents (such as water, resins, or pigments), and
- becomes hardened.

Therefore, to be prohibited, a product must be an artificial product in benchtop, panel or slab form and meet criteria (1) to (3) of the engineered stone definition. Further detail regarding the definition, including a summary of relevant exclusions, exceptions and exemptions is outlined under section 1.2.

#### ***Marketing of stone benchtops, panels and slabs – general considerations***

The prohibition in the WHS Regulations does not specifically address the regulation of marketing activities relating to engineered stone or alternative benchtops, panels and slabs. However, the marketing of these products across all stages of the supply chain is an important consideration for PCBUs in discharging their broader duties under the model WHS laws. For example, designers, manufacturers, importers or suppliers of these products must, so far as is reasonably practicable, give current relevant information to downstream users about:

- the purpose for which the product was designed or manufactured
- the results of any calculations, analysis, testing or examination in relation to the product, including any hazardous properties identified by testing, and
- any conditions necessary to ensure that the product is without risks to health and safety when used for a purpose for which it was designed or manufactured.

Designers, manufacturers, importers or suppliers of benchtops, panels and slabs may attempt to discharge these duties in a range of ways, including using specific marketing material, product labels, safety data sheets (SDS) and testing results. However, there is currently no regulatory framework governing how these duties should be discharged with respect to stone benchtops, panels and slabs.

#### ***Marketing materials***

Marketing materials promoting engineered stone and alternative products are a potential source of concern. This is particularly the case if certain materials cause confusion for duty holders in understanding their WHS obligations. For example, it appears some marketing material can state a product is 'silica free' yet describes the product as containing recycled glass which contains a significant amount of amorphous silica.

While this Review has not investigated the veracity of any specific marketing materials, assertions that a product is 'silica free' are inaccurate if the product contains other forms of silica such as amorphous silica.<sup>30,31</sup> Inaccurate marketing materials may also result in duty holders failing to comply with their duties in managing the risks posed by potential hazards if they are unaware of the product's constituents.

Similarly, concern has been raised where no or low crystalline silica benchtops, panels and slabs may be described as 'safe' in marketing materials. Duty holders may misinterpret 'safe' as meaning free from hazards when processed.

The wide array of marketing materials being produced by suppliers to distinguish their product from engineered stone may be contributing to confusion in the industry and the broader community.

The model WHS laws do not include specific provisions relating to the advertising and promotion of engineered stone or alternative products.

However, certain restrictions regarding the advertising and promotion of these products may apply under the Australian Consumer Law (ACL). The ACL aims to protect consumers and ensure fair trading in Australia. The Australian Competition and Consumer Commission (ACCC) alongside the state and territory consumer protection agencies jointly administer the ACL.

Under the ACL, two fundamental rules of advertising and selling are that:

- business must not engage in conduct that is likely to mislead or deceive, and
- business must not make false or misleading claims or statements.<sup>32</sup>

Under the ACL, as the Review understands, any information or claim that a business provides about its goods or services must be accurate, truthful and based on reasonable grounds. It makes no difference whether a business intends to mislead or not. This rule extends to a range of different types of claims, including those which relate to the composition, safety and/or environmental impacts of products. It also extends to any communication by a business, including but not limited to advertising, product packaging and labelling, social media, on websites or any other platform.<sup>33</sup>

Future work and consideration of these issues will need involvement from ACCC and similar state and territory consumer protection agencies with responsibility in this area.

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<sup>30</sup> Crystalline and amorphous silica are two forms of silicon dioxide that are used in the manufacture of benchtops, panels and slabs. Amorphous silica is considered less toxic than crystalline silica, however it may still pose health risks. Available evidence regarding the toxicity of amorphous silica is currently inconclusive.

<sup>31</sup> The University of Adelaide, 'Prohibition of engineered stone: Literature review and gap analysis', Safe Work Australia (2023), [https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni\\_adelaide\\_engineered\\_stone\\_report\\_october2023.pdf](https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni_adelaide_engineered_stone_report_october2023.pdf)

<sup>32</sup> 'Advertising and selling guide: A guide for business, Australian Competition and Consumer Commission (2021), <https://www.accc.gov.au/system/files/Advertising%20and%20selling%20guide%20-%20July%202021.pdf>

<sup>33</sup> 'Advertising and promotions', Australian Competition and Consumer Commission, <https://www.accc.gov.au/consumers/advertising-and-promotions>.

The Australia Building Codes Board (the ABCB) is a standards writing body, its responsibilities include the National Construction Code and regulatory reform in the construction industry.<sup>34</sup> In 2024, the ABCB was tasked by Building Ministers to develop a proposal for a new national building product register that requires mandatory information and registration of building products, as well as a mandatory product labelling and traceability scheme. A discussion paper published in 2024 on this proposal highlighted that among other expected outcomes, these reforms would help to address dangerous products being used in construction and renovations in Australia.<sup>35</sup>

### ***Safety data sheets and labelling***

The model WHS Act requires PCBUs to manage risks to workers' health and safety so far as is reasonably practicable. The WHS Regulations provide for SDS and labelling in certain circumstances as two mechanisms that PCBUs can use to meet their obligations.

Importantly, SDS and labelling under the WHS Regulations are requirements relevant to hazardous chemicals as detailed in Part 7.1. Where a material does not meet the definition of a hazardous chemical, it is not subject to Part 7.1 and therefore there is no legislative requirement for an SDS nor labelling.

Model WHS Regulation 5 defines a hazardous chemical as a substance, mixture or article that satisfies the criteria for any one or more of the hazard classes in the Globally Harmonized System of Classification and Labelling of Chemicals. Manufactured stone, engineered or otherwise, does not meet the criteria for these hazard classes. Even though at the point of processing, engineered stone or alternative products may release hazardous chemicals – such as crystalline silica in the instance of engineered stone – the respiratory hazard is not arising from the product itself. Consequently, the requirements under the WHS Regulations for SDS and labelling do not apply to engineered or other manufactured stone.

Nevertheless, SDS and labelling have been, and continue to be, used to varying degrees across the engineered stone and alternative products industry. These can provide useful information on a product's composition and potential health risks when processed by workers. However, the production of SDS and labelling in this industry is not consistent and the accuracy and relevance of the information they present, particularly in SDS, can vary considerably. Without a formal requirement under the model WHS laws for the industry to produce SDS and labelling for their products, there are limitations to requiring that this information be consistently produced and to a reliable quality.

The Review notes in 2022, Victoria introduced requirements for manufacturers or suppliers of CSS to provide detailed information about the product's crystalline silica content, safe handling procedures, and exposure controls to any person to whom the CSS is supplied.<sup>36</sup> However, due to the rapid shift in the market following the prohibition of engineered stone, many replacement products are now marketed as crystalline silica free or containing less than 1% crystalline silica, and may not be subject to these information requirements.

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<sup>34</sup> The Australian Building Codes Board is a joint initiative of the Commonwealth and state and territory governments, together with the building and plumbing industries.

<sup>35</sup> Australian Building Codes Board. Proposed risk-based Building Product Registration Scheme, 4 July 2025, <https://www.abcb.gov.au/news/2024/consultation-open-proposed-risk-based-building-product-registration-scheme>.

<sup>36</sup> 'Occupational Health and Safety Regulations 2017', Victorian Legislation, Part 4.5 – Crystalline silica, 319G and 319H. <https://content.legislation.vic.gov.au/sites/default/files/2024-11/17-22sra016-authorised.pdf>

## **Identification and testing**

Engineered stone and alternative products can be difficult, if not impossible, to distinguish by appearance alone. In the absence of consistent and accurate product labelling or an SDS or equivalent, scientific testing is required to determine whether a product is prohibited or permitted. Therefore, testing has an essential role in the effective operation of the prohibition. Importantly however, there is no explicit requirement in the model WHS laws to test the constituents of manufactured benchtops, panels and slabs. Nor is there a nationally recognised, standard approach to test whether a product is engineered stone.

To accurately identify a product as engineered stone, it needs to satisfy the criteria outlined in model WHS Regulation 529A(4).<sup>37</sup> Specifically, testing is needed to determine the crystalline silica content of the product is at least 1% crystalline silica determined as a weight/weight concentration. It is also required to determine the other constituents of the product (e.g. water, resins, pigment). Consequently, several different types of analyses are required to test for the components that define an engineered stone product. It is not possible to test for engineered stone with one simple test. Various methodologies are used in the current scientific literature to characterise the emission profiles of engineered stone and alternative products. Importantly, however, no literature to date has developed defined methodologies including specific analytical techniques to determine if a product is prohibited based on each aspect of the definition in the WHS Regulations.

In addition, at the operational level, there is an absence of nationally agreed requirements to govern:

- testing methods used
- collection and use of samples
- disclosure requirements for test results, and
- who can undertake testing for engineered stone.

To support the effective operation of the prohibition, it is essential to consider the 4 elements outlined above to develop a nationally consistent approach for identifying a product as engineered stone.

As there is currently no specific guidance on testing requirements for engineered stone, some WHS regulators have published resources relevant to testing stone benchtops, panels and slabs to support the operation of the prohibition. However, such guidance is limited and there are inconsistencies in the advice provided, particularly regarding the use of a laboratory accredited by the National Association of Testing Authorities (NATA).

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<sup>37</sup> Model WHS Regulation 529A(4): In these Regulations, **engineered stone**: (a) means a CSS that: (i) is an artificial product; and (ii) is created by combining natural stone materials with other chemical constituents such as water, resins or pigments; and (iii) becomes hardened; but (b) does not include the following: (i) concrete and cement products; (ii) bricks, pavers and other similar blocks; (iii) ceramic wall and floor tiles; (iv) grout, mortar and render; (v) plaster board; (vi) porcelain products; (vii) sintered stone; (viii) roof tiles.

## **NATA**

NATA is a leading national accreditation body used to assess organisations against a number of international standards for laboratories, inspection bodies, proficiency testing providers and reference material producers.

NATA accreditation may be preferred or required by regulators and other government entities when accepting a laboratory or facility's test results for engineered stone. However, there is no nationally consistent approach governing the use of NATA accredited facilities to support the prohibition. For example, WorkSafe Victoria's website notes that stakeholders can consider tests using an accredited NATA laboratory or an equivalent laboratory that is signed up to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) to test for prohibited products. ABF guidance for importers states it will only accept certain testing certificates produced outside Australia if certain conditions are met, including that the laboratory is recognised through the MRA scheme by NATA.<sup>38</sup>

Importantly, NATA accreditation pertains only to the competency of facilities to perform specific tests, inspections or calibrations. A test procedure cannot be accredited in its own right. Therefore, a laboratory may have NATA accreditation, however it cannot be assumed that the accreditation is relevant to performing any or all specific tests to determine the presence of engineered stone.

## **Stakeholder responses**

### ***The definition of products subject to the prohibition***

Several stakeholders emphasised the need to assess whether the scope of the prohibition should be expanded to capture additional engineered stone products beyond benchtops, panels, and slabs. For example, the Australian Council of Trade Unions (ACTU) noted the importance of identifying other products that have similar, potentially hazardous characteristics – such as certain sinks and shower bases where similar risks may arise in relation to their manufacture and installation – and supported broadening the scope of the prohibition. Another stakeholder also advocated for Safe Work Australia to review the exclusion of porcelain and sintered stone and examine whether these products should be prohibited in the future.

On the other hand, some PCBUs expressed reservations about potential changes to the scope of the prohibition citing adverse commercial impacts following a series of regulatory changes that have already been implemented in the industry. Some of these stakeholders added that it was too early to assess the effectiveness of the prohibition given that the existing regulations were only recently introduced, and their full effect has not yet been realised.

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<sup>38</sup> The ABF has stated that it will only accept testing certificates produced from outside Australia if the testing is a laboratory recognised through the MRA scheme by NATA and accredited by the local accreditation authority for the purposes of engineered stone identification using an appropriate analysis method, such as petrographic analysis and x-ray diffraction. See: <https://www.abf.gov.au/prohibited-goods-subsite/Pages/engineered-stone.aspx>.

## ***Challenges in identifying whether a product is subject to the prohibition***

A commonly raised issue was that the absence of specific requirements for product labels and SDS posed a significant barrier in being able to identify whether certain alternative products were subject to the prohibition, unless testing was undertaken. Some WHS regulators added that low or no crystalline silica alternatives can often be indistinguishable from engineered stone in appearance. Similarly, one stakeholder noted that distinguishing porcelain and sintered stone products posed a similar challenge, particularly if testing is not undertaken.

Some stakeholders indicated that identifying the composition of stone products that need to be reinstalled, modified or repaired pose a distinct challenge noting that a wide range of natural and engineered stone benchtops were installed prior to the prohibition. The absence of SDS for benchtops installed prior to the prohibition added to this challenge.

A submission from the Housing Industry Association (HIA) noted that while PCBUs could test the composition of specific products in situ to determine their regulatory status, this was not always practical and could be costly. However, HIA also acknowledged that the need to identify the composition of materials in this instance may lessen over time due to either PCBUs becoming more familiar with their obligations when working with legacy engineered stone or if a national exemption for the reinstallation of legacy engineered stone is established to address an unintended consequence of the prohibition (see section 2.3).

The Review also heard from stakeholders of the work the International Standardization Organization (ISO)<sup>39</sup> has under development concerning the standardisation of definitions, requirements and testing methods for engineered stone. At the time of writing the Review, it is understood that a Technical Committee on engineered stone (ISO/TC 328)<sup>40</sup> has been established and has 3 ISO standards under development.<sup>41</sup>

## ***Calls for more education and resources to clarify the definition***

Stakeholders expressed support for additional resources to help identify specific categories of products. For example, a few stakeholders suggested the development of resources that explained the distinction between low and no silica products and products containing crystalline silica. In other instances, stakeholders suggested that the regulatory status of certain types of stone products such as tiles, pavers and products marketed as 'Terrazzo' warranted further clarification. Other stakeholders sought further clarification regarding the definition of 'benchtops', 'panels' and 'slabs', noting that these terms are not specifically defined in the model WHS laws.

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<sup>39</sup> The ISO is a non-government organisation which brings together global experts to develop and agree international standards that define requirements concerning a range of things including making products and managing a process. International Standards help provide consumers with confidence that products are safe, reliable and of good quality. They can also reduce barriers to international trade and help inform government regulation. <https://www.iso.org/>

<sup>40</sup> 'ISO/TC 328 Engineered Stones', International Organisation for Standardisation (ISO), <https://www.iso.org/committee/7913804.html>

<sup>41</sup> ISO/DIS 19947 Engineered stone – Terms and definitions, ISO/AWI 24930 Environmental compatibility of engineered stones during their life cycle, ISO/DIS 25146 Determination of the chemical resistance of engineered stones <https://www.iso.org/committee/7913804/x/catalogue/p/0/u/1/w/0/d/0>

Several stakeholders acknowledged that engineered stone products that did not require further processing before installation were considered ‘finished’ and thus were exempt from the prohibition. However, it was also suggested that specific guidance on this would provide greater clarity for PCBUs, particularly in instances where certain ‘finished’ products contain some form of benchtop or slab. For example, HIA noted that:

*It is currently not possible for PCBUs to be certain whether some common types of finished engineered stone products that do not need to be processed or modified are excluded. For example, some finished sinks and vanity basins that may incorporate a small benchtop and finished ‘slab-like’ shower bases.<sup>42</sup>*

While stakeholders were generally supportive of the creation of additional resources to support PCBUs, regulators and workers, some cautioned that it should not be too prescriptive. From this viewpoint, it was suggested any new materials developed to assist WHS regulators and PCBUs should be risk based and flexible enough to adapt as new products enter the market.

### **Advertising, promotion, labelling and safety data sheets**

A range of feedback and suggestions was received regarding the advertising and promotion of alternative products. Specific concerns were raised regarding limitations of product labels and SDS. In other cases, feedback focused on the use of other marketing material, including alternative terms, brand names and product descriptions on websites.

A commonly raised issue was that some companies market their products in ways which contribute to confusion among regulators, workers, PCBUs and consumers regarding the constituents of a particular product. This confusion appears to be contributing to challenges in identifying prohibited from non-prohibited products. For example, one WHS regulator noted that some alternative products available in Australia and marketed as crystalline silica free appeared to be the same or very similar to a product marketed in the USA as quartz. It was further noted that both products were marketed with the same colour name and product identification number. It was noted both manufactured and naturally occurring quartz contains or is composed of crystalline silica.

Several stakeholders stated that some suppliers were marketing products under alternative names such as ‘quartz’. One stakeholder added that the use of alternative brand names undermines the objectives of the prohibition, may be misleading consumers, and may be a misguided and erroneous attempt to bypass the prohibition. HIA suggested that there was no clear evidence to date to indicate that companies have been rebranding to deliberately avoid the prohibition.<sup>43</sup>

Some stakeholders also raised concerns regarding the use of other terms in marketing materials such as ‘siliceous stone’, ‘quartzite’, ‘crystalline silica’ and ‘amorphous silica’. They indicated that the use of these terms may be contributing to confusion among stakeholders. Concerns about the use, verification and accuracy of other marketing positions were also raised, including marketing materials that suggested alternative products are ‘safe’ or ‘silica free’.

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<sup>42</sup> Housing Industry Association (HIA) submission.

<sup>43</sup> *ibid.*

Several stakeholders reported that the absence of clear and consistent labelling requirements for engineered stone has made it difficult to visually distinguish between prohibited and non-prohibited benchtops, panels and slabs that have been stockpiled. As a result, the effectiveness of WHS regulators' visual inspections may be diminished, and additional time and resources may be required to test individual products to ensure compliance efforts are comprehensive and effective. Stakeholders also noted the value of labelling as they can provide easily accessible, relevant information.

Stakeholders also noted the absence of specific labelling requirements for engineered stone presented challenges when attempting to identify engineered stone benchtops that had already been installed, and that this is likely to be contributing to the reluctance of waste companies to process waste from stone benchtops. Further detail on the disposal and waste management of engineered stone is discussed in section 2.5.

Stakeholders also raised concerns regarding the inadequacy of labelling requirements on alternative products and their constituents that are not subject to the prohibition. There were issues raised about ongoing complacency with dust control measures in the workforce in general. For example, the Australian Institute of Occupational Hygienists (AIOH) noted that a lack of both awareness and labelling requirements means that proper safety measures are not always applied when working with natural stone.

Other feedback focused on the importance of communicating the potential health risks associated with exposure to newer generation benchtops, including those that are promoted to be silica free. For example, the Thoracic Society of Australia and New Zealand (TSANZ) suggested that:

*...labelling of all constituents of the new products including their silica, metal, resin and other components would assist with respiratory health.<sup>44</sup>*

A broad range of stakeholders including PCBUs, unions, workers and consumers also provided feedback regarding SDS and their relevance to the operation of the prohibition. Notably, responses to Safe Work Australia's consultation survey revealed that the most common (35%) method to determine the composition of a product was to rely on SDS.

The Construction, Forestry and Maritime Employees Union (CFMEU) highlighted in its submission that 'a major problem in identifying the WHS risks to workers from processing engineered stone and alternative products is that there is no specific requirement on the content of safety data sheets.'<sup>45</sup> Several stakeholders also emphasised that the information in SDS for engineered stone products was often inconsistent, incomplete, unreliable and/or not fit for purpose. As the CFMEU's submission to the Review noted:

*Many importers of products rely on safety data sheets produced overseas, and some of these safety data sheets contain no information on the actual composition of the product. We have seen some safety data sheets produced in Australia that would fall into the same category.<sup>46</sup>*

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<sup>44</sup> Thoracic Society of Australia and New Zealand (TSANZ) submission.

<sup>45</sup> Construction, Forestry and Maritime Employees Union (CFMEU) submission.

<sup>46</sup> *ibid.*

While some stakeholders noted that improving the availability of SDS would be of benefit to workers and consumers, many advocated for other requirements related to SDS. This included new requirements to standardise the information in SDS and a requirement for accompanying test results to be independently verified by an accredited laboratory.

Stakeholders also suggested that the onus to demonstrate the accuracy of SDS for alternative products should rest with designers, manufacturers, importers and suppliers. Some stakeholders also advocated for SDS requirements for the constituents of benchtops, panels and slabs marketed as containing less than 1% crystalline silica.

### **Challenges in testing products**

Many stakeholders noted challenges associated with testing engineered stone benchtops, panels and slabs and alternative products. A commonly reported frustration was that comprehensive and reliable information detailing the constituents of benchtops, panels and slabs is often unavailable. As a result, a number of WHS regulators noted that they were often reliant on seizing and testing products to determine if they are subject to the prohibition.

Several stakeholders acknowledged that scientific testing can be resource intensive, time consuming and costly for WHS regulators, importers and suppliers alike. Stakeholders also noted that the capacity of Australian laboratories to support this work in a timely manner was constrained. In some instances, stakeholders suggested that uncertainties surrounding the requirements for disposal of engineered stone may be contributing to these constraints. For example, some stakeholders reported that some waste companies have been seeking test results of certain bulk materials to determine whether to process them.

In other instances, stakeholders noted that the recent introduction of the CSS regulations was contributing to testing constraints faced by Australian laboratories. To this end, as stronger regulatory controls now apply to all CSS in the workplace, these changes may be resulting in additional testing of products that are suspected to contain crystalline silica.

However, evidence collected as part of the Review was not sufficient to examine this issue in further detail.

A common issue raised by stakeholders was the absence of a nationally agreed standard or criteria for scientific testing to determine whether a suspected product is prohibited engineered stone. As ASSEA noted in its submission to the Review:

*These testing and analysis deficiencies will have an impact on determining whether a product is engineered stone at the border and on post-border compliance activities... including the information required in a brief of evidence for a prosecution.<sup>47</sup>*

Many WHS regulators stated that the development of a standardised approach to testing would be beneficial to strengthen the operation of the prohibition. This view was reinforced by some who expressed concern about the potential for inconsistent test results for the same products depending on which laboratory had undertaken the testing.

Several WHS regulators and PCBUs indicated that they had been using a laboratory accredited by NATA to test if specific products were subject to the prohibition or had an intention to do so in the future. Some indicated that they were aware of an Australian laboratory accredited by NATA to do bulk silica analysis by X-Ray diffraction (XRD). XRD is one technique used to help identify presence of crystalline silica.

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<sup>47</sup> Asbestos and Silica Safety and Eradication Agency (ASSEA) submission.

Feedback also suggested that testing of stone benchtops, panels and slabs using XRD is a necessary but insufficient means of determining whether a particular product is subject to the prohibition. Consistent with the criteria outlined in model WHS Regulation 529A(2) and (4)<sup>48</sup>, ASSEA emphasised that additional tests in combination with XRD were required to determine the resin content and elemental composition of individual products. Consultations also confirmed that NATA has not accredited any set of tests specifically designed for determining if a particular stone product is subject to the prohibition. NATA also added that while accredited laboratory analysis for silica is available, this is limited to environmental samples, and coverage for the specific application of testing engineered stone is not yet available.

Feedback also revealed that one or more Australian laboratories could choose to develop new tests for engineered stone for the purpose of the prohibition and seek NATA accreditation in each instance. However, one stakeholder noted a potential risk is that multiple laboratories could be accredited by NATA for this purpose with differing testing methodologies. As a result, tests conducted by these laboratories may not be directly comparable to each other, this could undermine a nationally coordinated approach to this issue.

Several stakeholders also advocated for further consideration and research into suitable testing methods to identify crystalline silica content and other compounds contained in alternative benchtops, panels and slabs, including products marketed as containing less than 1% crystalline silica. A number of stakeholders noted tests should be conducted on the composition of the final stone product, as distinct from its original chemical composition.

Some evidence suggests that certain compounds may undergo transformation in the manufacturing process resulting in the composition of final components differing from the initial raw compounds in the material.

## Discussion

Comprehensive and reliable information detailing the constituents of engineered stone benchtops, panels and slabs and alternative products is a critical consideration for the future operation of the prohibition, as well as broader efforts to prevent silicosis. At present, this information is obtained from various sources including product labels, SDS and other marketing materials, as well as test results. However, collectively, the systems in place to obtain and monitor this information are unreliable, inconsistent and often not fit for purpose. In many cases, these systems are also not enforceable by WHS regulators.

As part of its commitments under the Silica National Strategic Plan, ASSEA is examining the availability and visibility of product label and warning information across the supply chain.<sup>49</sup> ASSEA is preparing a report that will compare labelling requirements across jurisdictions and at Australia's borders with international labelling practices. ASSEA's report will recommend best practice labelling on products, packaging, and during transport for consideration in developing consistent product labelling requirements for crystalline silica substances. ASSEA has advised Safe Work Australia that the examination of labelling for legacy engineered stone is not in scope for that work.

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<sup>48</sup> Model WHS regulation 529A(2): In these Regulation, **crystalline silica substance (CSS)** means material that contains at least 1% crystalline silica, determined as a weight/weight (w/w) concentration. WHS regulation 529A(4): In these Regulations, engineered stone: (a) means a CSS that: (i) is an artificial product; and (ii) is created by combining natural stone materials with other chemical constituents such as water, resins or pigments; and (iii) becomes hardened.

<sup>49</sup> Silica National Strategic Plan Action 1-E: Examine the availability and visibility of product label and warning information, such as Safety Data Sheets, across the supply chain by: (i) Investigating current requirements for product labels and warnings on crystalline silica substances. (ii) Using investigation results, develop and implement a nationally consistent requirement for product labels and warnings for crystalline silica substances. (iii) Implementation should include nationally consistent compliance, education and awareness campaigns on product labels and warning targeting product and chemical suppliers.

### Report

ASSEA's report will be a useful resource to inform future policy directions for the marketing of benchtops, panels and slabs in Australia. Further work is needed on labelling alternative products as well as legacy engineered stone, including stockpiled material to ensure it can be distinguished from alternative material. In conjunction with work on the labelling of legacy engineered stone, there is merit in reviewing the value and suitability of current requirements governing product labels (for engineered stone and alternative products) and SDS to better support the operation of the prohibition. Future labelling work should also have regard to the work the ABCB has underway regarding a proposal for mandatory information and registration of building products and potential mandatory product labelling and traceability scheme. The issue of labelling in terms of the disposal of stockpiled legacy engineered stone is discussed in section 2.5.

A national approach to testing engineered stone is also necessary to strengthen the operation of the prohibition by introducing standard testing requirements to ensure consistency across all jurisdictions. For example, this might include the development of a national standard or testing criteria, which could be led by Safe Work Australia in consultation with suitably recognised technical experts, accrediting body/bodies, the ABF, and other relevant stakeholders. Such work would need to be informed by additional research into suitable testing methodologies and requirements as well as the work of the ISO currently under development.

Current systems available to effectively monitor the advertising and promotional materials produced by the industry also appear to be limited which in part stems from difficulty identifying constituents of the products. Incorrect advertising and promotional materials have the potential to mislead workers and other stakeholders regarding a particular product's health risks when processed. Inaccurate marketing materials can also undermine compliance and enforcement efforts and contribute to confusion in the community regarding which products are subject to the prohibition.

Given stakeholder observations that there is some confusion concerning which products are covered by the prohibition, additional education and resources would benefit PCBU's, workers and WHS regulators to support the ongoing operation of the prohibition. This includes resources to help determine if a product is permitted or prohibited when it is not readily apparent (e.g. certain prefabricated sinks or shower bases).

## Recommendations and Findings

**Recommendation 1:** Safe Work Australia should drive work to develop an urgently needed, nationally recognised, standard testing criteria that determines if a product is engineered stone; this may involve multiple laboratory techniques to test for the presence of crystalline silica and/or binders.

**Recommendation 2:** Safe Work Australia should engage with Commonwealth, state and territory consumer protection agencies and other relevant bodies to highlight the need for the marketing and labelling of engineered stone and alternative products to be accurate, reliable and consistent.

**Recommendation 3:** Upstream duties of manufacturers, importers and suppliers should be enforced to ensure accurate and meaningful labelling of constituents present when processing alternative products.

**Recommendation 4:** The model WHS laws should be amended to require the use of consistent labelling and/or safety data sheets for engineered stone and alternative products.

**Finding 1:** Further research and ongoing data collection is needed to understand the long-term effectiveness of the prohibition.

**Finding 2:** Simple and practical information (e.g. cheat sheet, infographics) is needed to support PCBUs, workers and other stakeholders working with products to determine if they are permitted where it is not readily apparent (e.g. certain prefabricated sinks, prefabricated shower bases).

## 2.3 Reinstallation of engineered stone

### Current situation

#### **Requirements for reinstallation under current WHS Regulations**

Under the WHS Regulations, a PCBU cannot re-install an engineered stone benchtop, panel or slab that has been removed for the purpose of cabinet repair or refurbishment, even if no processing is required. This is because the engineered stone prohibition applies to installation, which includes re-installation. There is no exemption for this kind of work in the WHS Regulations.

#### **Model WHS Regulation 529D – Work involving engineered stone benchtops, panels or slabs—prohibition**

A person conducting a business or undertaking must not carry out, or direct or allow a worker to carry out, work that involves manufacturing, supplying, processing or installing engineered stone benchtops, panels or slabs.

#### **Model WHS Regulation 529E – Work involving engineered stone benchtops, panels or slabs—exception for particular supply and installation**

Regulation 529D does not apply to work that involves supplying or installing engineered stone benchtops, panels or slabs if the work is:

- (a) for genuine research and analysis; or
- (b) to sample and identify engineered stone.

#### **An unintended consequence**

Following the implementation of the engineered stone prohibition on 1 July 2024, Safe Work Australia received numerous enquiries from various stakeholders and was immediately made aware of a consequence of the [Model Work Health and Safety Regulations \(Engineered Stone\) Amendment 2024](#), which unintentionally prohibited work such as the reinstallation of an engineered stone benchtop, panel or slab if it was removed for the purpose of fixing underlying cabinetry or plumbing.

Following consideration of this feedback in July 2024, Safe Work Australia Members agreed that prohibiting the reinstallation of these engineered stone products in such circumstances was not the policy intent of the prohibition and that an interim measure should be put in place, noting it may ultimately be appropriate to amend the WHS Regulations. Safe Work Australia Members also agreed that the health risks associated with the reinstallation of engineered stone benchtops, panels or slabs are likely to be comparable to those arising from the installation of finished engineered stone products (e.g. a slab with a moulded sink for a vanity) which are not captured by the prohibition.

As an interim measure, Safe Work Australia Members agreed that WHS regulators can grant an exemption on their own initiative under the general exemption power in model WHS Regulation 684. This matter was then formally referred to the Heads of Workplace Safety Authorities (the WHS regulators in each state and territory) to coordinate a common approach to exemptions that address the unintended reinstallation issue.

## ***Reinstallation exemptions***

Table 1 details that 8 of the 9 jurisdictions have provided for an exemption to allow for the reinstallation of legacy stone benchtops, panels and slabs which would otherwise be prohibited under the WHS Regulations. At the time of writing, Tasmania had not granted an exemption to address this unintended consequence. Importantly, of the jurisdictions with an exemption, only the Commonwealth, New South Wales, Victoria and Australian Capital Territory allow it to remain in place until it is varied, revoked or as in the case of the Commonwealth until the WHS Regulations are amended. The 4 other jurisdictions specify an end date for their exemptions. The exemptions in Western Australia and South Australia are the first to expire on 30 March 2026 followed by Queensland and Northern Territory exemptions expiring in 2027.

Jurisdictions with exemptions use general provisions in their respective versions of the WHS Regulations to make exemptions for reinstallation of engineered stone.

**Table 1 Exemptions published by jurisdictions**

Jurisdiction	Date commencement	Date valid until
<b>Vic</b>	26 September 2024	Remains in force until varied or revoked
<b>WA<sup>50</sup></b>	9 October 2024	30 March 2026
<b>Qld<sup>51</sup></b>	13 January 2025	12 January 2027 unless amended or cancelled sooner.
<b>Cth<sup>52</sup></b>	25 January 2025	This exemption applies until amendments are made to the WHS Regulations to enable the re-installation of an existing engineered stone benchtop, panel or slab or this exemption is revoked.
<b>SA<sup>53</sup></b>	31 October 2024	30 March 2026
<b>NT<sup>54</sup></b>	20 December 2024	20 December 2027
<b>NSW<sup>55</sup></b>	9 May 2025	Has effect until otherwise varied or revoked.
<b>ACT<sup>56</sup></b>	6 June 2025	Remains in effect until it is amended or cancelled
<b>Tas</b>	No exemption	No exemption

<sup>50</sup> 'Granting of exemption from requirement(s), in specific circumstances of the Work Health and Safety (General) Regulations 2022' WorkSafe WA Exemption 12 of 2024, 9 October 2024, [https://www.worksafe.wa.gov.au/system/files/documents/2024-11/exemption\\_12\\_of\\_2024.pdf.pdf](https://www.worksafe.wa.gov.au/system/files/documents/2024-11/exemption_12_of_2024.pdf.pdf)

<sup>51</sup> 'Work Health and Safety Regulations 2011, Notification of Exemption', Queensland Government Gazette Vol. 398 No. 7, 17 January 2025, pg 72, <https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/015dd3b2-027e-462a-a870-1b5d105879e9/17.01.25-combined.pdf?ETag=f8588bdbae2a32bc0bdf642f185d5185>

<sup>52</sup> 'Work Health and Safety (Re-installation of existing engineered stone benchtops, panels or slabs) Exemption 2024', Federal Register of Legislation, <https://www.legislation.gov.au/F2025L00045/asmade/text>

<sup>53</sup> 'Work Health and Safety Regulations 2012 Exemption', The South Australian Government Gazette No.72 p. 4088, 31 October 2024, [https://www.safework.sa.gov.au/\\_data/assets/pdf\\_file/0003/1086546/Engineered-Stone-exemption-notice-24-October-2024.pdf](https://www.safework.sa.gov.au/_data/assets/pdf_file/0003/1086546/Engineered-Stone-exemption-notice-24-October-2024.pdf)

<sup>54</sup> 'Work Health and Safety (National Uniform Legislation) Regulations 2011 Exemption', Northern Territory of Australia Government Gazette No. G26, 19 December 2024, <https://nt.gov.au/media/docs/gazettes/2024/december/g26.pdf>

<sup>55</sup> 'Work Health and Safety Regulation 2017 Exemption No. 24-035', Government Gazette of the State of NSW, No. 180, 19 May 2025, [https://gazette.nsw.gov.au/gazette/2025/5/2025-5\\_180-gazette.pdf](https://gazette.nsw.gov.au/gazette/2025/5/2025-5_180-gazette.pdf)

<sup>56</sup> 'Work Health and Safety (Re-installation of Engineered Stone) Exemption 2025', ACT Legislation Register, NI2025-280, 5 June 2025, <https://www.legislation.act.gov.au/ni/2025-280/>

## Report

## Stakeholder responses

A few stakeholders who participated in the consultation process raised concerns about the unintended consequence of the prohibition on the reinstallation of benchtops, panels and slabs. It was acknowledged that some jurisdictions have provided for exemptions to deal with the unintended consequence, while others have not. Stakeholders noted that the varied and inconsistent approaches taken by individual jurisdictions is not ideal. The end date of some exemptions was also cited as being problematic in the event a more permanent solution, namely the inclusion of an exemption in the WHS Regulations, is not enacted before the current exemptions expire.

The Review acknowledges that some jurisdictions may already be advancing work in this area.

## Discussion

The prohibition of the reinstallation of engineered stone benchtops, panels and slabs which have been removed to allow for the repair of underlying cabinetry or plumbing was quickly identified as an unintended consequence arising from the amendments to the WHS Regulations to prohibit engineered stone.

The process identified to temporarily address this unintended impact was prompt. However, as there was no requirement for consistency when executing the interim measure, there are resulting inconsistencies between jurisdictions.

The Review recommends Safe Work Australia agree to amend model WHS Regulations 529E<sup>57</sup> and 529F.<sup>58</sup> Such changes should operate alongside existing WHS Regulations regarding the processing of CSS. An amendment to model Regulation 529E could allow for the reinstallation of engineered stone in the same place it was removed for the purposes of completing work on the underlying cabinetry or plumbing. Additionally, an amendment to model Regulation 529F could allow for the reinstallation after minor modifications are made. These amendments could draw from the existing published exemptions, where appropriate, and aim to promote national consistency.

## Recommendation

**Recommendation 5:** Safe Work Australia should develop amendments to model WHS Regulations 529E and 529F to allow for the reinstallation of legacy engineered stone benchtops, panels and slabs to address an unintended consequence of the prohibition.

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<sup>57</sup> Model WHS Regulations 529E: Work involving engineered stone benchtops, panels or slabs – exception for particular supply and installation.

<sup>58</sup> Model WHS Regulation 529F: Work involving engineered stone benchtops, panels or slabs – exception for particular processing.

## 2.4 Public awareness and communication

### Current situation

#### **Awareness raising**

Safe Work Australia has been raising awareness about the WHS risks of respirable crystalline silica and how to manage that risk since 2018. These activities increased in the 2020s.

Although not examined as part of this Review, it is acknowledged that other government and non-government agencies also support education and awareness raising measures that are relevant to the prohibition.<sup>59</sup>

#### **Recent Safe Work Australia communication activities**

The 'Clean Air. Clear Lungs.' occupational lung diseases education and awareness campaign ran from June to December 2021 and targeted the construction, agriculture, manufacturing and engineered stone sector.

The 'Clean Air. Clear Lungs. – Be Silica Smart' education and awareness campaign in 2023 provided workers, employers and consumers with information on how to manage the risks of working with silica. The campaign website and materials are available in 5 languages in recognition of the large number of migrant workers in the target audience.

A dedicated engineered stone prohibition website hub was established in May 2024. It provided the latest information, jurisdictional information and guidance for PCBU's on the implementation of the prohibition.

Safe Work Australia continues to develop and deliver ongoing communication to raise awareness about the WHS risks related to silica and how to identify and manage these risks, aligning with Priority 2 – education and awareness under the Silica National Strategic Plan. A communication campaign was rolled out to support the implementation of the prohibition. The evaluation of this campaign highlighted there were almost 70,000 page views across all engineered stone prohibition web pages during the campaign period, noting that the new engineered stone prohibition website went live in mid-May 2024. This is a strong result when compared to other Safe Work Australia communication campaigns, particularly as there was no paid component. The *Engineered stone prohibition: Guidance for PCBU's* was downloaded 3,064 times and the supporting resources were downloaded 1,876 times.

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<sup>59</sup> 'National Dust Disease Progress Report April 2022 – December 2023', Department of Health, Disability and Ageing (2024), <https://www.health.gov.au/resources/publications/national-dust-disease-progress-report-april-2022-december-2023?language=en>

Safe Work Australia will distribute communication in 2025 to promote the publication of the *model Code of Practice: Managing risks of respirable crystalline silica in the workplace* and supporting materials once it has been approved by WHS ministers, providing practical advice to PCBUs and workers about the risks of working with CSS.

## Stakeholder responses

### ***Behavioural change***

Since the engineered stone prohibition, stakeholders report a noticeable increase in public understanding and awareness of the risks associated with processing engineered stone products, particularly respirable crystalline silica and silicosis. This heightened awareness has extended beyond manufacturers, suppliers and workers to include the general public and consumers of benchtops, panels and slabs. This has resulted in consumers asking for more product safety information from suppliers, and workers raising questions about the materials they are working with and what they may be exposed to.

It was suggested the prohibition has also raised concerns amongst the public about engineered stone at large. For example, the media's portrayal of the engineered stone prohibition has caused some confusion among the public, leading to unnecessary concerns about existing, installed engineered stone benchtops. In certain instances, PCBUs say they have experienced people from the community wanting to remove their already installed engineered stone benchtops as they thought they would get silicosis.

Stakeholders, particularly WHS regulators and industry representatives, anecdotally indicated that there is generally a good understanding of the regulatory requirements relating to the engineered stone prohibition by PCBUs and workers. However, some areas of concern and confusion remain, particularly around notification requirements and disposal obligations as described in sections 2.5 and 2.6.

Responses to the consultation survey by PCBUs indicate they have made changes in their businesses to adapt to the engineered stone prohibition. These changes include ceasing the supply of prohibited engineered stone; changing the type of benchtop, panel and slab products they are distributing; and also adapting to the CSS requirements and requirements for notifying work with legacy engineered stone. Survey responses also indicate PCBUs who responded have provided guidance materials in their workplaces to ensure workers, including subcontractors, are trained and informed when working with silica containing products. They also indicate PCBUs have invested in and implemented the required controls to ensure WHS requirements are observed.

By contrast, stakeholders have also stated that they have witnessed a lack of understanding and non-compliance among PCBUs and workers, particularly regarding processing alternative products. One stakeholder raised that uncontrolled processing of alternative products is still occurring in small businesses.

## ***Safety of alternative products***

As mentioned above, the consultation revealed a common misconception among both workers and the public – that if a product is not prohibited, it must be safe to work with. Stakeholders report this belief has contributed to complacency around the health risks of respirable crystalline silica in products such as porcelain, sintered stone and natural stone. These observations extend to recycled glass products which are marketed as ‘silica free’ despite containing amorphous silica, which leads to workers assuming the dust produced from these products is not hazardous. To address this, stakeholders have emphasised the importance of a clear and consistent message that *all dust is bad dust*. Numerous stakeholders requested an emphasis on control measures, regardless of whether a material is prohibited or not, as any process that generates visible or non-visible dust could pose a serious long term health risk if not properly controlled.

Stakeholders also noted there remains confusion around terminology, including terms such as ‘siliceous stone’, ‘quartzite’, ‘crystalline silica’, ‘amorphous silica’ and ‘silica free’.

Stakeholders have raised concerns about how these terms are referenced or displayed on product labels and marketing materials.

It was suggested further education and public awareness campaigns are needed, particularly around safe disposal practices. Waste management and disposal are explored further in section 2.5.

## ***Access and clarity of Safe Work Australia guidance materials***

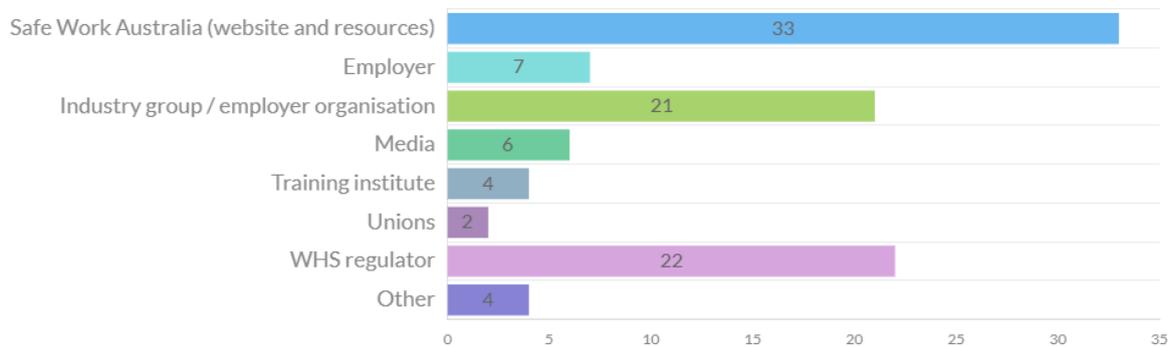
The majority of stakeholders who submitted to the public consultation survey found it easy to access information regarding the engineered stone prohibition (34 of 39), and over half (27 of 39) believed the guidance and resources produced by Safe Work Australia were clear to understand.

PCBUs comprised the majority of respondents. Those who did not find guidance readily accessible or clear were mostly PCBUs. The feedback as to why the guidance was not accessible or clear includes the desire for more detail and information on the exclusions to the prohibition (i.e. clarification on what is prohibited and what is not) as well as on requirements for working with legacy engineered stone and disposal. In addition, respondents pointed out that there have been no resources or guidance regarding the use of alternative products and their safety concerns. Lastly, a PCBU highlighted information was published via media platforms but was not distributed to workers and PCBUs directly.

Similarly, the Lung Foundation Australia (LFA) submission stated that most of the resources have currently been focused on a PCBU and their duties rather than supporting individuals. The LFA recommends further education and guidance be targeted to workers.

When asked where they went for further guidance, stakeholders responded that they visited the Safe Work Australia website/guidance and WHS regulators most frequently, with 33 and 22 responses (of 39) respectively (Figure 1). Industry groups/employer organisations and employers also featured prominently at 21 responses, suggesting multiple avenues were used to obtain information. Other information sources received comparatively fewer mentions.

**Figure 1. Consultation survey – sources for information and guidance**



Stakeholders stated that resources they find most helpful for the engineered stone prohibition include website and guidance documents (27 and 36 respectively) with onsite training, seminars, and videos at a moderate preference level.

## Discussion

The engineered stone industry has faced several regulatory changes over recent years, including the 2023 prohibition on uncontrolled processing of engineered stone and the 2024 engineered stone prohibition and strengthened regulations for CSS. A range of Safe Work Australia communication campaigns and awareness raising activities have supported stakeholders through these changes. The 1 March 2024 to 30 September 2024 evaluation snapshot found that, overall, the engineered stone prohibition communication strategy was successful in achieving the identified objectives.

Now that the engineered stone prohibition is in effect across all jurisdictions, it is evident from stakeholder feedback that there is an ongoing need for further education and awareness raising. Specifically, such work should address the erroneous perception that materials which are not prohibited are inherently safe, when there may be insufficient or inconclusive research to determine the impact on human health. This is particularly the case for new low and no silica products emerging on the market. The Review notes ASSEA will be conducting the first national general awareness survey on silica and silica-related diseases in 2025.

The absence of research and definitive evidence of the health impacts of alternative products which is discussed further in section 2.8, together with limitations around product labelling addressed in section 2.2, underscores the great importance of a clear and consistent message on the dangers of all dusts and the need for control measures when engaging in dust producing activities to help ensure the safety of workers. Further, the composition of the industry, with many small or solo operators, including from CALD backgrounds, means that messaging must be straightforward and easy to understand.

In line with Priority 2 of the Silica National Strategic Plan, any further work to educate and raise awareness will benefit from collaboration and action from Safe Work Australia, ASSEA, WHS regulators and other bodies representing workers, industry and medical professionals.

## Findings

**Finding 3:** Further education and public awareness campaigns, including those with a culturally and linguistically diverse focus, are required to address complacency and misunderstandings around the need to engage in safe practices when processing engineered stone and alternative products, and to promote safe disposal practices.

**Finding 4:** Further efforts are required to better target workers' education and awareness of the risks respirable crystalline silica poses to them.

## 2.5 Waste management and disposal of engineered stone

### Current situation

#### ***Legislative and regulatory context***

In Australia, the responsibility for waste management and disposal cuts across three tiers of government – Commonwealth, state and territory and local government.<sup>60</sup>

The Commonwealth Government is responsible for national legislative strategies and frameworks (such as the exportation of waste) as well as giving effect to international agreements, treaties and conventions in relation to waste management.

State and territory governments are primarily responsible for the management of waste. Each jurisdiction has its own waste management legislation which includes regulating the disposal of certain hazardous materials.

Local governments are responsible for managing the waste as provided by the relevant state jurisdiction's legislative framework. This includes the management of landfill sites and any recycling services.

#### ***Current requirements for disposal of engineered stone***

In accordance with model WHS Regulation 529F, processing legacy engineered stone for specified purposes including disposal, whether previously installed or not, is permitted provided the processing is controlled (model WHS Regulation 529B) and the work is notified to the relevant WHS regulator (model WHS Regulation 529G).

#### **Model WHS Regulation 529F – Work involving engineered stone benchtops, panels or slabs—exception for particular processing**

Regulation 529D does not apply to work that involves processing engineered stone benchtops, panels or slabs if the work:

- (a) is carried out:
  - (i) for genuine research and analysis; or
  - (ii) to sample and identify engineered stone; or
  - (iii) to remove, repair or make minor modifications to installed engineered stone; or
  - (iv) to dispose of the engineered stone, whether it is installed or not; and
- (b) is controlled.

Importantly, the WHS Regulations do not define how to dispose of engineered stone.

Guidance developed by Safe Work Australia for PCBUs on the engineered stone prohibition addresses disposal at a high level, stating disposal activity is to comply with jurisdictional waste management requirements.

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<sup>60</sup> 'Waste and recycling industry in Australia - Chapter 2', Parliament of Australia, [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/WasteandRecycling/Report/c02](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/WasteandRecycling/Report/c02)

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### **Disposal of legacy engineered stone**

Processing of legacy engineered stone for disposal (for example, crushing engineered stone off-cuts) must be controlled and the disposal must comply with any applicable jurisdictional waste management requirements (such as quantity or dust level limits of the load or watering prior to tipping).

The exception for disposal does not permit repurposing or reusing of processed legacy engineered stone, including crushed stone.

WHS regulators are not currently providing definitive guidance on the waste management and disposal requirements specific to prohibited engineered stone. Reference is in general made to Safe Work Australia guidance, with some jurisdictions referring PCBUs to the relevant environmental protection authority (EPA) for further advice on appropriate waste disposal measures. Other jurisdictions defer to the individual practices of waste management businesses. As a result, there are currently numerous pathways to dispose of prohibited engineered stone, all of which lack specific and clear guidance and consistent requirements.

The complexity around the disposal of prohibited engineered stone is compounded by the fact that the risk to worker health and safety arises when it is being processed. The solid, completed product does not present a respiratory hazard to human health.

### ***Jurisdictional waste levies***

To encourage safe disposal and decrease cost to businesses, some jurisdictions have published exemptions from fees for the disposal of prohibited engineered stone benchtops, panels and slabs or have introduced time limited waste levy discounts. However, there have been inconsistent approaches to the use and implementation of waste levies within and between jurisdictions. For example, in South Australia the waste levy discount which ceased on 30 June 2025, had applied to the disposal of prohibited engineered stone benchtops, slabs and panels and silica dust.<sup>61</sup> In Queensland, prohibited engineered stone benchtops, panels and slabs to be disposed of in landfill were exempt from the waste levy until 30 June 2025, but silica dust was not specified in the exemption.<sup>62</sup> Moreover, despite waste levy waivers, as commercial facilities, landfill operators can still apply other fees, such as gate fees, for disposal of products.

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<sup>61</sup> 'Engineered stone ban', Environment Protection Agency South Australia, [https://www.epa.sa.gov.au/environmental\\_info/waste\\_recycling/engineered-stone-ban#:~:text=From%201%20July%202024%20until.of%20this%20product%20by%20anyone.](https://www.epa.sa.gov.au/environmental_info/waste_recycling/engineered-stone-ban#:~:text=From%201%20July%202024%20until.of%20this%20product%20by%20anyone.)

<sup>62</sup> 'The Declaration of Exempt Waste (Waste Levy) - Waste Reduction and Recycling Act 2011', Queensland Government, [https://www.qld.gov.au/data/assets/pdf\\_file/0018/501408/declaration-exempt-waste-engineered-stone.pdf](https://www.qld.gov.au/data/assets/pdf_file/0018/501408/declaration-exempt-waste-engineered-stone.pdf)

## Stakeholder responses

The issue of disposal and waste management of legacy engineered stone was raised by nearly all stakeholders during the consultation process, including WHS regulators, PCBUs, workers, unions, industry representatives and government officials. As stakeholder feedback on the issue of disposal was multifaceted, these experiences and insights have been consolidated around common sub-themes – namely absence of harmonisation across jurisdictions, cost of disposal, stockpiling, issues with mixed waste and recycling, and a lack of clarity surrounding re-exporting.

### ***Absence of harmonisation across jurisdictions***

A range of stakeholders highlighted there is confusion around the disposal of prohibited engineered stone and a need for greater clarification around permitted disposal methods across all jurisdictions. For example, ASSEA confirmed its awareness of the lack of clarity regarding the safe disposal of prohibited engineered stone. There were stakeholder accounts that, within a single jurisdiction, some waste facilities are treating engineered stone as general waste, some as industrial waste, and others as though it were akin to asbestos. In addition, there are reportedly facilities refusing engineered stone due to the uncertainty around the safe disposal of the product to avoid exposing their workers to respirable crystalline silica. Similarly, the Review also heard that to avoid the possible risk of exposing their workers to respirable crystalline silica, less than 1% crystalline silica products have been refused by some waste management facilities as it cannot be easily distinguished from the prohibited stone. This has led to an interruption in waste management and disposal.

These stakeholder accounts indicate there is a need for further guidance and a consistent approach within and across jurisdictions. They also reinforce the issues raised in the discussion about the importance of accurate product labelling (see section 2.2).

Victoria issued clarifying guidance on disposal obligations, advising that prohibited engineered stone products can be disposed of in-line with usual industrial waste management practices.<sup>63</sup>

Some WHS regulators reported businesses were able to manage their stock based on the different approaches taken by jurisdictions on the commencement of the prohibition by moving engineered stone products from jurisdictions with a hard commencement of the prohibition on 1 July 2024 to jurisdictions with a transition period. The Review understands that as a result, practices such as stockpiling may be more prevalent in jurisdictions that had a transition period. It is noted, however, the impact of other variables such as a waste levy exemption may have a mitigating impact.

### ***Cost of disposal***

While the option to dispose of products is provided under the WHS Regulations, the barrier most frequently identified was the increased cost to dispose of engineered stone following the prohibition. Some stakeholders, including WHS regulators and manufacturers, noted certain waste companies had tripled their fees to dispose of prohibited engineered stone. Stakeholders speculated one reason may be because some local governments are characterising it in the same way as asbestos.

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<sup>63</sup> 'Frequently asked questions - Engineered stone prohibition', WorkSafe Victoria, <https://www.worksafe.vic.gov.au/frequently-asked-questions-engineered-stone-ban>

Several stakeholders highlighted that the increased disposal costs compounded the financial impact of the prohibition already faced by businesses due to the cost of:

- prohibited engineered stone products that could not be sold prior to the prohibition becoming unsellable dead stock
- storing dead stock until its disposal, and
- transitioning to alternative products such as natural stone, less than 1% crystalline silica products, sintered stone and porcelain.

### ***Stockpiling prohibited engineered stone***

Stakeholders noted that increased waste levies and not having access to appropriate waste facilities has meant some businesses have opted to not dispose of their prohibited engineered stone products. Instead, the dead stock has been stockpiled on the businesses' premises. Some WHS regulators have observed instances of stockpiling in their jurisdictions, while others have not seen evidence of this. Some stakeholders did speculate that there is a risk that prohibited engineered stone slabs and panels could be mixed into shipments of less than 1% crystalline silica product for use domestically.

One WHS regulator highlighted that mandating disposal (i.e. prohibiting the storage of prohibited engineered stone) could have the unintended and undesirable consequence of illegal dumping.

The requirement for accurate and clear labelling of stockpiled, prohibited engineered stone was identified by some WHS regulators and industry stakeholders as an important step as it is currently difficult to distinguish between old and new products in the absence of testing.

The issue of labelling is discussed in section 2.2.

### ***Mixed waste and recycling***

The Review heard differing views from stakeholders on the handling of prohibited engineered stone that may present in mixed loads of construction waste which is in part related to the difficulty in reliably identifying prohibited engineered stone products in such loads through visual inspection.

The exception to the prohibition to enable disposal does not permit repurposing or reusing processed legacy engineered stone, including crushed stone.<sup>64</sup> WorkSafe Victoria considers that the regulations and associated guidance are clear and achieve their desired intention of prohibiting this activity and, consequently, regulatory amendments are not considered necessary.

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<sup>64</sup> 'Engineered stone prohibition: Guidance for PCBUs', Safe Work Australia (2024), <https://www.safeworkaustralia.gov.au/doc/engineered-stone-prohibition-guidance-pcbus>

While current practices promoted by SafeWork NSW are consistent with the WHS Regulations and Safe Work Australia guidance, SafeWork NSW does not consider there to be a significant increase in the risk profile of prohibited engineered stone when it is disposed of with general building waste. The SafeWork NSW submission notes that engineered stone generally only presents as a small amount of overall building waste (the majority of which is made up of bricks and concrete), and that general building waste also releases respirable crystalline silica dust which must be controlled. Therefore, SafeWork NSW is in favour of allowing reprocessing of prohibited engineered stone for the purposes of recycling with building and demolition waste as a means of disposal.

Stakeholder feedback from the waste and recycling industry provided by the Queensland WHS regulator noted that under standard industry controls for recycling CSS for aggregates, the processing of engineered stone is unlikely to increase risks to health and safety and may undergo the same or similar processing at landfill.

### ***Re-exporting***

Stakeholders have advised that businesses, particularly larger suppliers of stone products have, in some instances, opted to re-export prohibited engineered stone products to other countries where they also operate and where the product is not prohibited.

Some stakeholders, including WHS regulators, raised the moral implications associated with the exportation of prohibited engineered stone as a potentially hazardous product to other countries.

## **Discussion**

Absent, unclear and inconsistent disposal and waste management guidance and practices for legacy engineered stone is an unintended consequence of the prohibition. With this lack of clarity and consistency, key interrelated matters have emerged including the increased cost of disposal, stockpiling, issues arising from the difficulty of identifying prohibited engineered stone from other silica or non-silica containing products, repurposing and recycling of products, and the re-export of prohibited products.

All levels of government are involved in managing waste and recycling to protect the environment, secure public health and safety outcomes, and avoid the loss of public amenity.<sup>65</sup> While the risk profiles of asbestos and engineered stone differ, the issue of managing the disposal of prohibited engineered stone and the associated waste management issues are similar to those experienced over the years in the context of the disposal of asbestos-containing materials, in that they involve the three tiers of government. Only through the concerted collaborative efforts of the tiers of government has a regulatory framework been established for managing asbestos waste. A similar collaborative approach is needed for the disposal of prohibited engineered stone.

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<sup>65</sup> 'Waste and recycling industry in Australia - Chapter 2', Parliament of Australia, [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/WasteandRecycling/Report/c02](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/WasteandRecycling/Report/c02)

The 2023 Prohibition Decision Regulatory Impact Statement (DRIS) alluded to the potential environmental impact of product disposal and identified there may be costs to businesses when pivoting to alternative products and disposing of dead stock. The cost of disposal was raised frequently during the consultation as a key issue for PCBUs. Due to increased waste levies, some businesses are avoiding fees charged for the disposal of products by stockpiling instead. However, stockpiling presents further consequential issues where businesses are having to pay or make space for this. With no regulatory requirement for businesses to remove or dispose of their products, there is concern from WHS regulators around monitoring these stockpiles and ensuring these products are not re-entering the market.

It is important that prohibited engineered stone stockpile is eventually disposed of in a responsible manner. This is in all WHS stakeholders' interests, and determining an approach as soon as possible is key to limiting products re-entering the market. WHS regulators have noted the existence of legacy engineered stone stockpiles; however, the exact quantities are unknown. This lack of data makes it difficult to accurately assess the extent of the issue.

Uninstalled legacy engineered stone is only one aspect of the waste disposal issue. The Prohibition DRIS estimated 2-3 million Australian homes have installed engineered stone benchtops, slabs and panels. Therefore, it is crucial that the disposal pathway also identifies clear steps for disposing of installed legacy engineered stone. The notification framework which is included in the WHS Regulations aims to provide WHS regulators with visibility of when and where the disposal of legacy engineered stone is occurring (see section 2.6).<sup>66</sup> Disposal of prohibited engineered stone may result in RCS exposure to the worker; therefore, when a PCBU, whether that be a PCBU of an engineered stone business or a private waste company, processes prohibited engineered stone for the purposes of disposal they must notify the WHS regulator and ensure the processing is controlled.

According to Table 3, a total of 85 disposal notifications were made from 1 July 2024 to 31 March 2025. The majority of these notifications are from New South Wales (39 notifications) with Queensland, Western Australia and South Australia all experiencing similar number of notifications (18, 11 and 15, respectively). Tasmania had 2 notifications for disposal, while the Commonwealth had zero. Data was not received from the Northern Territory at the time of writing.

The Australian Capital Territory received a total of 50 notifications, a portion of which is likely to be attributable to disposal. However, as that data was not broken into the types of work being done, it is not possible to be definitive on the proportion. Victoria does not require a PCBU to notify the WHS regulator for work with legacy engineered stone (see section 2.6). This data, whilst limited, may be useful in understanding where disposal occurs and assist with producing clear pathways for disposal and waste management.

Even in this context, the total of 85 notifications is likely an underestimation of the total amount of disposal occurring. Due to the history of non-compliance in the industry, it is expected that some PCBUs may not have notified of their intention to process legacy engineered stone for the purposes of disposal. In addition, the notification framework is only for the purposes of processing. Therefore, a PCBU may be disposing of legacy engineered stone in bulk, without processing, and therefore not notifying.

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<sup>66</sup> Model WHS Regulation: Part 8A.3 Regulator to be notified of particular processing of engineered stone.

The scope of the Silica National Strategic Plan highlights the importance of each step in the supply chain of crystalline silica substances including the disposal of engineered stone. The Review suggests the disposal pathways for prohibited engineered stone are not linear and instead resembles a decision tree which will lead to different branches. A well-structured decision tree needs to be clearly defined and mapped out, enabling PCBUs, WHS regulators and EPAs (both federal and state) to collaborate effectively and bring consistency across jurisdictions. This decision tree should include key considerations such as:

- the form of legacy engineered stone (e.g. is it solid or processed?)
- the waste classification (e.g. is it land waste or industrial, and is it considered hazardous?)
- contamination (e.g. is the legacy engineered stone mixed with other materials, and, if so, what is the approach?)
- regulatory compliance (e.g. what are the specific regulations governing the disposal, what standards must be met and, if the standards are not met, what consequences and penalties might occur?), and
- cross jurisdictional clarity (e.g. a consistent approach, or a clear outline of the differences, should be developed to assist PCBUs).

Further consideration is required to identify which agency or body is best placed to take the lead on progressing this matter.

To conclude, there is an absence of consistency within and between jurisdictions on the approach to disposing of prohibited engineered stone. This presents two key risks, namely the potential illegal dumping of the product and the unlawful reintroduction of stockpiled legacy engineered stone on to the market. Safe Work Australia considers that Recommendation 6 and Finding 5 will assist in addressing these key risks and the other issues discussed in this section of the report.

## Recommendation and Finding

**Recommendation 6:** Consistent and clear guidance should be developed within and between jurisdictions on the approach to disposing of engineered stone and silica more broadly.

**Finding 5:** Proactive engagement and collaboration between the three tiers of government with responsibility for waste management is needed to ensure the appropriate disposal of engineered stone.

## 2.6 The national notification framework and legacy engineered stone

### Current situation

The purpose of the model national notification framework is to provide WHS regulators with visibility of where and when PCBU's are conducting permitted work with legacy engineered stone. This enables WHS regulators to track potentially hazardous activity and assists them with enforcing compliance.

#### ***The regulatory framework for work with legacy engineered stone***

Legacy engineered stone benchtops, panels and slabs are currently installed in many homes and other settings throughout Australia. Under the WHS Regulations, PCBU's must provide written notice to the WHS regulator if they intend to carry out permitted work with legacy engineered stone. This includes work to:

- repair, make minor modification to, or remove an engineered stone benchtop, panel or slab that is already installed, or
- dispose of an engineered stone benchtop, panel or slab, whether it is installed or not.

Model WHS Regulations 529G to 529J set out the national notification framework.

Examples of permitted work with legacy engineered stone include:

- where a worker repairs a crack in an engineered stone benchtop installed in a kitchen and they need to fill the crack with liquid resin and use power tools to level and re-polish the engineered stone, and
- where a worker, using a power drill, makes a hole in an engineered stone splashback to install a new power point (i.e. a minor modification).

A notification is not task or project based. Instead, the intention is to capture work expected to be conducted over a 12 month period with the notification updated as necessary and the information retained by the PCBU for 5 years.

All work with legacy engineered stone:

- must be controlled, and
- must comply with the WHS Regulations relevant to CSS outlined in Chapter 8A Crystalline Silica.<sup>67</sup>

More detail on the notification process is provided in the prohibited engineered stone notification flowchart at Appendix 2.

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<sup>67</sup> Model WHS Regulations: Chapter 8A Crystalline Silica.

## ***Establishment of the legacy engineered stone notification framework***

On 22 March 2024, WHS ministers agreed to a national notification framework for working with legacy engineered stone which would satisfy several parameters such as:

- being commensurate with the risks of working with legacy engineered stone,
- providing WHS regulators with visibility of PCBUs working with legacy engineered stone, and
- specifying the information to be provided and the frequency for providing this information.

Safe Work Australia worked with Safe Work Australia Members to finalise the details of the notification framework ahead of the 1 July 2024 commencement of the prohibition. Finalising the [model form for notification of permitted work with legacy engineered stone](#) was an important element to operationalise the framework.

## ***Jurisdictional WHS regulations***

On 1 July 2024, all jurisdictions, except Victoria and the Australian Capital Territory, implemented model WHS Regulations 529G – 529J to require PCBUs to notify the WHS regulator if they intend to process engineered stone for the purpose of repair, minor modification, removal and disposal. Victoria and the Australia Capital Territory's approaches differed from the WHS Regulations.

Victoria advised Safe Work Australia that the notification framework could not be implemented without undergoing a Regulatory Impact Statement process, and that if it implemented the notification framework, approximately 20,000 Victorian businesses could be required to notify WorkSafe Victoria potentially multiple times.<sup>68</sup> Victoria also advised Safe Work Australia that in its view, notifications at such volume may divert regulatory attention away from higher-risk activities, would not reliably identify where high-risk work was occurring, and would likely capture only those businesses already compliant with work health and safety obligations. In the Australian Capital Territory, since 1 November 2024, PCBUs are required to notify the WHS regulator before carrying out, directing or allowing a worker to carry out, work involving the processing of legacy engineered stone. However, in the Australian Capital Territory it is a once-off requirement, whereas under the WHS Regulations, PCBUs are required to re-notify the WHS regulator of any change in the notification or after 12 months of the previous notification. It is understood that the Australian Capital Territory's approach was adopted due to the size of the industry in the territory, as well as the available resources for WorkSafe ACT to effectively manage the notification framework.

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<sup>68</sup> Any permitted work with legacy stone in Victoria is subject to the specific control requirements on the use of engineered stone and the additional requirements for high-risk crystalline silica work, in place under the Victorian occupational health and safety Regulations.

## ***Jurisdictional notification form***

All jurisdictions except Victoria implemented and published a notification form for permitted work with legacy engineered stone. However, the version of the form used and how the form was published is inconsistent across these jurisdictions. Two versions of the notification form have been produced:

- the original form released with the commencement of the prohibition (the 1 July 2024 version), and
- a revised form reflecting the CSS amendments to the WHS Regulations (the 1 September 2024 version).

Use of different versions of the model form by jurisdictions is relevant as the revised form, unlike the original, incorporates a question for PCBUs to report the possible high-risk nature of CSS work. The aim of this question is to assist WHS regulators with triaging their responses to the notifications. Without it, there is no mechanism to gain visibility of whether the permitted work with legacy engineered stone is high-risk, as assessed by the PCBU. Furthermore, in jurisdictions where the original form is used, PCBUs are not reminded of the stronger regulations when working with CSS as outlined in the revised form.

The Commonwealth, New South Wales, South Australia and the Australian Capital Territory adopted the revised form that took effect from 1 September 2024 while Queensland, Western Australia and the Northern Territory continue to use the original form (see Table 2). Table 2 shows the majority of jurisdictions published their notification form in a PDF or Word format. However, New South Wales, Queensland and South Australia use an online form, providing those jurisdictions with the potential to easily extract notification information or even automate the triaging process. WHS regulators' analysis of information captured in a static PDF or Word form appears to be dependent on more manual, resource intensive methods.

**Table 2 Notification forms published by jurisdiction**

Jurisdiction	NSW	SA	Qld	WA	Cth	NT	Tas	ACT	Vic
Online form	X	X	X						N/A
PDF/Word form				X	X	X	X	X	N/A
Based on 1 July 2024 model form			X	X		X	X		N/A
Based on 1 September 2024 model form	X	X			X			X*	N/A
Includes question 'is processing of legacy engineered stone high-risk?'	X	X			X				N/A
Additional jurisdictional specific questions included in notification forms									
'Controlled processes will include' (tick box)						X			
'Have all workers completed silica awareness training?'								X	
'Is a SWMS required for the work you are carrying out with legacy engineered stone?'								X	

Notes: (\*) The notification form in ACT is similar to the revised model notification form of 1 September 2024, however, the ACT does not have the regulatory requirement for a PCBU to re-notify.

### **Jurisdictional notification data**

Safe Work Australia requested notification data from each jurisdiction in December 2024 to inform the Review. This data was provided in April 2025 and represents notifications received during the period of 1 July 2024 to 31 March 2025. Data was not received from the Northern Territory at the time of writing.

The notifications summarised in Table 3 demonstrate the majority of the notified work with legacy engineered stone occurred in New South Wales with a total of 168 different types of work and only 2 jurisdictions (New South Wales and South Australia) reported receiving re-notifications during this period.

**Table 3. Number of notifications received for working with legacy engineered stone from 1 July 2024 to 31 March 2025**

	NSW	SA	Qld	WA	Cth	NT	Tas	ACT	Vic	TOTAL
<b>Total notification forms received</b>	<b>70</b>	<b>21</b>	<b>48</b>	<b>21</b>	<b>0</b>	<b>–</b>	<b>3</b>	<b>50</b>	<b>N/A</b>	<b>213</b>
<b>Total types of work notified</b>	<b>168</b>	<b>60</b>	<b>89</b>	<b>43</b>	<b>0</b>	<b>–</b>	<b>9</b>	<b>*</b>	<b>N/A</b>	<b>369</b>
Repair	39	13	21	8	0	–	2	*	N/A	83
Minor modification	49	18	29	13	0	–	3	*	N/A	112
Removal	41	14	21	11	0	–	2	*	N/A	89
Disposal	39	15	18	11	0	–	2	*	N/A	85
<b>Total re-notifications received</b>	<b>*</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>–</b>	<b>–</b>	<b>N/A</b>	<b>N/A</b>	<b>1</b>
Change in type of work	3	1	0	0	0	–	–	N/A	N/A	4
Change in duration	2	1	0	0	0	–	–	N/A	N/A	3
Change in frequency	1	1	0	0	0	–	–	N/A	N/A	2

Notes: (\*) Indicates a blank value provided by jurisdictions. (-) Indicates data not received by jurisdictions.

New South Wales and South Australia were the only two jurisdictions that reported receiving high-risk notifications from PCBUs. Of the 60 types of notifications received in South Australia, 1 notification for the repair of engineered stone was notified as high-risk by the PCBU. In New South Wales, of the 168 types of notifications received, there were 5 repairs, 4 minor modifications, 4 removals and 4 disposals identified as high-risk by PCBUs.

Jurisdictional notification data indicates PCBUs most commonly anticipated they would engage in permitted work with legacy engineered stone on a monthly basis for a duration of up to two hours per day. A more detailed breakdown of notification data in terms of frequency and duration is at Appendix 3.

As the notification framework has been in place for less than 12 months in all jurisdictions except Victoria, there are inherent limitations to what can be inferred from the data summarised in Table 3. This data only represents the number of notifications received, re-notifications received, and types of work notified by PCBUs in relevant jurisdictions. It does not provide insight into the effectiveness of those notifications in improving WHS safety and compliance or assisting regulators with triage action. Variations in regulatory requirements and the operation of the framework across jurisdictions also limit the potential for in-depth comparisons between jurisdictions. Therefore, it is too early to determine the effectiveness of the notification framework based on current available evidence.

Nevertheless, the available data does provide a foundation that can be built on and refined over time and establishes a baseline for future comparative purposes.

## Stakeholder responses

The notification framework for working with legacy engineered stone was a key issue raised widely throughout the consultation process. Mixed feedback was received from various stakeholders highlighting a lack of clarity concerning the intent or purpose of the national notification framework and the current regulatory requirements.

Of the 65 submissions received in the public consultation, 8 stakeholders indicated they had processed legacy engineered stone since the implementation of the prohibition. These stakeholders, primarily PCBUs in construction and manufacturing industries, generally found the notification information clear and straightforward. However, a few raised that as much of their work is ad hoc in nature (e.g. unexpectedly being required to drill through a legacy engineered stone panel or slab to install an electrical plug or plumbing), it is difficult to accurately gauge what work will be done in the future and describe that in the notification form. PCBUs voiced they want to ensure they are doing the right thing. One PCBU also expressed uncertainty about whether the responsibility to notify the regulator sits with the contractor performing the work or the PCBU who has engaged the contractor. The same PCBU also stated that the interpretation of this element varies across jurisdictions.

HIA submit that the notification requirements are unnecessary red tape and should be removed, highlighting that compliance and enforcement activities are not possible with current notification requirements being annual and not task based. HIA also stated that notification requirements should not be mandatory among the harmonised jurisdictions given Victoria did not adopt the framework. Additionally, HIA considers there was not the appropriate level of consultation with stakeholders during the development of the notification framework.

In contrast, other peak bodies advocated for increased regulatory requirements. The submission from LFA highlights that while permitted work with legacy engineered stone must be notified, there is no requirement for that workforce to be appropriately trained or specialised in working with legacy engineered stone. LFA therefore recommends a nationally consistent approach to training workers who remove and dispose legacy products.

Similarly, ACTU supports strong and effective compliance and enforcement activities even for minor modifications. Other stakeholders proposed shifting to a task-based notification model, arguing that could better reflect work-related risk.

Consultation with WHS regulators focused on the practical difficulties of responding to notifications. Some indicated they are unable to effectively triage or action notifications as intended due to resourcing constraints. Regulators also acknowledged that where notifications are received from smaller businesses conducting work in domestic premises, it is often not feasible to conduct inspections as the likelihood of timing the regulator's visit with the work being conducted was low. Several WHS regulators reported focusing on commercial sites and workshops as a result.

## Discussion

At its inception, a national notification framework was intended to offer WHS regulators a mechanism to track potentially hazardous activity with legacy engineered stone and to assist with enforcing compliance. However, based on the information obtained by the Review, it is not clear if the national notification framework is offering significant benefits to WHS regulators, PCBUs and other stakeholders. This view reflects stakeholder feedback which indicated a lack of clarity regarding the notification framework's purpose and intent, and the inconsistent way in which it has been implemented across jurisdictions to date.

Further consultation with jurisdictions is needed to ensure that the notification framework is supporting the operation of the prohibition and the broader objectives of the model WHS laws. Opportunities to maximise efficiencies in its implementation are an important consideration, such as the use of online forms, to best support WHS regulators with their activities.

There is also value in exploring ways to strengthen national consistency in the implementation of the notification framework. For example, this might involve standardising the collection of notification data across jurisdictions. This would facilitate the development of a more robust and nationally consistent data set to better understand the impact of the notification framework and the engineered stone prohibition more broadly.

## Findings

**Finding 6:** Consistent implementation of the national notification framework across jurisdictions, including the revised model notification form of 1 September 2024, will support stakeholder understanding of the framework, and facilitate the collection of data at a national level to provide valuable oversight of the permitted work.

**Finding 7:** Ongoing data collection and evaluation of the notification framework and engineered stone prohibition is needed to build a robust evidence base.

## 2.7 Compliance and enforcement

### Current situation

#### ***Role of the WHS regulator***

WHS regulators ensure compliance with WHS laws in a number of ways including through inspections, audits and other verification activities. They appoint WHS inspectors to conduct inspections and audits and investigate potential non-compliance. Inspectors have significant powers under WHS laws including seizing items for use as evidence of an offence and issuing improvement and prohibition notices.

If there is evidence of an alleged breach, WHS regulators consider what enforcement action, if any, should be taken. Inspectors can issue notices where they reasonably believe there is a contravention of the WHS laws that apply in their jurisdiction.

#### **Types of notices WHS regulators can issue**

**Improvement notices** direct a person to address an identified WHS risk in a specified time.

**Prohibition notices** stop an activity that involves a serious risk to health or safety.

**Non-disturbance notices** require a person to preserve a site or prevent the disturbance of a site.

To support a nationally consistent approach to compliance and enforcement, the [National Compliance and Enforcement Policy](#) sets out principles which underpin how regulators approach monitoring and enforcing compliance with the WHS Act and Regulations.

For the purposes of the Review, consideration of compliance and enforcement actions will be confined to Chapter 8A Crystalline Silica of the WHS Regulations where it relates to engineered stone.

## ***Jurisdictional data***

The number and type of enforcement actions that WHS regulators have conducted since the prohibition came into effect can provide some insight into its operation. Therefore, Safe Work Australia requested jurisdictional data on compliance and enforcement activity relating to the prohibition and the new CSS regulations, in the context of permitted work with legacy engineered stone (Tables 4 and 5). This data is broken down by the 1-digit Australian and New Zealand Standard Industrial Classification (ANZSIC).<sup>69</sup> Specifically, consistent with the approach taken for the 25<sup>th</sup> edition of the [Comparative performance monitoring - Compliance and Enforcement](#) report, Safe Work Australia requested information from jurisdictions based on:

- **proactive worksite visits** – worksite visits that have not resulted from a complaint or workplace incident, and
- **reactive worksite visits** – worksite visits that have been undertaken in the resolution of a workplace incident or complaint.

Tables 4 and 5 represent data received from all jurisdictions, except for the Northern Territory, for the period from 1 July 2024 to 31 March 2025. The Commonwealth indicated there had been no compliance and enforcement activities undertaken in this time period.

Given the prohibition commenced on 1 July 2024, the data outlined in Tables 4 and 5 goes to establishing a baseline that can be developed over time for future monitoring and evaluation. This baseline will provide an initial snapshot of how the prohibition is being implemented across different jurisdictions, including the number of inspections and nature of enforcement actions taken. Such data is an important element of developing an evidence base to understand the approach to implementing the prohibition on a national level and to inform continuous improvement in regulatory practice.

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<sup>69</sup> 'Australian and New Zealand Standard Industrial Classification (ANZSIC)', Australian Bureau of Statistics, <https://www.abs.gov.au/statistics/classifications/australian-and-new-zealand-standard-industrial-classification-anzsic/latest-release>

**Table 4. Proactive workplace visits and compliance notices issued from 1 July 2024 to 31 March 2025**

Jurisdiction	Industry (ANZSIC – 1 digit)	Workplaces visited proactively			Notices issued as a result of proactive workplace visits		
		Total number of workplaces visited proactively	Number of workplaces visited proactively and subjected to one or more compliance actions	Number of workplaces visited proactively more than once	Number of improvement notices issued as a result of proactive workplace visits	Number of prohibition notices issued as a result of proactive workplace visits	Number of infringement/penalty notices issued as a result of proactive workplace visits
Vic	Manufacturing	94	7	37	7	0	0
	Construction	429	1	134	1	0	0
	All other industries	75	0	44	0	0	0
	Unknown	80	0	21	0	0	0
Qld	Construction	36	30	21	300	54	42
	All other industries	2	2	2	14	1	0
	Unknown	17	17	11	23	11	10
SA	Manufacturing	36	1	3	2	1	1
WA	Manufacturing	31	27	13	80	1	0
	Construction	1	0	0	0	0	0
NSW	Mining	2	1	1	5	0	0
	Manufacturing	66	44	35	97	5	0
	Construction	26	16	14	32	1	1
	All other industries	32	12	11	25	0	0
Tas	Construction	68	0	8	5	2	0
Cth	N/A	0	0	0	0	0	0
ACT*	Manufacturing	9	3	1	12	1	0
	All other industries	2	0	0	0	0	0
NT				Not received			

\*Data from ACT was provided to the Agency in September 2025, after consultation on the Review closed.

**Table 5. Reactive workplace visits and compliance notices issued from 1 July 2024 to 31 March 2025**

Jurisdiction	Industry (ANZSIC – 1 digit)	Workplaces visited reactively			Notices issued as a result of reactive workplace visits		
		<u>Total number of workplaces visited reactively</u>	<u>Number of workplaces visited reactively and subjected to one or more compliance actions</u>	<u>Number of workplaces visited reactively more than once</u>	<u>Number of improvement notices issued as a result of reactive workplace visits</u>	<u>Number of prohibition notices issued as a result of reactive workplace visits</u>	<u>Number of infringement/penalty notices issued as a result of reactive workplace visits</u>
Vic	Mining	1	1	1	1	0	0
	Manufacturing	9	0	4	0	0	0
	Construction	229	0	64	0	0	0
	All other industries	25	4	9	4	1	0
	Unknown	40	0	10	0	0	0
Qld	Unknown	35	25	21	111	24	10
SA	Manufacturing	15	8	2	12	4	0
WA	N/A	0	0	0	0	0	0
NSW	Manufacturing	8	3	2	5	0	0
	Construction	8	3	2	2	1	0
	All other industries	6	2	3	2	1	0
	Unknown	1	0	0	0	0	0
Tas	Manufacturing	1	0	0	0	0	0
	Construction	4	0	0	0	1	0
Cth	N/A	0	0	0	0	0	0
ACT*	Construction	3	1	0	0	1	0
	All other industries	1	1	0	1	1	0
NT		Not received					

\*Data from ACT was provided to the Agency in September 2025, after consultation on the Review closed.

## **General data findings**

WHS inspectors have been proactively and reactively visiting workplaces across industries and across jurisdictions. Generally, there have been more proactive workplace visits than reactive visits and similarly more notices were issued to workplaces because of proactive workplace visits. The most common enforcement action used by WHS regulators is the improvement notice with a total of 603 improvement notices issued from proactive workplace visits and 138 from reactive workplace visits.

Compliance actions vary across jurisdictions and caution should be taken when making comparisons. PCBUs in the ANZSIC sub-industry Other Non-Metallic Mineral Product Manufacturing (2090) were the most commonly inspected across jurisdictions, particularly in New South Wales, Victoria, Western Australia and South Australia.

## **Data limitations**

Data on notices cannot be compared directly across jurisdictions as notices are defined and issued differently in each jurisdiction.

As part of the Review, jurisdictions were requested to provide compliance and enforcement data broken down by 4-digit ANZSIC. There were some differences in classification level and structures provided to the Review.<sup>70</sup> Therefore the data received was grouped into 1-digit Construction and 1-digit Manufacturing divisions, where 1-digit represents the broadest level of classification.

In addition, there are limitations when comparing the compliance and enforcement data across jurisdictions as each jurisdiction may categorise the workplace industry and conduct enforcement slightly differently.

Victoria advised that for the proactive and response workplace visits undertaken by Construction and the Multidisciplinary Inspectorate, the engineered stone prohibition may not have been the primary reason for the visit, however it was discussed and/or addressed during the workplace inspection.

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<sup>70</sup> Queensland provided their data by 1-digit ANZSIC. Furthermore, Tasmania coded their industries by an archived ANZSIC – '1292.0 - Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993', Australian and New Zealand Standard Industrial Classification (ANZSIC), <https://www.abs.gov.au/ausstats/ABS@.nsf/66f306f503e529a5ca25697e0017661f/09C5EC6117D35768CA25697E0018FCE9?opendocument>

## **Data received post 31 March 2025**

Following 31 March 2025, WorkSafe Victoria informed Safe Work Australia that while it had not had any enforceable undertakings or prosecutions during the specified time period of 1 July 2024 to 31 March 2025, Victoria noted 6 observation breaches from 1 July 2024 – 31 March 2025.<sup>71</sup> In May 2025, one duty holder was charged under Regulation 319Y(b) of the Victorian Occupational Health and Safety (OHS) Regulations for directing or allowing a worker under their management or control to perform an engineered stone process and 21 charges under regulation 319Y(a) of the OHS Regulations for directing or allowing a worker to supply engineered stone benchtops, panels or slabs.<sup>72</sup>

## **Stakeholder responses**

Separate from the data above, the consultation process revealed that stakeholders reported a noticeable shift in compliance among larger businesses, with many proactively transitioning to crystalline silica free products. Inspectors have observed positive changes in behaviour, including increased use of dust suppression methods such as continuous water flow during processing and use of respiratory protective equipment (RPE), which highlights an emphasis is being placed on controls to improve safe work practices.

In contrast, there were numerous concerns raised with anecdotal evidence that stakeholders, including WHS regulators and medical professionals, are still witnessing or are aware of non-compliance, with stonemasons, tilers and landscapers dry cutting or not using the correct control measures. Stakeholders expressed concerns about compliance among small and medium-sized enterprises (SMEs). Stakeholders shared that SMEs often face greater financial strain and that implementation of the prohibition resulted in additional expenses for businesses such as transitioning to alternative products and implementing and investing in appropriate controls. Stakeholders also shared that many SMEs also lack a dedicated internal WHS expert unlike larger businesses, which can contribute to inconsistent safety practices.

Industry stakeholders raised that there is a lack of consistent enforcement across Australia, and public health peak bodies pointed to the need for a greater presence from WHS regulators to enforce the WHS Regulations to ensure work health and safety practices are being followed.

PCBUs frequently raised a preference for an increased presence of WHS regulators to ensure compliance and penalties for those who put the health and safety of workers at risk.

LFA's submission recommends greater transparency of audits and actions from WHS regulators to determine compliance. Similarly, the ACTU supports strong and effective compliance and enforcement activities for any work involving existing engineered stone products, including minor modifications, and the correct and safe disposal of legacy engineered stone to support the maintenance of appropriate risk control measures.

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<sup>71</sup> An observation breach means WorkSafe Victoria detected a suspected breach under Regulation 319Y – Prohibition on work involving engineered stone benchtops, panels or slabs - as result of making enquires and observations WorkSafe Victoria determined that employer, self-employed or a person who has management control of workplace has either installed, manufactured, supplied or performed an engineered stone process involving an engineered stone benchtop, panel or slab.

<sup>72</sup> 'Bathroom wholesaler first to be charged after engineered stone ban', WorkSafe Victoria (2025),

<https://www.worksafe.vic.gov.au/news/2025-05/bathroom-wholesaler-first-be-charged-after-engineered-stone-ban>

WHS regulators highlighted limited resourcing as a significant constraint on enforcement, particularly in smaller jurisdictions like Tasmania, the Australian Capital Territory and Northern Territory. Larger states such as New South Wales and Victoria have had more capacity to enforce compliance, supported by their dedicated silica field teams.

SafeWork NSW has taken action on the processing and supply of prohibited engineered stone. However, while SafeWork NSW has conducted 126 proactive workplace visits from 1 July 2024 to 31 March 2025, they noted internal resource pressures remain high and difficult to manage. SafeWork NSW also mentioned that because New South Wales had a transition period from 1 July 2024 to 31 December 2024, they witnessed what they termed as the 'irresponsible' disposal of prohibited engineered stone, which included selling the products on various online trading platforms (see section 2.5).

WHS regulators raised challenges in enforcing model WHS regulation 529D, 'Work involving engineered stone benchtops, panels and slabs – prohibition',<sup>73</sup> particularly when identifying whether a material being processed is a prohibited product without clear labelling or evidence (see section 2.2). When a WHS regulator suspects a product is a prohibited product, a sample needs to be taken and tested before issuing a compliance notice. This hinders enforcement activity, especially in stockpile scenarios where a visual assessment is insufficient.

In addition, if a PCBU were to be found processing a prohibited engineered stone product, some WHS regulators have queried whether there is uncertainty around which compliance notice to issue. Some considered that providing a prohibition notice to stop an activity that involves serious risk to health or safety is likely the most appropriate. However, the extent to which the inspector can prove the processing is a serious risk to health or safety is limited, especially if the worker and PCBU is using the right control measures to mitigate risk, particularly as it is the activity relating to the product itself that is prohibited. Therefore, to enhance the enforceability of the prohibition, it was suggested during the consultation that the definition of a prohibition notice might need to be revised to allow WHS regulators to 'stop an activity that involves serious risk to health or safety, or an activity that involves a prohibited product' even if it is not immediately causing a serious risk to health or safety.

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<sup>73</sup> Model WHS Regulation 529D: **Work involving engineered stone benchtops, panels and slabs – prohibition** A person conducting a business or undertaking must not carry out, or direct or allow a worker to carry out, work that involves manufacturing, supplying, processing or installing engineered stone benchtops, panels or slabs.

## Discussion

Compliance and enforcement activities by WHS regulators are essential to prevent life-threatening diseases associated with RCS. Since the prohibition, anecdotal stakeholder feedback on compliance has been mixed, indicating general improvements but also that non-compliance still occurs.

The data received from jurisdictions highlights which industries have been visited and received notices. Further data collection and collaboration between WHS regulators is needed to inform where efforts should be made to improve enforcement and compliance. For example, it would be helpful to understand if the non-compliance is occurring due to the lack of control measures (e.g. water suppression, RPE), the incorrect use of the prohibited product, failure to notify the WHS regulator consistent with the notification framework, or breaching the stronger crystalline silica regulations to the extent they influence the engineered stone prohibition (e.g. training, risk assessment, etc). This level of detailed information would help ensure that enforcement activities are strategic, well targeted, and ultimately support the efficient work of WHS regulators and the effective operation of the prohibition.

WHS regulator feedback has highlighted a potential disconnect between the prohibition of engineered stone and the conditions under which compliance notices can be issued. While this experience was not widely reported amongst WHS regulators, it is important to ensure the compliance and enforcement tools available to regulators operate in a way that allow them to give appropriate legal effect to the WHS laws. This is of particular importance given stockpiles of prohibited product remain and, consequently, so does the risk of work involving prohibited engineered stone. The Review also notes there is value in enhancing collaboration between WHS regulators to support consistent understanding and application of compliance and enforcement tools under the engineered stone prohibition.

## Findings

**Finding 8:** Regular, detailed jurisdictional data collection is needed to inform compliance and enforcement efforts, facilitate monitoring and reporting, and ensure meaningful evaluation in the future.

**Finding 9:** Safe Work Australia should consider, in consultation with WHS regulators, whether there is a legislative gap in relation to the suitability of compliance notices to address the conduct of prohibited work.

## 2.8 Alternatives to prohibited engineered stone

### Current situation

#### ***Types of alternative products***

Prior to 1 July 2024, engineered stone was the dominant benchtop material in Australia, holding an estimated 55% market share.<sup>74</sup> Following the prohibition, a range of alternative, permitted materials are available for use in place of prohibited engineered stone for benchtops, panels and slabs, including timber, stainless steel, recycled glass, sintered stone and porcelain. For the purposes of the Review, consideration of alternative products has been limited to those with similar qualities, look and feel as prohibited engineered stone.

This includes material with less than 1% crystalline silica, crystalline silica free materials – namely acrylic-based products; recycled glass products that consist of a high proportion of amorphous silica; and permitted products that contain significant proportions of crystalline silica, including porcelain, sintered stone and natural stone.

#### **Overview – alternatives to prohibited engineered stone products**

##### **Crystalline silica substances (products containing at least 1% crystalline silica)**

Sintered stone is made from inorganic ingredients such as quartz, feldspar, and silica which are subjected to high temperatures and pressure and mimic the formation of natural stone such as granite.<sup>75</sup> Typically, sintered stone does not contain resins.

Porcelain involves pressing raw materials (clays, feldspar, and silica) and firing at high temperatures (typically 1000°-1300°C) to achieve a hard external surface of low porosity.<sup>76</sup> There is no use of high pressure. Porcelain only contains inorganic ingredients (i.e. no resins).

Natural stone can contain variable amounts of crystalline silica, typically marble contains less than 10%, granite around 40%, while sandstone 60-70%.<sup>77</sup> Natural stone does not contain resin; however, natural stone contains much higher levels of metals (29-37%) compared to engineered stone (less than 1-8%).<sup>78</sup>

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<sup>74</sup> 'Decision Regulation Impact Statement: Prohibition on the use of engineered stone', Safe Work Australia (2023), <https://www.safeworkaustralia.gov.au/doc/decision-regulation-impact-statement-prohibition-use-engineered-stone>

<sup>75</sup> The University of Adelaide, 'Prohibition of engineered stone: Literature review and gap analysis', Safe Work Australia (2023), [https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni\\_adelaide\\_engineered\\_stone\\_report\\_october2023.pdf](https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni_adelaide_engineered_stone_report_october2023.pdf)

<sup>76</sup> *ibid.*

<sup>77</sup> Ramkissoon C, Gaskin S, Song Y, Pisaniello D and Zosky G (2024) 'From engineered stone slab to silicosis: a synthesis of exposure science and medical evidence', *Int. J. Environ. Res. Public Health*, 21:683.

<sup>78</sup> Ramkissoon C, Gaskin S, Thredgold L, Hall T, Rowett S, Gun R (2022). 'Characterisation of dust emissions from machined engineered stones to understand the hazard for accelerated silicosis', *Scientific Reports* 4351-1-4351-10.

### **Products containing less than 1% crystalline silica**

Less than 1% crystalline silica products are new to the Australian market and are similar to prohibited engineered stone, except the previous crystalline silica component has been replaced with materials such as recycled glass (amorphous silica).

**Acrylic-based solid surfaces** are typically composed of approximately 55-65% aluminium trihydroxide (ATH) derived from bauxite ore, with the remainder 35-45% acrylic resin.<sup>79</sup>

### ***Crystalline silica vs amorphous silica***

Crystalline and amorphous silica are two forms of silicon dioxide (SiO<sub>2</sub>). Crystalline silica has a regular, repeating atomic structure and thus a lattice structure. Amorphous silica refers to a non-crystalline form of silica with an irregular structure.

As noted previously, whilst amorphous silica is generally considered less toxic than crystalline silica, the presence of amorphous silica in engineered stone may still pose health risks.<sup>80</sup> Available evidence regarding the toxicity of amorphous silica remains inconclusive.<sup>81</sup>

### ***Current regulatory requirements for processing alternative products***

The model WHS laws require a PCBU to ensure, so far as is reasonably practicable, that the conditions at a workplace are monitored for the purpose of preventing illness or injury of workers.<sup>82</sup> The WHS Regulations, under model Regulation 50, also require a PCBU to carry out monitoring for airborne contaminants in certain situations to estimate a person's exposure. It is a PCBU's duty to ensure exposure to any hazardous chemical, or any substance with a workplace exposure standard (WES), is kept as low as reasonably practicable.

For products containing at least 1% crystalline silica, the 8-hour time weighted average<sup>83</sup> WES for RCS is 0.05 mg/m<sup>3</sup>. This means that workers must not be exposed to levels of RCS greater than 0.05 mg/m<sup>3</sup> over an 8-hour working day, for a 5-day working week.<sup>84</sup> In addition, a PCBU processing a CSS must abide by the additional regulatory requirements under the stronger CSS requirements in the WHS Regulations.<sup>85</sup>

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<sup>79</sup> 'Corian Solid Surface Material Composition', <https://casf.com.au/wp-content/uploads/2022/01/Corian-Solid-Surface--Material-Composition-.pdf>

<sup>80</sup> The University of Adelaide, 'Prohibition of engineered stone: Literature review and gap analysis', Safe Work Australia (2023), [https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni\\_adelaide\\_engineered\\_stone\\_report\\_october2023.pdf](https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni_adelaide_engineered_stone_report_october2023.pdf)

<sup>81</sup> *ibid.*

<sup>82</sup> Section 19 of the [Model Work Health and Safety Act](#).

<sup>83</sup> A method to calculate average exposure to substance over a specified period.

<sup>84</sup> 'Workplace exposure standards for airborne contaminants (2024)', Safe Work Australia, <https://www.safeworkaustralia.gov.au/doc/workplace-exposure-standards-airborne-contaminants-2024>

<sup>85</sup> 'Working with crystalline silica substances: Guidance for PCBUs', Safe Work Australia (2024), <https://www.safeworkaustralia.gov.au/doc/engineered-stone-prohibition-guidance-pcbus>

Alternative products containing less than 1% crystalline silica are not covered by the stronger CSS regulations as they are not a CSS. However, the majority of these products are primarily composed of recycled glass and, thus, are amorphous silica. The 8-hour time weight average workplace exposure standards for amorphous silica ranges between 2 to 10mg/m<sup>3</sup>.<sup>86</sup>

### **Research available post-prohibition**

Information on the constituents of and possible health risks from processing the alternative products, particularly the less than 1% crystalline silica products, is limited. This knowledge gap reflects the short amount of time the prohibition has been in place, the newness of the alternative products, and the time needed for scientific studies and literature to be developed and released.

Ramkissoon et al. (2023)<sup>87</sup> analysed respirable dust from 50 resin-based engineered stone, 3 natural stone and 2 non-resin-based materials and concluded that silica was not the only component of concern. They identified inorganic components of engineered stone such as metals (cobalt and aluminium), along with volatile organic compounds (VOCs) such as styrene and phthalic anhydride primarily from binding resin, pose a risk to lung health, subsequently urging caution with the uptake of alternative products.

The investigation by Ramkissoon et al. (2023)<sup>88</sup> revealed an 'association between quartz content of the particles and the macrophage inflammatory response' confirming that the level of silica is one contributing factor to disease severity. Whilst it is not the only contributing factor, this finding is significant as alternative products such as porcelain, sintered and natural stone can have high levels of crystalline silica without being captured by the prohibition as they do not contain resins and, additionally, in the case of natural stone, are not artificial.

A subsequent literature review by Ramkissoon et al. (2024)<sup>89</sup> exploring exposure pathways and pathogenesis recommended continued research into VOCs and the characterisation of particle emissions from sintered stone. The literature review emphasised that ongoing collection and analysis of clinical data is required to better understand silicosis in engineered stone workers as 'all current medical studies are relying on traditional silicosis cases.'<sup>90</sup>

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<sup>86</sup> 'Working with crystalline silica substances: Guidance for PCBUs', Safe Work Australia (2024), <https://www.safeworkaustralia.gov.au/doc/engineered-stone-prohibition-guidance-pcbus>

<sup>87</sup> Ramkissoon C, Song Y, Yen S, Southam K, Page S, Pisaniello D, Gaskin S and Zosky G (2023) 'Understanding the pathogenesis of engineered stone-associated silicosis: The effect of particle chemistry on the lung cell response', *Respirology*, 29(3):217-27.

<sup>88</sup> *ibid.* p. 223

<sup>89</sup> Ramkissoon C, Gaskin S, Song Y, Pisaniello D and Zosky G (2024) 'From engineered stone slab to silicosis: a synthesis of exposure science and medical evidence', *Int. J. Environ. Res. Public Health*, 21:683.

<sup>90</sup> *ibid.* p. 12

As part of the increased use of alternative products, there has been a marked increase in acrylic-based solid surfaces. There is a growing body of literature surrounding aluminium hydroxide (also known as ATH).<sup>91, 92</sup> Stakeholders identified 'aluminium trihydrate is an increasingly common replacement to crystalline silica'<sup>93</sup> and raised concerns that 'there is evidence of workers developing pulmonary fibrosis after occupational exposure to high levels of respirable dust containing aluminium hydroxide during the manufacture of benchtops such as Corian®'<sup>94</sup> and the link to sarcoid-like lung disease.<sup>95</sup> Moreover, Corwin et al. (2024)<sup>96</sup> published a case report identifying a possible link between aluminium-containing solid surface dust exposure and pulmonary disease. While they could not confirm causality between the dust exposure and pulmonary fibrosis, this is the second case report of this kind.

### **University of Wollongong Research**

As part of this Review, Safe Work Australia commissioned the University of Wollongong to characterise the constituents of airborne contaminants generated during common processing tasks using alternative artificial stone benchtops, panels or slabs. Findings were also compared to the emissions profiles of natural stone and prohibited engineered stone products.

The study involved collection and analysis of 40 stone samples from 13 manufacturers. Samples were obtained between 2022 and 2025 and were subject to 4 forms of analyses: elemental analysis, mineralogical analysis, fumes and vapours analysis, and dust profile analysis. Stone samples procured included:

- 18 stone products expected to contain <1% crystalline silica as a weight/weight concentration
- 6 engineered stone products expected to contain high levels of crystalline silica
- 11 ceramic stone products expected to be comprised of porcelain or sintered stone, and
- 5 stone products that were expected to be comprised of natural rocks.

Due to time constraints associated with the Review, the University of Wollongong was unable to conduct specific analyses on the impact of dust on lung tissue. However, based on their findings and an examination of existing research, the authors reported there are potential health risks associated with processing all types of stone benchtops, panels and slabs. The authors pointed to the need for further research to understand the specific risks posed by individual types of stone products.

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<sup>91</sup> Corwin C, Waterhouse H, Abraham J, Sanyal S, Crawford J, Caddell M and Hodgson M (2024) 'Interstitial pulmonary disease and aluminum trihydrate exposure: A single case report and detailed work analysis', *Am. J. Ind. Med.*, 67:274-286.

<sup>92</sup> Vinnikov D, Blanc P, Raushanova A, Beisbekova A, Abraham J and Zlobina Y (2021) 'Exposure to respirable dust among workers fabricating aluminium trihydroxide-containing synthetic countertops', *Scientific Reports*, 11:21219.

<sup>93</sup> Monash Centre for Occupational and Environmental Health (MonCOEH) Monash University submission.

<sup>94</sup> Thoracic Society of Australia & New Zealand (TSANZ) submission.

<sup>95</sup> Monash Centre for Occupational and Environmental Health (MonCOEH) Monash University submission.

<sup>96</sup> Corwin C, Waterhouse H, Abraham J, Sanyal S, Crawford J, Caddell M and Hodgson M (2024) 'Interstitial pulmonary disease and aluminum trihydrate exposure: A single case report and detailed work analysis', *Am. J. Ind. Med.*, 67:274-286.

The university's findings also revealed that of the samples assessed, products marketed as being free from crystalline silica were mostly composed of amorphous silica. Notably, four products tested also contained high amounts of crystalline silica, despite marketing material suggesting the product was free from crystalline silica. However, the methodology used in the research does not allow confirmation of whether the samples analysed in this research are representative of products currently supplied or marketed in Australia.

The University of Wollongong's research paper is undergoing a peer review process. Safe Work Australia will publish the research paper on its website subject to the outcome of that review.

## Stakeholder responses

Stakeholders understood that the engineered stone prohibition may result in the potential unintended consequence of new hazardous exposure due to increased use of existing, and the emergence of new alternative benchtops, panels and slabs. Numerous stakeholders acknowledged that in the lead up to, and following commencement of the prohibition, many PCBUs had moved away from supplying engineered stone containing 1% or more crystalline silica. While feedback was generally positive in respect of this transition, several stakeholders also expressed concern about the increased availability, use and the potential health impacts of processing materials that contained less than 1% crystalline silica.

One manufacturer stated that initially they had continued to use old samples of legacy engineered stone to demonstrate the look and feel of new low or no silica products given their similarity. However, due to demands from the market, the samples of legacy product were replaced with samples of the new low or no silica product being marketed.

A few industry stakeholders suggested that they were not aware of any additional health risks posed by the processing of alternative products that contained less than 1% crystalline silica since the prohibition commenced. These stakeholders also noted that no additional action was warranted to protect workers from exposure to these products. Reasons cited for this view included a perception that these products do not pose significant health risks to workers, and that PCBUs already have duties to manage the risks to workers and others in the workplace from exposure to these products.

On the other hand, many stakeholders emphasised that while the potential health impacts of workers processing products made from alternate materials were not well understood, they have the potential to pose health risks, and therefore caution is warranted. While these stakeholders did not necessarily advocate for these products to be included in the prohibition, several suggested that additional regulatory controls, education and/or research was required to protect workers. For example, AIOH suggested that stricter import certification processes for alternative materials were needed, including requirements for independent third-party testing to verify the composition and likely toxicity of these materials. AIOH also added that '...regulatory measures must be investigated to address existing loopholes in the declaration of emissions that occur from the normal use of materials. These ingredients are not currently covered by AICIS<sup>97</sup> registration, or import bans, and closing these gaps will help protect public health and the environment.'<sup>98</sup> The AIOH also recommended that Safe Work Australia establish an interim WES for engineered stone emissions, primarily for the purpose of engineered stone dust exposure control.

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<sup>97</sup> Australian Industrial Chemicals Introduction Scheme.

<sup>98</sup> Australian Institute of Occupational Hygienists (AIOH) submission.

In addition, Monash University raised concerns regarding amorphous silica, acknowledging that it is 'likely less toxic than crystalline silica but pulmonary fibrosis has been observed in animals exposed to amorphous silica.'<sup>99</sup>

The need for further research on characterising new and alternative products and health effects of processing these products was widely recognised during both the targeted and public consultation. Stakeholder recommendations for further research include:

- a national research strategy on the health effects of alternative stone materials, with systematic collecting and collating of data including characterisation of materials, associated risk, control and exposure data (AIOH),
- long-term epidemiological studies on occupational exposures to alternative materials, including a proposed industry supported funding model (AIOH),
- clarification of the risks and hazards associated when processing, not just characterisation of raw materials which go into products,
- characterisation of real-world exposures in this industry and toxicity testing of new stone products to link exposure to health outcomes, which would inform further regulatory and policy decisions for occupational health and safety (TSANZ),
- development of risk profiles for non-prohibited silica containing products (i.e. porcelain, sintered stone, recycled glass, concrete), along with further research into all inhalable/respirable particles, not just silica, and
- examination of risk variability due to varying concentrations of crystalline silica.

On the final point, current research shows higher crystalline silica content confers a higher risk profile to a product, resulting in the likelihood of higher RCS exposure and subsequently more significant lung damage.<sup>100,101</sup> There is no toxicological evidence of a 'safe' threshold of crystalline silica content.<sup>102</sup> This should be explored further.

## Discussion

To date, there is limited availability of research specific to characterising the constituents of alternative products, the emissions they release when processing, and the associated health effects of working with these products. Studies of this nature require long-term observation and extensive testing to accurately assess the impacts. It also requires large sample sizes to support the rigor of any finding and should consider numerous factors such as the frequency, duration and concentration of exposure, and any controls that may be used by the worker. This is especially important when determining any associated health effects.

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<sup>99</sup> Monash Centre for Occupational and Environmental Health (MonCOEH) Monash University submission.

<sup>100</sup> Chen C, Tsai P, Chang W, Chen C, Chen C, Yates D and Guo Y (2024) 'Dose-response relationship between lung function and chest imaging response to silica exposures in artificial stone manufacturing workers', *Environmental Health*, 23:25.

<sup>101</sup> The University of Adelaide, 'Prohibition of engineered stone: Literature review and gap analysis', Safe Work Australia (2023), [https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni\\_adelaide\\_engineered\\_stone\\_report\\_october2023.pdf](https://www.safeworkaustralia.gov.au/sites/default/files/2023-10/uni_adelaide_engineered_stone_report_october2023.pdf)

<sup>102</sup> *ibid.*

The University of Wollongong research was unable to provide conclusive evidence for the health effects of processing alternative products. However, information from the findings can contribute to the development of an evidence base or a future database on alternative products. Notably, the University of Wollongong research found that four products marketed as crystalline silica free had more than 1% crystalline silica when processed. It is possible this could be attributed to manufacturers using legacy engineered stone samples when marketing less than 1% crystalline silica products, given the researchers only obtained samples and not a full slab. An alternative explanation could be that it reflects manufacturers determining the crystalline silica content of their product based on the starting constituents, noting that the potential impact of the manufacturing process can produce crystalline silica. However, such explanations are speculative and highlight the need for further work in this area and that multiple analytical techniques are needed to completely understand the emissions profile and health effects of alternative products.

Therefore, further and ongoing research is needed to understand the constituents of existing and emerging alternative products and any health risks associated with their processing. As part of this, the Review acknowledges the work Safe Work Australia together with the Commonwealth Department of Health, Disability and Ageing will do under Action 4-A<sup>103</sup> of the Silica National Strategic Plan to develop, implement and maintain a National Silica-Related Diseases Research Strategy.

## Finding

**Finding 10:** Further and ongoing independent research, including longitudinal studies, are required to characterise the components of alternative products on the market and associated health risks with particular attention on porcelain, sintered stone and products identified as low or no silica.

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<sup>103</sup> Silica National Strategic Plan Action 4-A: Develop, implement, and maintain a National Silica-Related Disease Research Strategy to identify gaps and priority areas for research that will enhance understanding of related risks, effective prevention measures, and treatments across all cohorts including Culturally and Linguistically Diverse (CALD) and Indigenous peoples.

## 2.9 Other considerations and future research

The themes discussed in sections 2.2 to 2.8 emerged as the most prominent topics during the consultation period of the Review. However, various other considerations were raised regarding the operation of the engineered stone prohibition, including suggestions for future research. This section aims to provide a high-level overview of these other considerations. Some are arguably outside the scope of the Review but are included here for completeness.

### Operational considerations

#### ***Exemption Framework***

Under the WHS regulations, a person may apply for an exemption from the prohibition for a type of engineered stone product. A WHS regulator may grant an exemption if certain criteria are met. An exemption granted by a WHS regulator is recognised by all WHS regulators with a corresponding WHS law in relation to granting engineered stone prohibition exemptions.

At the time of the Review, only 2 jurisdictions, Queensland and Victoria, had received an exemption application for engineered stone products. These exemption applications relate to a variety of prefabricated products, and a 10% crystalline silica engineered stone product.

The exemption applications are currently in process. No issues were raised regarding the operation of the exemption framework for engineered stone products during the consultation period.

#### ***Training***

Many stakeholders suggested that more emphasis should be placed on training workers. The Review understands there is work being done to produce nationally consistent and approved training, which is being led by [Build Skills Australia](#), as well as research into the development of mandatory induction material on working with silica.

Training will bolster efforts to keep workers safe when working with legacy engineered stone. Specific training requirements for working with legacy engineered stone could also offer WHS regulators greater confidence that minimum safety standards are met. For example, the Australian Capital Territory mandates silica awareness training for those occupations working with crystalline silica materials via the 10830NAT Course in Crystalline Silica Exposure Prevention. This approach aligns with feedback from LFA that workers performing processing of legacy engineered stone should be appropriately trained, regardless of risk classification.

#### ***Data collection***

Data collected in the context of the Review is the first at a national level in terms of the implementation of the prohibition. With the prohibition in effect for less than 12 months it is too early to gauge its effectiveness at an operational level and in protecting workers from RCS exposure.

Stakeholders advocated for ongoing evaluation of the engineered stone prohibition, calling for short-, medium- and long-term data collection and research into alternative products on the market, changes in knowledge and practice in the workplace and occupational lung disease illness rates.

In addition, it was suggested that national data collection is needed to capture data on air and health monitoring, workplace inspections and notices and infringements issued.

It was suggested ongoing monitoring and consistent data collection is important to ensure a solid evidence base for future reviews.

This may be captured through the actions outlined in the Silica National Strategic Plan. For example, Action 4-D aims to improve the existing data and develop additional data on RCS exposure, including exposure sources and levels, to inform preventive actions including by:

- i. *leveraging regulator data on RCS reporting, notification and enforcement actions.*
- ii. *investigating systems to enable visibility, insight and use of national data.*<sup>104</sup>

### **Prohibition regulations in the context of existing WHS regulations**

With the recent regulatory changes prohibiting engineered stone and introducing new regulations for working with CSS, the consultation period revealed PCBUs have had some difficulty understanding and meeting the regulatory requirements. In addition, WHS regulators report they are also adjusting to the changes and how these regulations should be enforced within the context of existing regulations for air monitoring and health monitoring.

During the consultation period, various discussions arose about the stronger CSS WHS Regulations that were implemented on 1 September 2024. Whilst out of scope for the Review, it is important to note that the stronger regulations apply to permitted work with legacy engineered stone and alternative products, such as porcelain, sintered stone and natural stone, because they are CSS as defined in the WHS Regulations.<sup>105</sup> Some stakeholders suggested that Safe Work Australia review the CSS WHS Regulations. This work will occur as part of Safe Work Australia's work to address Action 1-B of the Silica National Strategic Plan.<sup>106</sup>

### **The Import Prohibition**

While not in scope of the Review, it is important to note the intersection between the import prohibition and the domestic prohibition. As most engineered stone and alternative products are imported, improved information sharing between Safe Work Australia, ABF and WHS regulators should be considered to assist with enforcing the domestic prohibition. For example, if products are determined not to be prohibited engineered stone at the border, sharing this information with WHS regulators may avoid the need to further test products.

This example is for imported products only and would not be appropriate for products produced in Australia or legacy engineered stone.

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<sup>104</sup> 'Silica National Strategic Plan 2024-30', Asbestos and Silica Safety and Eradication Agency (2024), <https://www.asbestossafety.gov.au/silicasafety/silica-national-strategic-plan-2024-30>

<sup>105</sup> WHS Regulations 529A(2): In these Regulations, **crystalline silica substance (CSS)** means materials that contains at least 1% crystalline silica, determined as a weight/weight (w/w) concentration.

<sup>106</sup> 'Silica National Strategic Plan 2024-30', Asbestos and Silica Safety and Eradication Agency (2024), <https://www.asbestossafety.gov.au/silicasafety/silica-national-strategic-plan-2024-30>

## **Workers' compensation**

While also out of scope for the Review, stakeholders raised concern that current workers' compensation schemes do not effectively manage silica-related disease claims. Specifically, peak health bodies suggested the current eligibility requirements of silicosis and silica-related diseases are problematic. For example, the prescribed timeframe to make a claim lodgement after becoming aware of the injury/illness can cut off a significant proportion of workers who experience silicosis due to the latency of the disease. This also can be a significant concern when workers leave the workplace and may not be monitored for disease progression.

One of Safe Work Australia's functions is improving workers' compensation arrangements, including for workers affected by silica-related diseases. In March 2025, Safe Work Australia Members agreed to further national policy work to improve support for such workers, including considering the latest research on silica-related diseases to ensure the deemed diseases list reflects the most recent scientific evidence, and undertaking research to understand different workers' compensation arrangements relating to vocational rehabilitation for workers affected by silica-related diseases.

## Finding

**Finding 11:** Improve collaboration between relevant government agencies and departments, such as Safe Work Australia, Australian Border Force and WHS regulators.

## Future research

### ***Tunnelling and Quarrying***

Generally, stakeholders understood the rationale for the engineered stone prohibition and the implementation has been widely accepted. However, it was raised by numerous stakeholders that efforts should be focused on other industries at high-risk to RCS exposure, such as tunnelling and quarrying industries.

### ***Controls***

Stakeholders proposed further research into the efficacy of dust suppression techniques for all crystalline silica and non-crystalline silica dust producing activities to support the production of guidance material similar to the Controls Table detailed in Appendix 4 of Queensland's [Managing respirable crystalline silica dust exposure in construction and manufacturing of construction elements Code of Practice 2022](#). Stakeholders regard the information in this table as valuable for PCBUs to understand what controls are required for different processing activities with CSS.

It was suggested there would be benefit in supporting Australian based research to undertake the necessary testing to develop a controls table for those working with legacy engineered stone, and to expand the RCS Controls Table to cover activities like tunnelling.

## **Air monitoring**

There have been ongoing calls for research towards improving air quality monitoring and research into viability of continuous real time air monitoring, along with making it more accessible and financially viable for smaller businesses and those in less-resourced areas (i.e. regional and rural communities). Safe Work Australia is continuing to develop and implement nationally consistent measures to improve the quality of air monitoring carried out and reported to assist with prevention of exposure to RCS (Silica National Strategic Plan 1-C). Safe Work Australia is currently reviewing the air monitoring requirements which includes comprehensive consultation on the key issues raised and potential solutions.

## **Health monitoring**

Stakeholders advocated for research to develop more robust respiratory health monitoring and surveillance. The current health monitoring for exposure to crystalline silica (Schedule 14) requires a chest x-ray (CXR, posteroanterior (PA) view). The Royal Australian and New Zealand College of Radiologists (RANZCR) (2019)<sup>107</sup> stated there is overwhelming support and evidence that CXR are failing to reliably detect disease and that computed tomography (CT) provides higher sensitivity for detecting early disease, and superior visualisation resulting in greater accuracy in characterising the patterns of disease.<sup>108, 109</sup> RANZCR strongly recommends CT of the chest as the primary imaging modality to be used for screening exposed workers.

In January 2021, legislation was passed in Western Australia that required that low dose high resolution computed tomography (HRCT) chest scan must replace CXR as the radiological screening test for occupational exposure to silica.<sup>110</sup> The Commonwealth Department of Health, Disability and Ageing and Safe Work Australia will, as part of the Silica National Strategic Plan (Action 3-B), undertake a comprehensive review of current evidence to establish the optimal health surveillance methodology for workers exposed to RCS in all industries, with particular reference to the role of HRCT imaging, to inform relevant laws and guidance.<sup>111</sup>

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<sup>107</sup> The Royal Australian and New Zealand College of Radiologists (2019) 'Imaging of Occupational Lung Disease', Clinical Radiology, Position Statement.

<sup>108</sup> Chen C, Tsai P, Chang W, Chen C, Chen C, Yates D and Guo Y (2024) 'Dose-response relationship between lung function and chest imaging response to silica exposures in artificial stone manufacturing workers', *Environmental Health*, 23:25.

<sup>109</sup> Fazio J, Viragh K, Houlroyd J, Gandhi S (2025) 'A review of silicosis and other silica-related diseases in the engineered stone countertop processing industry', *Journal of Occupational Medicine and Toxicology*, 20:9.

<sup>110</sup> 'Health monitoring: Silica (respirable crystalline)', WorkSafe Western Australia, <https://www.worksafe.wa.gov.au/health-monitoring-silica-respirable-crystalline>

<sup>111</sup> Silica National Strategic Plan Action 3-B: Undertake a comprehensive review of current evidence to establish the optimal health surveillance methodology for workers exposed to RCS in all industries, with particular reference to the role and methodology of high-resolution computed tomography imaging, to inform relevant laws and guidance.

Furthermore, it was suggested that silicosis should not be the only disease physicians are focusing on. Several stakeholders raised concerns that autoimmune conditions (rheumatoid arthritis, kidney disease, systemic lupus erythematosus) may present first as a precursor to silicosis.<sup>112</sup> Fazio et al. (2025)<sup>113</sup> identified rates of autoimmune diseases in engineered stone workers to be around 20% which is estimated to be 7 times higher than the expected prevalence in the general population. RANZCR (2019)<sup>114</sup> identified a similar list of diseases associated with RCS. Additionally, Ramkissoon et al. (2024)<sup>115</sup> identified host factors such as silicosis-genetic associations as a possible driver of disease severity and prevalence among engineered stone workers.

Stakeholders raised that additional silica-associated diseases should be included for disease surveillance. Silicosis is currently the only prescribed occupational respiratory disease in the National Occupational Respiratory Disease Registry (NORDR) which was established in May 2024. In May 2025, the Commonwealth Department of Health, Disability and Ageing commenced a 12-month review of NORDR. The outcomes of the review of NORDR will help to inform the future directions for surveillance of silica-related diseases in Australia.

Stakeholders also noted the need to understand potential health impacts of the new alternative products on the market, in addition to monitoring silica-associated diseases.

Safe Work Australia is currently reviewing the health monitoring requirements under the model WHS laws which includes comprehensive consultation on the key issues raised in this Review and potential solutions. As part of the Silica National Strategic Plan, Safe Work Australia will conduct a desktop review of current health monitoring, screening and surveillance requirements and practices for RCS exposed workers across all jurisdictions and at-risk sectors. This will incorporate Safe Work Australia's involvement in implementing measures to improve compliance with and enhance the health monitoring of all current and former RCS exposed workers (Silica National Strategic Plan Action 3-F).<sup>116</sup>

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<sup>112</sup> Maurice Blackburn submission.

<sup>113</sup> Fazio J, Viragh K, Houlroyd J and Gandhi S (2025) 'A review of silicosis and other silica-related diseases in the engineered stone countertop processing industry', *Journal of Occupational Medicine and Toxicology*, 20:9.

<sup>114</sup> The Royal Australian and New Zealand College of Radiologist (2019) 'Imaging of Occupational Lung Disease', Clinical Radiology, Position Statement.

<sup>115</sup> Ramkissoon C, Gaskin S, Song Y, Pisaniello D and Zosky G (2024) 'From engineered stone slab to silicosis: a synthesis of exposure science and medical evidence', *Int. J. Environ. Res. Public Health*, 21:683.

<sup>116</sup> Silica National Strategic Plan Action 3-F: Implement measures to improve compliance with and enhance the health monitoring of all current and former RCS exposed workers, including: (i) Government support to develop systems and provide access to ongoing health monitoring of RCS exposed workers who are retired or have left employment where RCS exposure occurred. (ii) Implementing processes to promote optimal health monitoring to all current and former exposed workers and employers. (iii) Delivery of outreach services to increase access to optimal health monitoring (as determined by activity 3-B) in regional, rural, and remote communities across Australia. (iv) Establishing a nationally consistent system to ensure ongoing delivery of optimal health monitoring for RCS exposed workers

## **Treatment options**

While the engineered stone prohibition will reduce future exposure to RCS, deterioration of lung function and progression of disease has been observed even after RCS exposure has ceased.<sup>117,118</sup> The LFA recommended research into treatment options for those living with and managing the impacts of silicosis.

## Suggestions for future research

**Research Area 1:** There is a need for more robust respiratory health monitoring and surveillance and continued investment in long term epidemiological studies into occupational exposures, including potential exposures from working with alternative products, and associated diseases.

**Research Area 2:** There is a need for research to determine best practice diagnostic imaging for health monitoring under the WHS Regulations.

**Research Area 3:** There would be benefit in conducting research to undertake the necessary exposure testing to develop a controls table for those working with engineered stone and alternative products.

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<sup>117</sup> Fazio J, Viragh K, Houlroyd J and Gandhi S (2025) 'A review of silicosis and other silica-related diseases in the engineered stone countertop processing industry', *Journal of Occupational Medicine and Toxicology*, 20:9.

<sup>118</sup> Chen C, Tsai P, Chang W, Chen C, Chen C, Yates D and Guo Y (2024) 'Dose-response relationship between lung function and chest imaging response to silica exposures in artificial stone manufacturing workers', *Environmental Health*, 23:25.

### 3. Conclusion

On 1 July 2024, Australia became the first country in the world to prohibit the manufacture, supply, processing and installation of engineered stone to protect workers by reducing workplace exposure to RCS from engineered stone. As these reforms remain at an early stage of implementation, ongoing data collection, monitoring and evaluation will be important to assess their effectiveness into the future. However, the early evidence considered as part of this Review suggests that at this early stage, the prohibition is working as intended.

The Review includes 11 findings and 6 recommendations, many of which are relevant to existing actions in the Silica National Strategic Plan. It also suggests 3 areas for future research. The Review was informed by a wide range of evidence and information, including feedback from stakeholders.

Specific themes identified by stakeholders included issues related to the definition, marketing, identification and testing of engineered stone, the reinstatement of engineered stone, and public awareness and communication. Other themes focused on waste management and disposal of engineered stone, the national notification framework and legacy engineered stone, compliance and enforcement and alternatives for prohibited engineered stone. Stakeholders also highlighted a range of other operational considerations relevant to the prohibition, as well as suggestions for future research.

Research undertaken by the University of Wollongong into the composition of, and health risks associated with, processing alternative benchtop, panel and slab products was also considered as part of the Review. The research findings highlight there are potential health risks associated with processing all types of stone benchtops, panels and slabs.

The Review also considered a range of other evidence, including scientific literature and manufacturers' technical and safety information related to engineered stone and alternative products, and relevant WHS jurisdictional data. Collectively, this evidence provides a useful baseline that can be built upon and refined over time to support ongoing monitoring and evaluation of the prohibition. It also provides a valuable resource to help guide future research relevant to assessing the health risks associated with processing stone benchtops, panels and slabs.

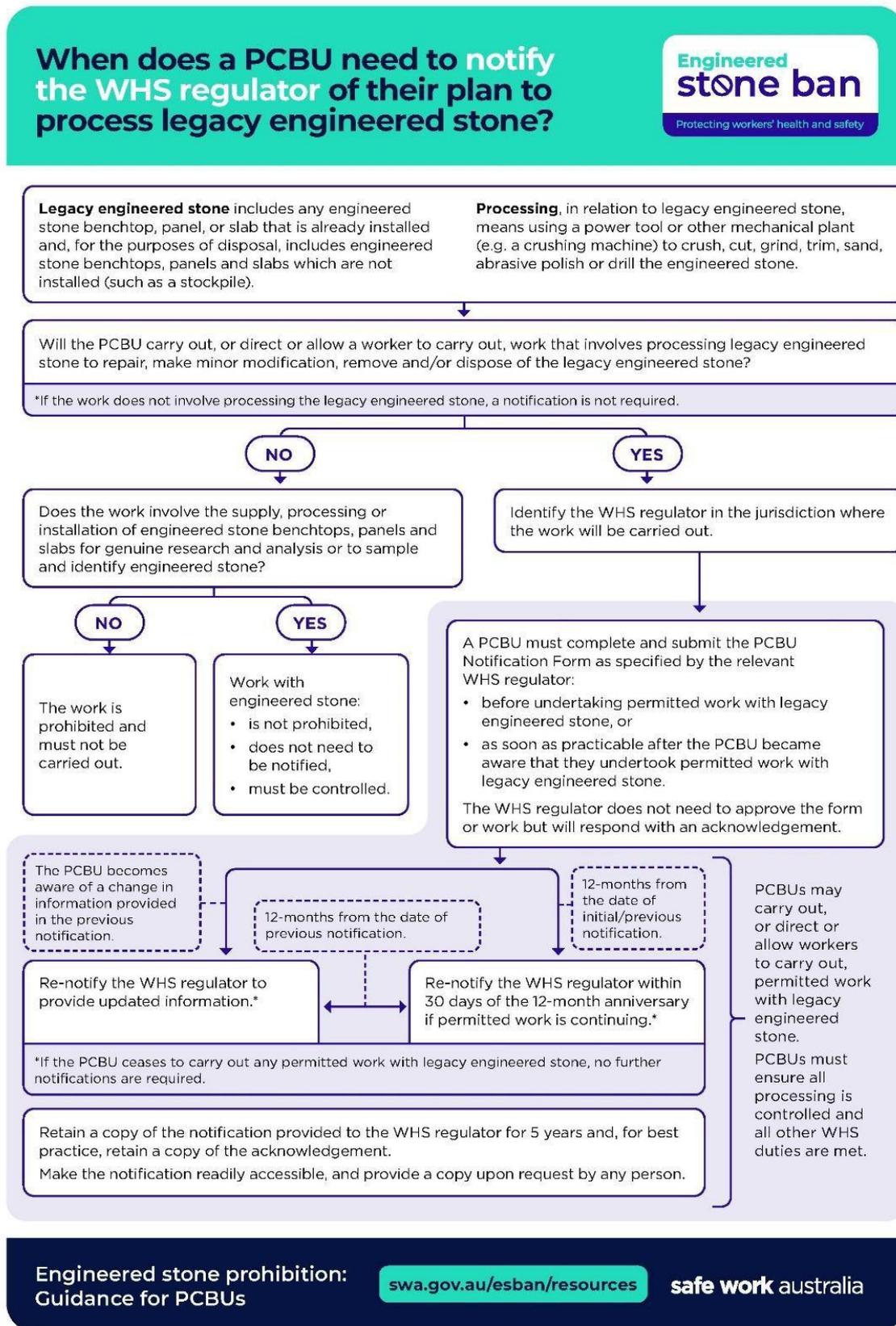
## 4. Appendices

### Appendix 1 – Prohibition timeline

Critical date	Event or action
26 May 2023	Commencement of prohibition on uncontrolled processing of engineered stone products.
13 December 2023	WHS ministers agreement to prohibit the use, supply and manufacture of engineered stone.
1 July 2024	Commencement of domestic engineered stone prohibition in all states and territories.
1 September 2024	Commencement of stronger regulatory requirements for the processing of crystalline silica substances under the model WHS Regulations.
31 December 2024	Termination of all transitional arrangements for engineered stone in relevant jurisdictions.
1 January 2025	Engineered stone benchtops, panels and slabs become prohibited imports.
31 July 2025	Review of engineered stone prohibition provided to WHS ministers.

## Appendix 2 – Notification flowchart

The below flowchart is the version available for the period covered by the Review.



## Appendix 3 – Notification data 31 July 2024 to 31 March 2025

Frequency and Duration	Count of type of permitted work with legacy engineered stone
<b>Daily</b>	<b>17</b>
30 minutes - 2 hours a day	8
2-4 hours a day	5
4-8 hours a day	4
<b>Weekly</b>	<b>70</b>
<30 Minutes a day	29
30 minutes - 2 hours a day	33
2-4 hours a day	4
4-8 hours a day	3
Other	1
<b>Monthly</b>	<b>99</b>
<30 Minutes a day	22
30 minutes - 2 hours a day	39
2-4 hours a day	10
4-8 hours a day	4
Other	24
<b>Every 6 months</b>	<b>15</b>
<30 Minutes a day	2
30 minutes - 2 hours a day	7
2-4 hours a day	6
<b>Yearly</b>	<b>16</b>
<30 Minutes a day	4
2-4 hours a day	3
4-8 hours a day	9
<b>Other</b>	<b>43</b>
<30 Minutes a day	6
30 minutes - 2 hours a day	5
2-4 hours a day	10
Other	22
<b>Total</b>	<b>260</b>

Note: The data in the table above reflects data received from New South Wales, South Australia, Queensland, Western Australia, and Tasmania.

## Appendix 4 – Glossary

Term	Description
<b>Alternative products / materials</b>	For the purposes of the Review, products used as a benchtop, panel or slab that are not subject to the prohibition which may contain or be free from crystalline silica. Typically, these include natural stone (marble, granite), porcelain, sintered stone, <1% CS products (commonly recycled glass) and acrylic based products. Other products such as timber and stainless steel are used as alternatives to prohibited engineered stone, however, these were not captured under alternative products for the purposes of the Review.
<b>Amorphous silica</b>	A non-crystalline form of silicon dioxide (SiO <sub>2</sub> ). Typically present in recycled glass.
<b>Asbestos and Silica Safety and Eradication Agency (ASSEA)</b>	Asbestos and Silica Safety and Eradication Agency oversees national action to improve asbestos awareness and the effective safe management, removal and disposal of asbestos. In 2023 ASSEA's functions were expanded to include silica. ASSEA is involved in coordinating national actions to eliminate asbestos-related disease and silica-related diseases in Australia.
<b>Australian and New Zealand Standard Industrial Classification (ANZSIC)</b>	ANZSIC has been developed for use in the compilation and analysis of industry statistics in Australia and New Zealand. The Australian Bureau of Statistics and Statistics New Zealand jointly developed this classification to improve the comparability of industry statistics between the two countries and with the rest of the world.
<b>Australian Border Force (ABF)</b>	Australian Border Force is Australia's frontline border law enforcement agency and customs service. ABF is an operationally independent body within the Home Affairs portfolio.
<b>Australian Competition and Consumer Commission (ACCC)</b>	The ACCC is Australia's national competition, consumer, fair trading and product safety regulator.
<b>Australian Consumer Law (ACL)</b>	The ACL aims to protect consumers and ensure fair trading in Australia.
<b>Crystalline silica</b>	The crystalline form of the abundant naturally occurring mineral silica or silicon dioxide (SiO <sub>2</sub> ). It is present in almost all types of rocks, sand, clays, shales and gravel and in construction materials such as concrete, tiles and bricks.
<b>Crystalline Silica Substance (CSS)</b>	Model WHS Regulation 529A2: crystalline silica substance (CSS) means material that contains at least 1% crystalline silica, determined as a weight/weight (w/w) concentration.

Term	Description
<b>Duty holder</b>	Any person who owes a work health and safety (WHS) duty under the model WHS laws including: a person conducting a business or undertaking (PCBU), a designer, manufacturer, importer, supplier, installer of plant, substances or structures used at work (upstream duty holder), officer or a worker.
<b>Engineered stone (prohibited engineered stone)</b>	As defined in the model WHS Regulations (529A4). Engineered stone: <ul style="list-style-type: none"> <li>(a) means a CSS that: <ul style="list-style-type: none"> <li>(i) is an artificial product; and</li> <li>(ii) is created by combining natural stone material with other chemical constituents such as water, resin or pigments; and</li> <li>(iii) becomes hardened; but</li> </ul> </li> </ul> Does not include concrete and cement products; bricks, pavers and other similar blocks; ceramic wall and floor tiles; roof tiles; grout, mortar and render; plasterboard; porcelain products; and sintered stone.
<b>Globally Harmonised System of Classification and Labelling of Chemicals</b>	The Globally Harmonized System of Classification and Labelling of Chemicals classifies chemicals by types of hazard. It helps stakeholders communicate information about hazardous chemicals on labels and safety data sheets.
<b>Hazard</b>	A source or situation which has the potential for illness or injury if there is an exposure. The health and safety risk arises from exposure to the hazard.
<b>Health monitoring</b>	Monitoring of an individual to identify changes in their health status where there is a significant risk of exposure to certain substances. Health monitoring is referred to as health surveillance in Western Australia.
<b>Hierarchy of control measures</b>	An approach to controlling health and safety risks ranked from the highest level of protection and reliability to the lowest. Control measures, from most to least effective include: <ul style="list-style-type: none"> <li>• elimination</li> <li>• substitution</li> <li>• isolation</li> <li>• engineering controls</li> <li>• administrative controls and personal protective equipment</li> </ul>
<b>Incidence</b>	The number of new cases (of an illness or event) occurring during a given period.
<b>Legacy engineered stone</b>	Legacy engineered stone includes any engineered stone benchtop, panel, or slab installed prior to the prohibition or held by PCBUs (stockpiles).

<b>Model Codes of Practice</b>	Model Codes of Practice are practical guides to achieving the standards of health and safety required under the model WHS Act and Regulations
<b>Model WHS Act</b>	The model WHS Act forms the basis of the WHS Acts that have been implemented in most jurisdictions across Australia. The main object of the Act is to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces.
<b>Model WHS laws</b>	<p>The model WHS laws include the WHS Act, the model WHS Regulations and model Codes of Practice. To become legally binding, the Commonwealth, states and territories must separately implement them as their own laws.</p> <p>The model laws have been implemented in all jurisdictions except Victoria which maintains an equivalent Occupational Health and Safety Act.</p>
<b>National Occupational Respiratory Disease Registry (NORDR)</b>	The NORDR stores data on occupational respiratory diseases in Australia.
<b>Person conducting a business or undertaking (PCBU)</b>	The term is an umbrella concept used in the model WHS laws to capture all types of working arrangements or structures. A PCBU can be a: company; unincorporated body or association; sole trader or self-employed person. Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU.
<b>Personal protective equipment (PPE)</b>	Items used or worn by a person to minimise risk to the person's health and safety.
<b>Pigments and Colorants</b>	Substances used in stone benchtops to add colour and design elements to achieve desired aesthetics.
<b>Prevalence</b>	The rate or proportion of cases in a population at a given time.
<b>Prohibited engineered stone</b>	<p>Engineered stone as defined in the WHS Regulations. An artificial product that:</p> <ul style="list-style-type: none"> <li>contains at least 1% crystalline silica as a weight/weight concentration, and</li> <li>is created by combining natural stone materials with other chemical constituents (such as water, resins, or pigments), and</li> <li>becomes hardened</li> </ul> <p>Does not include concrete and cement products; bricks, pavers and other similar blocks; ceramic wall and floor tiles; roof tiles; grout, mortar and render; plasterboard; porcelain products; and sintered stone.</p>
<b>Prohibition Decision Regulation Impact Statement (DRIS)</b>	The Prohibition DRIS provides analysis of the impacts of options under the model WHS laws to prohibit the use of engineered stone.

<b>Respirable crystalline silica (RCS)</b>	Particles of silica dust that are less than and equal to 10 micrometres (µm) in diameter that can penetrate deep into the lungs. RCS is a hazardous chemical for the purposes of the model WHS laws and has a workplace exposure standard.
<b>Respiratory protective equipment (RPE)</b>	A type of PPE designed to protect a person from inhaling an airborne hazardous substance. A common type of RPE is a respirator.
<b>Review</b>	Review of the engineered stone prohibition, as tasked by WHS ministers.
<b>Risk</b>	This is the probability of harm from the exposure. If the exposure can be controlled the risk is reduced. If the exposure can be eliminated by either removing the hazard or avoiding exposure, then the risk is eliminated.
<b>Safety Data Sheet (SDS)</b>	A safety data sheet is a document that provides detailed information about a hazardous chemical, including: the identity of the chemical product and ingredients, hazards, physical properties, workplace exposure standards, safe handling and storage, transport information, emergency procedures, and first aid information.
<b>Silicosis</b>	Development of inflammation and scarring of the lung disease following exposure to respirable crystalline silica.
<b>Upstream duties</b>	Under the model WHS laws, 'upstream' duty holders, such as designers, manufacturers, and suppliers, have specific responsibilities to ensure their products, structures, and substances are safe for use in workplaces. These duties focus on ensuring the products are without risks to health and safety throughout their entire lifecycle, from design to disposal.
<b>Volatile Organic Compound (VOC)</b>	This is a class of organic chemical with a low boiling point.
<b>WHS Regulations</b>	The <i>Model Work Health and Safety (WHS) Regulations</i> set out detailed requirements to support the duties in the model WHS Act.
<b>Work health and safety (WHS)</b>	WHS, also known as occupational health and safety (OHS), refers to the laws, systems, and practices that aim to protect the health, safety, and welfare of people at work.
<b>Workplace Exposure Standard (WES)</b>	The WES relates to the level of airborne contaminants present in the air, for mixtures and substances that can cause harm to health.

## Appendix 5 – Public submissions to the Review

The Review received 65 written submissions. Safe Work Australia had permission to publish the following 44 submissions:

### ***Permission to Publish (44):***

Andrew Harris Anonymous (#52)	Australian Institute of Health & Safety (AIHS)
Anonymous (#45)	Australian Institute of Occupational Hygienists (AIOH)
Anonymous (#44)	Banks Benchtops Cancer Council Australia
Anonymous (#41)	Cleancut Construction Products Pty Ltd
Anonymous (#37)	Construction, Forestry and Maritime Employees Union (CFMEU)
Anonymous (#36)	Daniel Zovko
Anonymous (#35)	Housing Industry Association (HIA)
Anonymous (#32)	IKEA Australia
Anonymous (#31)	Insurance Council of Australia
Anonymous (#28)	Jason Bond
Anonymous (#27)	Kelvin
Anonymous (#24)	Lung Foundation Australia (LFA) Maurice Blackburn Lawyers
Anonymous (#22)	Michael Lukis Statewide Air and Noise Pty Ltd
Anonymous (#21)	MonCOEH Monash University
Anonymous (#20)	Public Health Association of Australia Rod Maule
Anonymous (#19)	SafeWork NSW
Anonymous (#17)	Thoracic Society of Australia & New Zealand (TSANZ)
Anonymous (#9)	Victorian Trades Hall Council (VTHC)
Anonymous (#4)	
Anonymous (#3)	
Anonymous (#1)	
Asbestos and Silica Safety and Eradication Agency (ASSEA)	
Australian Council of Trade Unions (ACTU)	