Artificial stone silicosis in Australia: The road to the first ban

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May, 2024
Artificial stone introduced

First Australian case reported

Series of 7 cases published

Increased media attention

Regulatory responses commence

Active worker screening programs

Ban on use of artificial stone to commence, July 2024

First cases reported, Spain 2010

National Dust Diseases Taskforce recommendations

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Artificial stone introduced
Artificial stone introduced to Australia

Importation of artificial stone material commenced around 2000.

Alternate to natural stone such as marble (less than 5% crystalline silica) and granite (approximately 30% crystalline silica).

Cheaper, more resistant to stain and breakage, wide colour choice.

Anecdotal reports from workers: no information provided regarding safety profile or required control measures compared to natural stone.
MATERIAL SAFETY DATA SHEET

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.  None Allocated  DG Class  None Allocated  Subsidiary Risk(s)  None Allocated

Pkg Group  None Allocated  Hazchem Code  None Allocated  EPG  None Allocated

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Formula</th>
<th>CAS No.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILICA, CRYSTALLINE - QUARTZ</td>
<td>SiO2</td>
<td>14808-60-7</td>
<td>&gt;80%</td>
</tr>
<tr>
<td>NON HAZARDOUS INGREDIENTS</td>
<td>Not Available</td>
<td>Not Available</td>
<td>remainder</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye  If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poison Information Centre or a doctor, or for at least 15 minutes.

Inhalation  **Exposure is considered unlikely.** Due to product form / nature of use, an inhalation hazard is not anticipated.

Skin  If skin or hair contact occurs, remove contaminated clothing and flush with water until advised to stop by the Poisons Information Centre.

Ingestion  For advice, contact a Poison Information Centre on 13 11 1: for advice, contact a Poison Information Centre on 13 11 1: form and application, ingestion is considered unlikely.

Advice to Doctor  Treat symptomatically

June, 2008

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Exposure Std</th>
<th>Ingredient</th>
<th>Reference</th>
<th>TWA ppm</th>
<th>STEL ppm</th>
<th>STEL mg/m3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Silica, Crystalline Quartz</td>
<td>NOHSC (AUS)</td>
<td>--</td>
<td>0.1</td>
<td>--</td>
</tr>
</tbody>
</table>

Biological Limits  No biological limit allocated.

Engineering Controls  Do not inhale dust/powder. Use with adequate natural ventilation. Where a dust inhalation hazard exists, mechanical extraction ventilation or dampening with water is recommended.

PPE  Wear cotton or leather gloves. If cutting or sanding with potential for dust generation, wear dust-proof goggles and a Class P1 (Particulate) Respirator.
A new housing estate in outer Melbourne. Picture: Alex Coppel.
### Quartz Countertop Global Share

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2016</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz</td>
<td>8%</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>Laminate</td>
<td>11%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Granite</td>
<td>35%</td>
<td>30%</td>
<td>28%</td>
</tr>
</tbody>
</table>

### Quartz Share of Total Countertop Market

(By Volume)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2016</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Israel</td>
<td>82%</td>
<td>67%</td>
<td>87%</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td>32%</td>
<td>45%</td>
</tr>
<tr>
<td>Canada</td>
<td>47%</td>
<td>24%</td>
<td>28%</td>
</tr>
<tr>
<td>U.S.</td>
<td>5%</td>
<td>14%</td>
<td>20%</td>
</tr>
</tbody>
</table>

(1) Source: Freedonia March 2021
(2) Source: Freedonia March 2021 study; company markets share derived from company volume sales data and Freedonia markets data

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Ban on use of artificial stone to commence, July 2024
Unheeded warnings from overseas

Nota clínica

Silicosis, una enfermedad con presente activo

Cristina Martínez, Amador Prieto, Laura García, Aida Quero, Susana González y Pere Casan

a Servicio de Neumología, Instituto Nacional de Silicosis (INS), Hospital Universitario Central de Asturias (HUCA), Oviedo, Asturias, España
b Servicio de Radiodiagnóstico, Instituto Nacional de Silicosis (INS), Hospital Universitario Central de Asturias (HUCA), Oviedo, Asturias, España
c Departamento de Ingeniería, Instituto Nacional de Silicosis (INS), Hospital Universitario Central de Asturias (HUCA), Oviedo, Asturias, España
Artificial Stone Silicosis
Disease Resurgence Among Artificial Stone Workers

Mordechai R. Kramer, MD, FCCP • Paul D. Blanc, MD, MSPH, FCCP • Elizabeth Fireman, PhD •...
Alexander Guber, MD, FCCP • Nader Abdul Rhaman, MD • David Shitrit, MD • Show all authors
DOI: https://doi.org/10.1378/chest.11-1321

Background: Silicosis is a progressive, fibrotic, occupational lung disease resulting from inhalation of respirable crystalline silica. This disease is preventable through appropriate workplace practices. We systematically assessed an outbreak of silicosis among patients referred to our center for lung transplant.

Methods: This retrospective cohort analysis included all patients with a diagnosis of silicosis who were referred for evaluation to the National Lung Transplantation Program in Israel from January 1997 through December 2010. We also compared the incidence of lung transplantation (LTX) due to silicosis in Israel with that of the International Society for Heart and Lung Transplantation (ISHLT) registry.

Results: During the 14-year study period, 25 patients with silicosis were referred for evaluation, including 10 patients who went on to undergo LTX. All patients were exposed by dry cutting a relatively new, artificial, decorative stone product with high crystalline silica content used primarily for kitchen countertops and bathroom fixtures. The patients had moderate-to-severe restrictive lung disease. Two patients developed progressive massive fibrosis; none manifested acute silicosis (silicoproteinosis). Three patients died during follow-up, without LTX. Based on the ISHLT registry incidence, 0.68 silicosis cases would have been expected instead of the 10 observed (incidence ratio, 14.6; 95% CI, 7.02-29.8).

Conclusions: This silicosis outbreak is important because of the worldwide use of this and similar high-silica-content, artificial stone products. Further cases are likely to occur unless effective preventive measures are undertaken and existing safety practices are enforced.

CHEST 2012; 142(2):415-424

Abbreviations: ISHLT = International Society for Heart and Lung Transplantation, LTX = lung transplantation, NIOSH = National Institute for Occupational Safety and Health, PMF = progressive massive fibrosis

Figure 1. Reported cases of silicosis due to engineered stone among lung transplant candidates in Israel.
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Complicated silicosis in an Australian worker after cutting engineered stone products: an embarrassing first for Australia

Deborah H Yates¹, Anthony R Johnston², and Anthony Franke³
¹ Thoracic Medicine, St Vincent’s Hospital, ² Respiratory Medicine, Liverpool Hospital ³ Respiratory Medicine, Bankstown Hospital, Sydney, NSW, Australia

Introduction

- Silicosis is the oldest known occupational lung disease, first being described by the Greeks.
- Definition: a form of pneumoconiosis (pneumo-lung koniots = dust (Gk) or dust disease due to inhalation of crystalline silica dust.
- Also known as miners’ phthisis, potter’s rot, grinders’ asthma.
- Debatably, also the longest word in the English language: “pneumooutrumicroscopicstilic avolconcomists”.

Mr VN

- 54 year old man
- Presented to Bankstown Hospital in 2011 with breathlessness, cough and haemoptysis
- Vietnamese Refugee
- Came to Australia in 1981
- Past medical history: Asthma and atopy, cholecystectomy.
- Medications: None
- Allergens: Peanuts, egg yolk
- Family His
  - Unknown: had lost contact with family
- Social History: Lived with wife, 3 daughters and 2 dogs
  - Ex-smoker (approx 30 pack years), minimal alcohol
  - Not travelled back to Vietnam since emigration

Occupational history:

- Worked a stone cutter, grinder and finisher (usually Cuarzstone, occasionally marble/granite/sandstone), wears the “normal” mask
- Only worked in this capacity since came to Australia

History (continued)

- Investigations revealed bilateral upper lobe masses; suspicion of malignancy in view of smoking history
- Open lung biopsy revealed silicosis with progressive massive fibrosis; no evidence of malignancy or tuberculosis
- Referred for consideration of lung transplantation
- Subsequently developed bilateral pneumothoraces requiring chest tube drainage
- Trans-esophageal echo showed moderate pulmonary hypertension
- Now listed for transplant

Silicosis from engineered stone products

- Quartz conglomerate (enginedered stone)
- High silica content (85%); first used in late 1980s
- Used on kitchen tops, countertops, floors, wall coverings
- Higher silica content than traditional stone
- Incidence of disease up to 50% of workers, RR approx. 15
- Cases occurring in young people
- Entirely preventable disease
- First described in Spain; cases also from Italy, Brazil
- Large number of cases described from E3x unit in Israel
- Characteristically, small workplaces with little or no occupational safety procedures
- No surveillance of workers
- Likely to represent the “tip of the iceberg”
- This is the first case described in Australia but others are likely.
- Clinicians should be aware of the hazards of silica exposure even in a first world country, and that new products may also contain silica.
Advocacy campaign started 2016

Australasian Faculty of Occupational and Environmental Medicine
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First cases reported, Spain 2010
Seven male patients
Median age of 44 years (range 26–61).
Small businesses: 2-20 employees
All workplaces primarily used artificial stone.
All patients were involved in dry cutting artificial stone.
Median duration of exposure prior to symptoms 7 years (range 4–10).
Six with progressive massive fibrosis.
52 male patients
Median age: 45 years
38% with progressive massive fibrosis
19% fatal, median age 46 years
Median duration work: 15 years
45% reported use of water dust suppression
Coronal view of early simple silicosis

Coronal view of complicated silicosis

Victoria, Australia

California, USA
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Suppliers of stone benchtops facing questions over response to silicosis outbreak

Posted Thu, 22 Nov 2018, 8:21pm Updated Thu, 22 Nov 2018, 8:21pm
WORKERS LEFT ON BENCHES

Lung disease makes a deadly comeback

MICHAEL WILK

The worst industrial health crisis since Queensland’s asbestos epidemic has taken hold in Queensland, with six victims of silicosis dying there in just eight months.

In the past, lung disease was a scourge that claimed thousands of lives. But now, it is again a significant killer in the mining industry.

A study by the University of Hawaii found that people working in mining have a higher risk of developing lung disease than the general population.

The study also found that people working in mining have a higher risk of developing lung disease than the general population.

The mining industry is responsible for a large number of deaths caused by lung disease. It is estimated that around 1,000 miners die from lung disease each year.

DEADLY DUST

Biggest health crisis since asbestos

SPECIAL INVESTIGATION

MICHAEL WRAY

ONE in 10 Queensland stonemasons are being diagnosed with the fatal silicosis disease. This has been described as the worst industrial health crisis since the asbestos epidemic.

Experts are calling for an urgent investigation into how stonemasons are exposed to the harmful dust.

Queensland stonemasons were directed to get urgent check-ups after a silicosis cluster was discovered in the state this year.

Nearly 700 were tested, with 69, some as young as 20, receiving a deadly silicosis diagnosis, according to the department.

The disease - once prevalent in the mining industry - occurs when workers inhale toxic silica dust, which causes irreversible scarring of the lungs.

Life expectancy after diagnosis can be as short as three years.

The rate of detections in Queensland has alarmed medical experts, who said thousands of stonemasons around the country are at risk.

REPORT P10-11
Silicosis death of Anthony White sparks calls for action to address 'nationwide epidemic'

By Elise Kinsella
Posted Wed 12 Mar 2019 at 1:09pm

Antony White's brother Shane Parata has also been diagnosed with the disease. (ABC News: Elise Kinsella)
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Number of reported artificial stone silicosis cases in Australia
Spike in cases of life-threatening lung disease in workers

There has been a spike in cases of a deadly illness caused by inhaling silica dust in Queensland.

Industrial Relations Minister Grace Grace said WorkCover Queensland had received 22 claims for compensation for silicosis from workers in the engineered stone benchtop industry in the past three weeks, making a total of 36 compensation claims.

New code and 'enforcement blitz' to protect stone workers from deadly silicosis

Of those, Ms Grace described six cases as 'terminal', with a life expectancy of three to five years, with those workers receiving diagnoses of progressive massive fibrosis.
State and Commonwealth Government responses

Ban dry processing artificial stone

Queensland first state to implement screening program.

Reduction in 8-hour TWA 0.05 mg/m³
Regulatory responses in Victoria since 2019
Protecting Victorian Workers From Deadly Silica Dust

01 May 2019

The Andrews Labor Government will launch an unprecedented compliance and enforcement blitz targeting over 300 high-risk workplaces – focusing on stonemasonry workshops to prevent the deadly lung disease silicosis.

Silica Workplace Exposure Standard Halved

19 December 2019

The Andrews Labor Government is urging employers to do everything they can to protect workers from deadly silica dust with the introduction of a new national exposure standard.

A majority of Work Health and Safety ministers have agreed to halve the workplace exposure standard for respirable crystalline silica to a time weighted average of 0.05mg/m³ over an eight-hour day.

Regulations Banning Dry Stone Cutting Now In Effect

03 September 2019

New regulations introduced by the Andrews Labor Government banning the uncontrolled dry cutting of engineered stone to protect Victorian workers from exposure to deadly silica dust are now in effect.
Licensing Scheme To Boost Engineered Stone Safety

28 February 2020

The Andrews Labor Government will introduce Australia’s first licensing scheme for engineered stone to further reduce the risks of workers contracting deadly silicosis.
Workplace survey of 6 engineered stone workshops (34 workers) in Sydney by NSW WHS regulator from 2017.

Prior to additional regulatory intervention.

Australian RCS workplace exposure standard of 0.1 mg/m³ TWA-8 hours exceeded:

85% of workers who performed dry tasks
71% using water-fed tools.

Fig. 1. RCS exposures of workers performing three stone fabrication tasks (n = 34).
Workplace survey following 5-year awareness and compliance program by regulator

27 fabrication workshops

All workshops used wet processes.

Pooled result for RCS was 0.034 mg/m³ TWA-8.

Highest exposed (GM RCS of 0.062 mg/m³ TWA-8 h) workers using pneumatic hand tools for cutting or grinding combined with polishing tasks.

Lowest exposure (0.018 mg/m³) workers operating semiautomated edge polishers

Table 4. Personal exposure RCS results by workshop (n=27).

<table>
<thead>
<tr>
<th>Number of workshops with all worker exposures ≥ 0.025 mg/m³ TWA-8 h</th>
<th>Number of workshops with one or more worker exposures ≥ 0.025 mg/m³ TWA-8 h and ≤0.05 mg/m³ TWA-8 h</th>
<th>Number of workshops with 1 or more worker exposures &gt; 0.05 mg/m³ TWA-8 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (14.8%)</td>
<td>8 (29.6%)</td>
<td>15 (55.6%)</td>
</tr>
</tbody>
</table>
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Victorian Stonemason Health Assessment Program: 
Commenced: May, 2019

Silica Health Assessments Reach One Thousand

28 February 2021

More than 1,000 workers from the stonemason industry have now registered for a free health check-up as part of the Andrews Labor Government's action plan to protect workers from deadly silica dust.

The free health screenings were established in May 2019 for an estimated 1,400 past and present workers in the Victorian stonemason industry.

Free crystalline silica health assessments and your health monitoring duties

Information for employers about using the free health assessment through the Alfred Occupational Respiratory Clinic (AORC) to meet health monitoring duties

www.worksafe.vic.gov.au

Partnership with Monash University and Alfred Hospital
Prevalence and risk factors for silicosis among a large cohort of stone benchtop industry workers

Ryan F Hoy 1,2, Christina Dimitriadis 1, Michael Abramson 3, Deborah C Glass 1, StellaMay Gwini 1, Fiona Hore-Lacy 1,2, Javier Jimenez-Martin 1, Karen Walker-Bone 1, Malcolm R Sim 1

Occup Environ Med. 2023 Jun 16
Study overview

Set within a large population-based voluntary screening programme, funded and coordinated by WorkSafe Victoria

Workers completed assessment between June 2019 and October 2021.

Largest study that has been undertaken to assess the health of stone benchtop industry workers.

The objectives were to:
1. Determine the prevalence of silicosis in a large cohort of high-risk stone benchtop workers;
2. Determine factors associated with increased risk of silicosis and
3. Investigate the utility of lung function testing and chest x-rays to screen high-risk stone benchtop industry workers for the presence of silicosis.
Registration with WorkSafe Victoria program

**Primary evaluation** with one of two occupational health providers:
- Standardised industry specific health, occupational and exposure questionnaire
- Physical examination
- Respiratory function testing: spirometry, DLCO (TSANZ accredited lab)
- Chest x-ray with ILO classification (reported by certified B-reader)
- **Consent to provide details to Monash study**

**Secondary evaluation criteria:**
1. Abnormal CXR: ILO small opacity profusion category ≥1 or other relevant abnormal finding.
2. Abnormal RFT: FEV1, FVC, FEV1/FVC or Dlco below LLN, and/or a 12% and 200 mL improvement in FEV and/or FVC post bronchodilator.
3. Symptoms or signs determined by the physician to be significant, such as exertional dyspnoea.
4. ‘High’ or ‘very high’ estimated silica exposure category determine by responses to the occupational questionnaire

**Secondary evaluation:**
- High resolution CT chest
- Blood tests: FBE, EUC, LFT, ACE level, ESR,RF autoimmune screen +/- interferon-gamma release assay
- **Respiratory physician assessment:**
  - Review of investigations
  - Comprehensive medical, occupational and exposure history
  - Further investigations, if necessary
  - Standardised report including **final diagnosis**

Victorian stone benchtop industry
Participants

544 participants
94.5% male
67.6% had high or very high estimated silica exposure levels

414 (76%) underwent secondary screening

e-Table 2: Description of reasons for secondary screening (N=414)

<table>
<thead>
<tr>
<th>Reason</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory function parameter &lt; LLN (GLI) *</td>
<td></td>
</tr>
<tr>
<td>FEV₁ (baseline)</td>
<td>34 (10.0)</td>
</tr>
<tr>
<td>FVC (baseline)</td>
<td>26 (7.6)</td>
</tr>
<tr>
<td>FEV₁/FVC ratio (baseline)</td>
<td>48 (14.1)</td>
</tr>
<tr>
<td>DLCO</td>
<td>28 (8.2)</td>
</tr>
<tr>
<td>Bronchodilator response present *</td>
<td></td>
</tr>
<tr>
<td>Change in FEV₁ and/or FVC &gt;12% and 200 mls</td>
<td>23 (6.9)</td>
</tr>
<tr>
<td>Chest x-ray</td>
<td></td>
</tr>
<tr>
<td>ILO &gt; 0/1</td>
<td>114 (27.5)</td>
</tr>
<tr>
<td>Estimated exposure level</td>
<td></td>
</tr>
<tr>
<td>High or very high</td>
<td>368 (89.1)</td>
</tr>
<tr>
<td>Significant respiratory, other symptoms/signs</td>
<td></td>
</tr>
<tr>
<td>Yes (determined by OHP)</td>
<td>268 (64.7)</td>
</tr>
<tr>
<td>Number of reasons for referral</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>103 (24.9)</td>
</tr>
<tr>
<td>2</td>
<td>209 (50.5)</td>
</tr>
<tr>
<td>≥ 3</td>
<td>102 (24.6)</td>
</tr>
</tbody>
</table>

* Lung function data missing for 74 participants > Bronchodilator response was missing for 81 participants.
## Widespread hazardous workplaces

<table>
<thead>
<tr>
<th>Highest exposure intensity (Proportion of time in environment with dry work - highest job)</th>
<th>All (544)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum from both personal and secondary exposure</td>
<td>n(column %)</td>
</tr>
<tr>
<td>Never</td>
<td>75 (13.8)</td>
</tr>
<tr>
<td>Rarely 1 to 9%</td>
<td>90 (16.5)</td>
</tr>
<tr>
<td>Sometimes 10 to 24%</td>
<td>60 (11.0)</td>
</tr>
<tr>
<td>Frequently 25 to 49%</td>
<td>66 (12.1)</td>
</tr>
<tr>
<td>Very frequently 50 to 99%</td>
<td>144 (26.5)</td>
</tr>
<tr>
<td>Always 100%</td>
<td>109 (20.0)</td>
</tr>
</tbody>
</table>
Results

117 out of 414 (28%) stone benchtop industry workers who underwent secondary screening were diagnosed with silicosis, including 21 with complicated silicosis.

Simple silicosis  Simple silicosis  Complicated silicosis
<table>
<thead>
<tr>
<th>Outcome</th>
<th>No silicosis (N=297)</th>
<th>Confirmed silicosis (N=117)</th>
<th>Unadjusted analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex, n (column %)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>284 (95.6)</td>
<td>117 (100)</td>
<td>Ref</td>
</tr>
<tr>
<td>Female</td>
<td>13 (4.4)</td>
<td>0 (0.0)</td>
<td>---</td>
</tr>
<tr>
<td><strong>Age (years), median (P25–P75)</strong></td>
<td>36.1 (28.9–45.1)</td>
<td>42.1 (34.8–49.7)</td>
<td>1.04 (1.02 to 1.06)</td>
</tr>
<tr>
<td><strong>BMI (kg/m²)†, mean (SD)</strong></td>
<td>28.2 (5.8)</td>
<td>26.5 (4.5)</td>
<td>0.94 (0.90 to 0.98)</td>
</tr>
<tr>
<td><strong>Smoking history, n (column %)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>126 (42.4)</td>
<td>29 (24.8)</td>
<td>Ref</td>
</tr>
<tr>
<td>Former/current</td>
<td>171 (57.6)</td>
<td>88 (75.2)</td>
<td>2.24 (1.39 to 3.61)</td>
</tr>
<tr>
<td><strong>Pack years, median (P25–P75)</strong></td>
<td>0.4 (0.0–7.1)</td>
<td>7.5 (0.0–13.8)</td>
<td>1.07 (1.04 to 1.09)</td>
</tr>
<tr>
<td>Former/current smokers only</td>
<td>6.5 (2.4–11.4)</td>
<td>11.0 (6.1–20.2)</td>
<td>1.06 (1.03 to 1.09)</td>
</tr>
<tr>
<td><strong>Country of birth, n (column %)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>164 (56.5)</td>
<td>48 (42.1)</td>
<td>Ref</td>
</tr>
<tr>
<td>Other (not Australia)</td>
<td>126 (43.5)</td>
<td>66 (57.9)</td>
<td>1.79 (1.15 to 2.77)</td>
</tr>
<tr>
<td><strong>Silica exposures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Silica career duration, years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (P25–P75)</td>
<td>8 (5–14)</td>
<td>12 (9–21)</td>
<td>1.07 (1.04 to 1.09)</td>
</tr>
<tr>
<td>Range</td>
<td>&lt;1–44</td>
<td>3–43</td>
<td></td>
</tr>
<tr>
<td><strong>Estimated silica exposure category, n (column %)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low/medium</td>
<td>40 (13.5)</td>
<td>5 (4.3)</td>
<td>Ref</td>
</tr>
<tr>
<td>High/very high</td>
<td>257 (86.5)</td>
<td>112 (95.7)</td>
<td>3.49 (1.34 to 9.07)</td>
</tr>
</tbody>
</table>

Outcomes from secondary screening
70% workers with high/very high estimated RCS exposure did not have silicosis.
### Screening lung function test results

<table>
<thead>
<tr>
<th>Respiratory function parameter</th>
<th>No silicosis from secondary screening</th>
<th>Silicosis from secondary screening</th>
<th>Sensitivity % (95% CI)</th>
<th>Specificity % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV₁</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ LLN</td>
<td>228</td>
<td>78</td>
<td>18.8 (11.5 to 28.0)</td>
<td>93.4 (89.6 to 96.2)</td>
</tr>
<tr>
<td>&lt; LLN</td>
<td>16</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ LLN</td>
<td>232</td>
<td>82</td>
<td>14.6 (8.2 to 23.3)</td>
<td>95.1 (91.6 to 97.4)</td>
</tr>
<tr>
<td>&lt; LLN</td>
<td>12</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEV₁/FVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ LLN</td>
<td>216</td>
<td>76</td>
<td>20.8 (13.2 to 30.3)</td>
<td>88.5 (83.8 to 92.2)</td>
</tr>
<tr>
<td>&lt; LLN</td>
<td>28</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLco</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ LLN</td>
<td>229</td>
<td>83</td>
<td>13.5 (7.4 to 22.0)</td>
<td>93.9 (90.1 to 96.5)</td>
</tr>
<tr>
<td>&lt; LLN</td>
<td>15</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LLN = lower limit of normal
Screening chest x-ray results

Thirty-six workers with an ILO category 0 CXR had a diagnosis of silicosis from HRCT chest and respiratory physician assessment, all had simple silicosis (36/282, 12.8%).

<table>
<thead>
<tr>
<th>Chest X-ray</th>
<th>No silicosis from secondary screening</th>
<th>Silicosis from secondary screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILO profusion category 0</td>
<td>246</td>
<td>36</td>
</tr>
<tr>
<td>ILO profusion category ≥1</td>
<td>40</td>
<td>74</td>
</tr>
</tbody>
</table>
Study conclusions

- 369 out of 544 (68%) of stone benchtop industry workers in Victoria prior to 2021 had been exposed to high or very high estimated silica exposure levels.
- Sensitivity of the currently required health monitoring investigations (spirometry and chest x-ray) have very poor sensitivity to identify silicosis.
- 117 out of 414 (28%) stone benchtop industry workers who underwent secondary screening were diagnosed with silicosis.

Queensland Government screening program:
1053 stone benchtop workers 240 (23%) with silicosis, including 36 with PMF

Artificial stone introduced

First Australian case reported

Series of 7 cases published

Increased media attention

Regulatory responses commence

National Dust Diseases Taskforce recommendations

Ban on use of artificial stone to commence, July 2024

First cases reported, Spain 2010

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Ban on use of artificial stone to commence, July 2024
From 2019-2021
Chaired by
Commonwealth Chief Medical Officer

Taskforce Members

Prof Paul Kelly
Ms Tania Rishniw
Ms Sophie Dwyer

Ms Clare Amies
Prof Fraser Bums
Ms Michelle Baxter

Dr Graeme Edwards
Dr Ryan Hoy
Prof Christine Jenkins

Dr Richard Slaughter

ALL OF GOVERNMENTS’ RESPONSE TO THE FINAL REPORT OF THE NATIONAL DUST DISEASE TASKFORCE

March 2022
<table>
<thead>
<tr>
<th>National Dust Disease Taskforce Final Report Recommendations</th>
<th>All of Governments’ Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. Commence the processes required to implement a <strong>full ban on the importation of some or all engineered stone products</strong> if, by July 2024:</td>
<td>Australian governments <strong>note</strong> this recommendation.</td>
</tr>
<tr>
<td>- There is no measurable and acceptable improvement in regulatory compliance rates for the engineered stone sector as reported by jurisdictions; and</td>
<td>As noted above, substantial work has been undertaken by Commonwealth and state and territory governments and Safe Work Australia to address the increase in silicosis cases amongst engineered stone workers. Jurisdictions will continue to take action to minimise the risks of working with engineered stone. This includes supporting research on the use of engineered stone, and on the most effective control measures to protect those working with these products.</td>
</tr>
<tr>
<td>- Evidence indicates preventative measures are not effectively protecting those working with engineered stone from silicosis and silica-associated diseases.</td>
<td>A ban will only be considered if there are no measureable improvements in compliance and/or preventative measures prove to be ineffective.</td>
</tr>
<tr>
<td><strong>March 2022</strong></td>
<td>Consideration of a ban will require Commonwealth, state and territory governments to work together to develop a comprehensive framework to evaluate the effectiveness of compliance with WHS duties and the effectiveness of measures to protect workers, including any further measures implemented following Safe Work Australia’s regulatory impact analysis process.</td>
</tr>
<tr>
<td></td>
<td>Any decision to ban engineered stone products will be dependent on an objective assessment of the requirements established under the framework, noting that more time than that proposed by the Taskforce may be required to make this assessment.</td>
</tr>
</tbody>
</table>

15 out of 17 “supported”, remaining 2 “noted”.

---

MONASH University
Change in Commonwealth government: May 2022

Centre-left party
Strong trade union links
Exclusive

CFMEU to push Labor conference on engineered stone ban

---

**ENGINEERED STONE IS KILLING TOO MANY AUSSIE WORKERS.**

**WILL YOU HELP US STOP THIS KILLER STONE?**

---

Victoria Trades Hall Council
@VicUnions

Congratulations again to @CFMEU, members, whose sustained pressure has now caused IKEA to join Bunnings in pledging to stop selling deadly engineered stone benchtops. There is no safe way of working with this product, which is why we need a nationwide ban on its use.

---

**KJILLER STÖN**

IKEA has now also committed to removing engineered stone from its shelves.

---

10:04 AM - Nov 16, 2023 - 16.3K Views
From mid-2022 Safe Work Australia sought public comment on five regulatory and non-regulatory options to reduce workplace exposures to RCS in Australia.

The primary objective of government intervention is to reduce workplace exposure to RCS in Australia, with the ultimate aim of eliminating silicosis and other silica-related diseases.

Decision Regulation Impact Statement:
Prohibition on the use of engineered stone
August 2023

What policy options are being considered?

In the Silica Decision RIS, WHS ministers considered and agreed a number of policy options to address the high rates of silicosis in engineered stone workers. This Decision RIS considers only the possible prohibition on the use of engineered stone under the model WHS laws.

<table>
<thead>
<tr>
<th>Option 1:</th>
<th>Prohibition on the use of all engineered stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 2:</td>
<td>Prohibition on the use of engineered stone containing 40% or more crystalline silica</td>
</tr>
<tr>
<td>Option 3:</td>
<td>As for option 2, with an accompanying licensing scheme for PCBU's working with engineered stone containing less than 40% crystalline silica</td>
</tr>
</tbody>
</table>

The risks posed by working with engineered stone are serious and the possible consequences are severe and sometimes fatal.

To date, we – employers, workers, regulators and policy agencies – have failed to ensure the health and safety of all workers working with engineered stone.

The failure of only one participant to meet their duties could mean increased incidence of silicosis in engineered stone workers.

There is also no evidence that lower silica engineered stone poses less risk to worker health and safety.

Manufacturers have not yet established (through independent scientific evidence) that these products are without risks to the health and safety of workers and others in the workplace.

Engineered stone be defined as an artificial product that contains at least 1% crystalline silica and is created by combining natural stone materials with other chemical constituents (such as water, resins, or pigments), and becomes hardened.

This definition excludes:
- concrete and cement products
- bricks, pavers, and other similar blocks
- ceramic wall and floor tiles
- sintered stone (that do not contain resin)
- porcelain products (that do not contain resin)
- roof tiles
- grout, mortar, and render, and
- plasterboard.

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Acknowledgements

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Javier Jimenez Martin
Stella Gwini

Alfred Occupational Respiratory Clinic
Tiffany Samson
Sophie Campbell
Dr Hayley Barnes
Dr Jun Khoo
Dr Majid Rahgozar

WorkSafe Victoria

Alfred Health

The Thoracic Society of Australia & New Zealand
Leaders in Lung Health

Australasian Faculty of Occupational and Environmental Medicine

Lung Foundation Australia
National Workers Memorial, Canberra