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Forensic Analytical Consulting Services

Protecting Workers from Silica: Australia's Bold Approach

Presented By:
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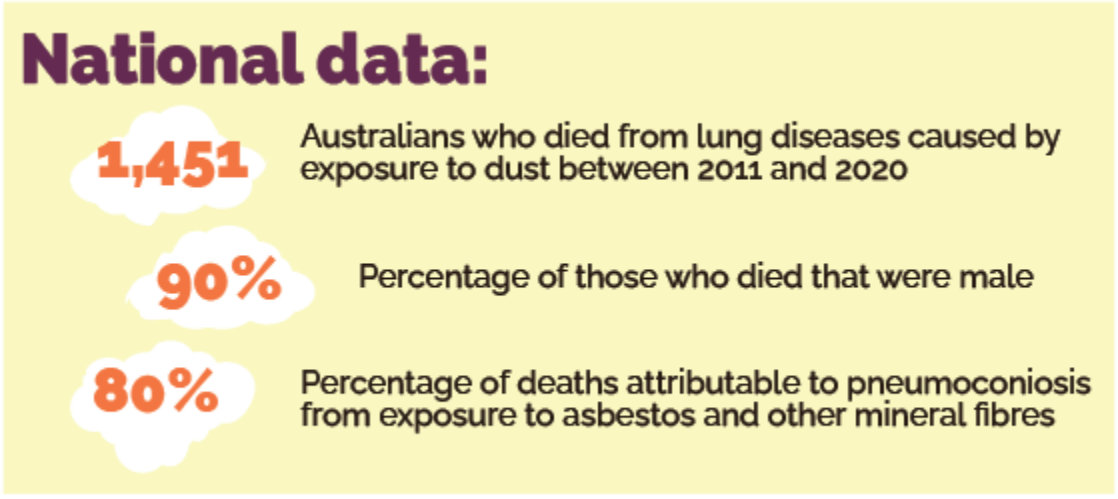
CIHC, November 2025

Agenda

- Why we're here
- Australia's approach
- Engineered stone
- Tunnelling
- How do we move forward
- Initiatives

Why we're here

- Silica exposure: a global occupational health crisis
- Preventable, but historically overlooked
- Resurgence of silicosis cases globally and in Australia



Source | ABS (Australian Bureau of Statistics) (2021a), Underlying Cause of Death (Australia)

How did we get here?

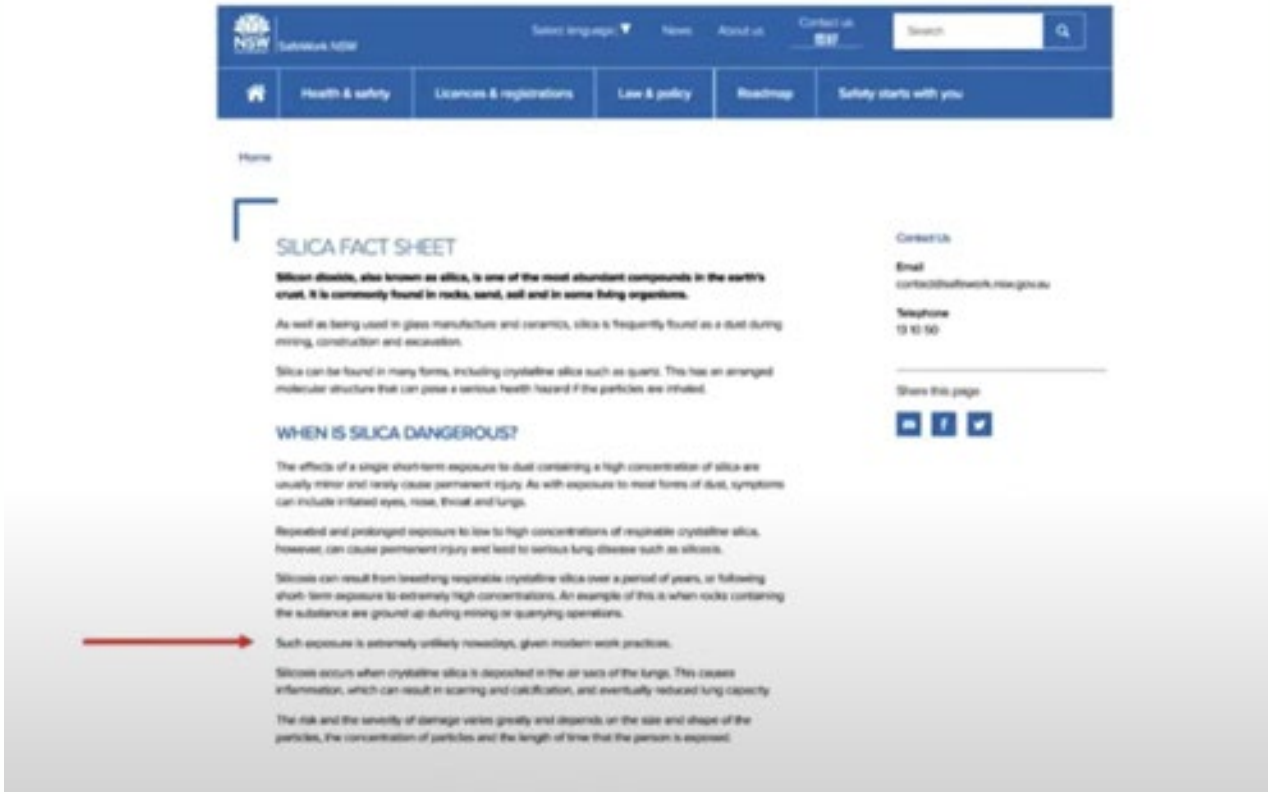
- 2009 – First reported outbreak in Spain (3 cases)
- 2011 – Two further Spanish studies
- 2012 – Pivotal study in Israel
- 2012 – 7 cases in Italy
- 2014 – Large outbreak in Spain (44 affected workers)
- 2015 – Israel reports increase in cases from 3 in 1996 to 63 in 2014
- 2015 – First case reported in Australia

Emergence in the United States

- 2014 – CDC blog
- 2014 – First US case in Texas
- 2015 – OSHA issued Hazard Alert Warning

Australia's “Call to action”

In 2017…



The Catalyst – Australia's Silica Crisis

- Spike in silicosis cases (2018 onwards)
- Queensland audit program findings
- Media and union advocacy
- 'New asbestos' narrative

Audit findings

Third in a series of audit campaigns undertaken

Workplaces assessed against COP which commenced in October 2019

233 site visits – 368 enforcement actions:

- 302 improvement notices
- 27 infringement notices (totally $79,920 in fines)
- 24 prohibition notices
- 12 immediate compliances (issues resolved during the inspection)
- two electrical safety notices
- one notice to produce documents.

National Dust Disease Taskforce

Recommendations:

- Strengthen health & safety measures
- Give greater priority to WHS monitoring & compliance activities
- Conduct a Regulatory Impact Analysis to decide on the implementation of measures that provide the highest protections to workers
- Commence the process to implement a full ban on the importation of engineered stone
- Improve the quality, frequency and coverage of health screening
- Finalize & implement the National Silicosis Prevention Strategy
- Development of a national registry
- Establish a cross-jurisdictional governance mechanism to improve comms and info sharing

Australia's Silica Exposure Standard

- 0.05 mg/m³ TWA WES
- Review process for lower limits
- Real-world implementation challenges
- Emphasis on elimination & engineering controls

Initial Improvements

- Implementation of WES of 0.05 mg/m³
- Regulatory ban on uncontrolled dry cutting of engineered stone
- Licensing scheme for engineered stone
- Code of practice / compliance code targeting engineered stone
- New state lung disease register
- Low-dose High CT scan instead of Chest X-rays
- New amendments of regulation
- Health screening of workers in manufactured stone
- Regulatory workplace inspection campaigns
- Awareness campaigns

Queensland Government

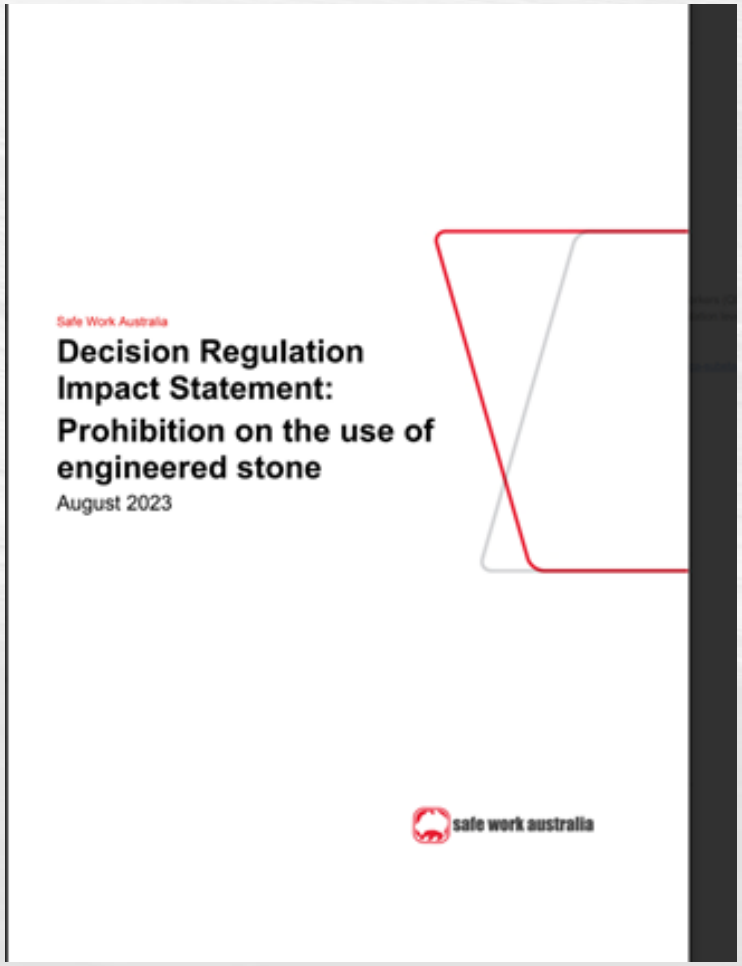
WorkSafe Queensland Audit Findings

Key non-compliant findings

Inspectors identified the following key non-compliance issues:

Area of non-compliance	Issue
Air monitoring	• Failure to conduct air monitoring • Frequency of air monitoring not in line with the Code • Air monitoring report not in line with the Code
Health monitoring	• Failure to provide health monitoring to workers • Employee reluctance to attend health monitoring
Respiratory protective equipment	• Failure to conduct fit testing for workers wearing tight-fitting respirators. • Failure to provide powered air-purifying respirators (PAPR) • PAPR not worn correctly by workers
House keeping	• Inadequate housekeeping • Inadequate cleaning methods
Water suppression	• Inadequate use of water suppression • Failure to contain overspray
Cutting	• Uncontrolled dry cutting of materials

Safe Work Australia RIS



What policy options were considered?

Option 1: Prohibition on the use of all engineered stone

Option 2: Prohibition on the use of engineered stone containing 40% or more crystalline silica

Option 3: As for option 2, with an accompanying licensing scheme for PCBUs working with engineered stone containing less than 40% crystalline silica

Safe Work Australia RIS

Table 1 Comparison of the estimated cost for prohibition options over the appraisal period ($m), by component

	Option 1 – complete prohibition		Option 2 – prohibition ≥ 40% crystalline silica		Option 3 – prohibition ≥ 40% + licence for < 40%.	
	Cost – licensing framework for work with legacy products	Other costs	Cost – licensing framework for work with legacy products	Other costs	Cost – licensing framework for work with legacy products	Other costs
Cost to PCBUs	$133.0	$6.9	$133.0	$0	$133.0	$4.2
Cost to government	$107.5	$0.7	$107.5	$0	$107.5	$3.6
Cost to workers	n/a	$3.1	n/a	$0	n/a	$1.5
Sub total (component)	$240.5	$10.8	$240.5	$0	$240.5	$9.3
Total	**$251.1**		**$240.5**		**$249.7**	
% Total option costs	96%	4%	100%	0%	96%	4%

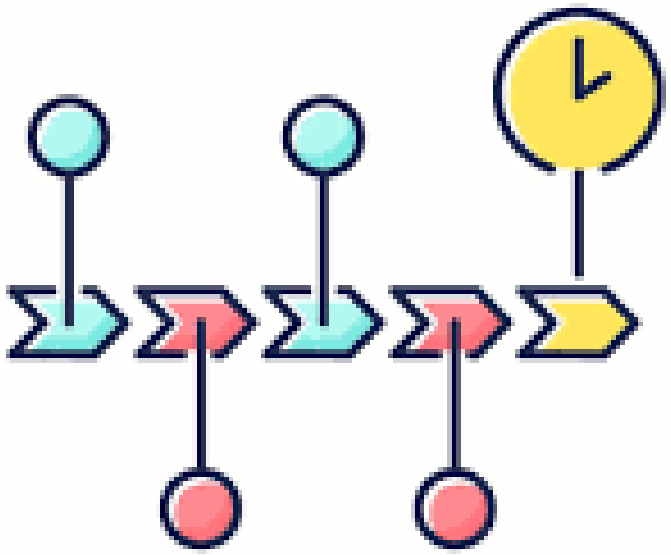
Table 2 Estimated breakeven analysis results over appraisal period

Option	Total cost ($m)	Estimated number of cases prevented required to breakeven over the period – total
Option 1	$251.1	51
Option 2	$240.5	49
Option 3	$249.7	51

Trade Union Support

Timeline of Key Events

- 2018: National Dust Disease Taskforce formed
- 2020–21: National review of engineered stone
- 2023: Governments agree to ban
- 2024: Engineered stone ban implementation date



The Engineered Stone Ban

- Ban on manufacture, supply, processing, installation
- Effective 1 July 2024
- Scope: high-silica engineered stone products
- Purpose: eliminate high-risk exposure

Silica isn't just in Engineered Stone


The future burden of lung cancer and silicosis from occupational silica exposure in Australia: A preliminary analysis

Report commissioned by the Australian Council of Trade Unions (ACTU)

April 2020

Curtin University

Future burden from occupational silica exposure in Australia

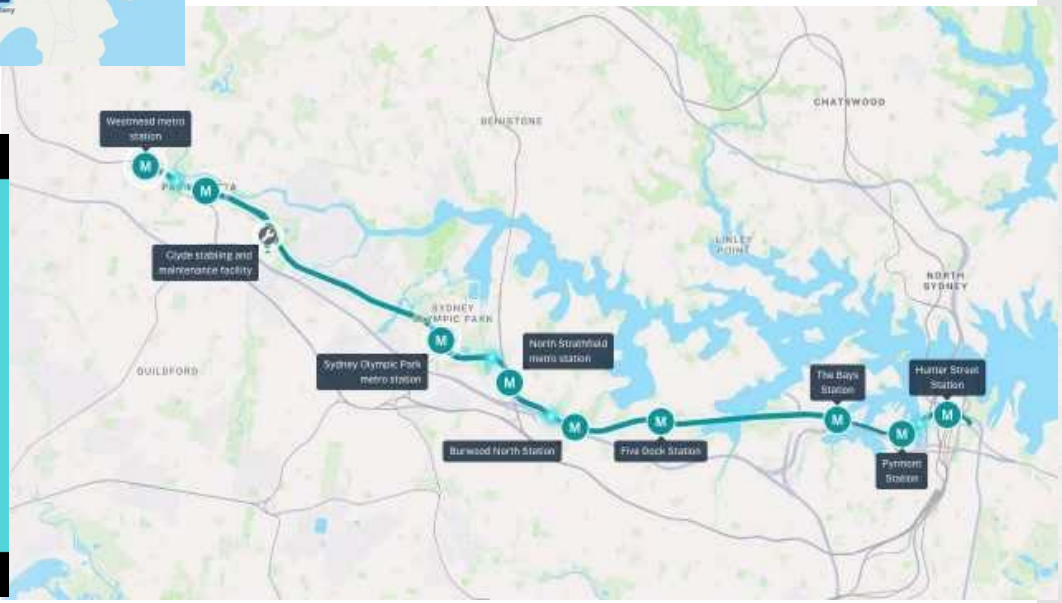
From a cohort of 18,770,982 adult Australians in 2016, it is estimated that 5.4% will develop lung cancer over their lifetime, of which 1.0% are attributable to occupational exposure to RCS.

When extrapolated to silicosis, it was estimated that between 83,090 and 103,860 cases of silicosis would result from current occupational exposure to RCS.

Tunnelling

Silicosis in Sydney Tunnelling Projects

- Thirteen workers—some as young as 32—have recently been diagnosed with silicosis after working on Sydney tunnelling projects, including the M6 Stage 1. These are not just isolated incidents; they are a warning signal.



More Research is needed

An industry first collaboration on Silica Dust control in Tunnelling

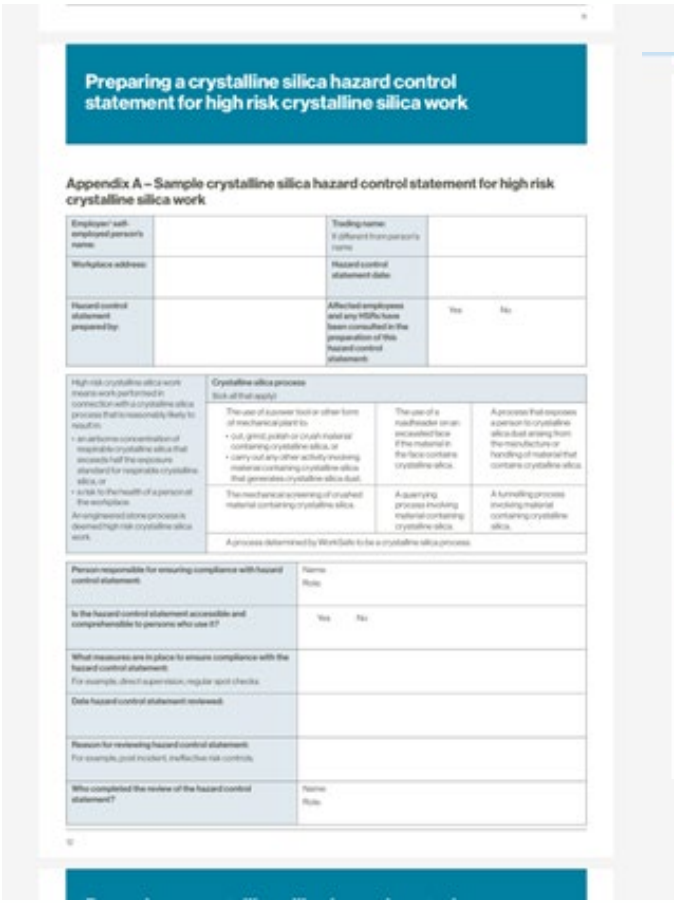
Australian Tunnelling Society Working Group

Tunnelling Dust Safety Taskforce

The path forward

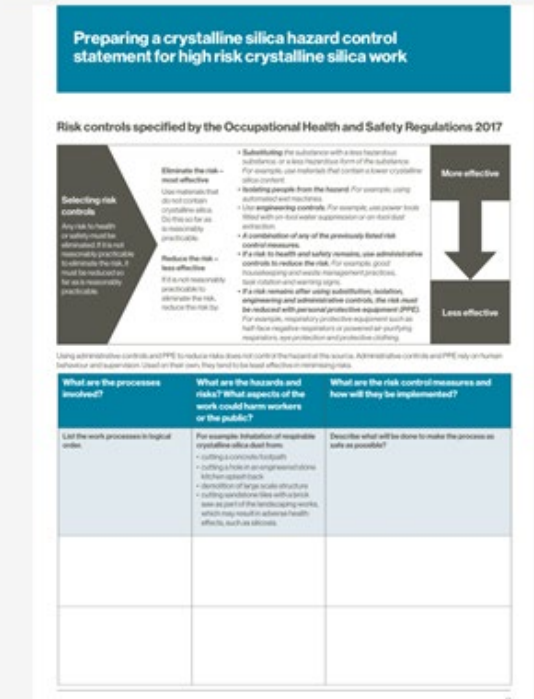
Stronger regulation for RCS

Risk Assessment



Preparing a crystalline silica hazard control statement for high risk crystalline silica work

Appendix A – Sample crystalline silica hazard control statement for high risk crystalline silica work



Preparing a crystalline silica hazard control statement for high risk crystalline silica work

Risk controls specified by the Occupational Health and Safety Regulations 2017

Selecting risk controls

More effective

Less effective

What are the processes involved?	What are the hazards and risks? What aspects of the work could harm workers or the public?	What are the risk control measures and how will they be implemented?
List the work processes in logical order.	For example: Inhalation of respirable crystalline silica dust from:	Describe what will be done to make the process as safe as possible?

Preparing a crystalline silica hazard control statement for high risk crystalline silica work

Where high risk crystalline silica work involves a quarrying or tunnelling process (tick all that have been undertaken)

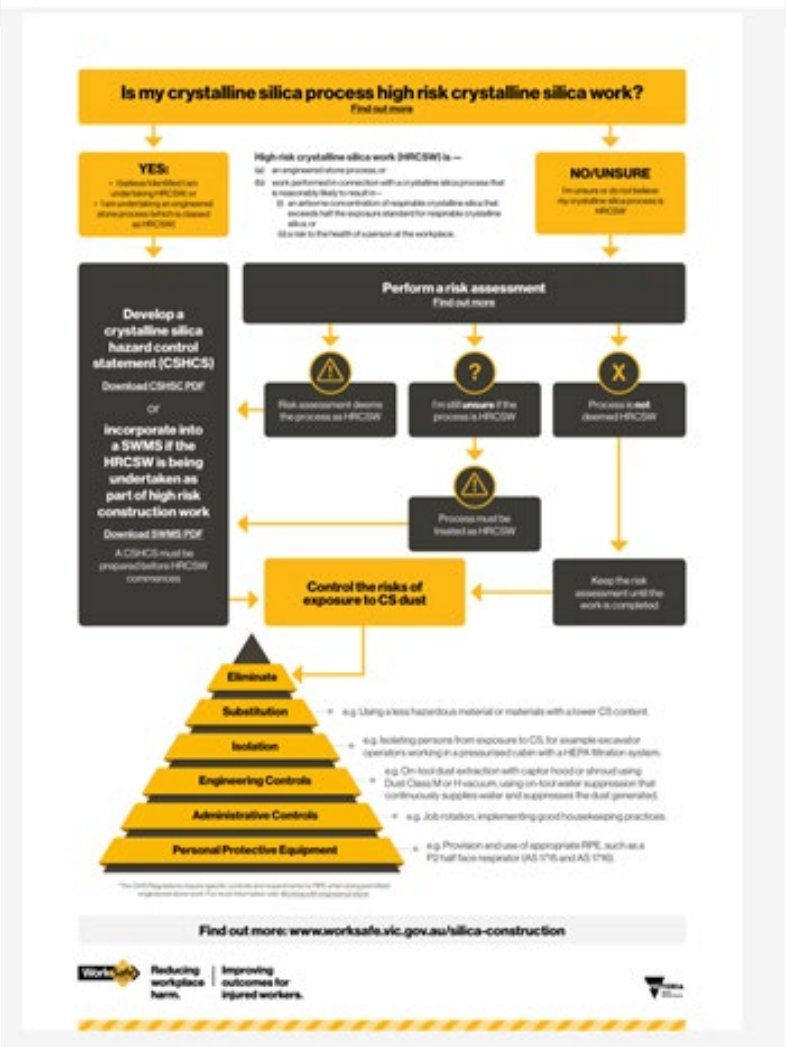
Samples of materials to be used in the quarrying or tunnelling process have been collected.

Analysis of the sample has been arranged by suitably competent person to identify the proportion of crystalline silica contained in each sample.

Results of any analysis for quarrying or tunnelling process have been received and are attached to this hazard control statement.

Additional comments

Resources & flow charts



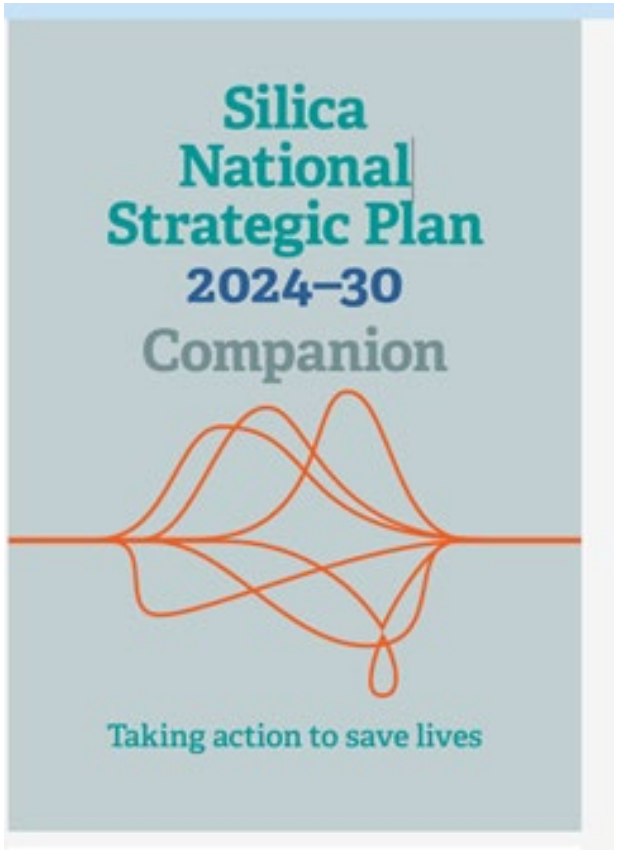
Training materials

English
Chinese
Vietnamese
Italian
Korean

Regulatory notifications

NSW GOVERNMENT | SafeWork NSW

	2025						
	Qtr1			Qtr2			
Industry	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**2025 Total**
Tunnelling	**9**	**9**	**9**	**8**	**17**	**8**	**60**
Construction	9	9	9	8	17	8	60
Other Services	-	-	-	-	-	-	-
Non-Tunnelling	**6**	**7**	**10**	**5**	**8**	**12**	**48**
Construction	5	4	6	5	4	8	32
Electricity, Gas, Water and Waste Services	-	1	1	-	1	-	3
Manufacturing	-	1	-	-	2	2	5
Other Services	1	1	2	-	-	1	5
Agriculture, Forestry and Fishing	-	-	1	-	-	-	1
Public Administration and Safety	-	-	-	-	1	-	1
Transport, Postal and Warehousing	-	-	-	-	-	1	1
Grand Total	**15**	**16**	**19**	**13**	**25**	**20**	**108**



Priority 1 – Workplace risk reduction

Priority 2 – Educations and awareness

Priority 3 – Health Monitoring, Screening and Surveillance

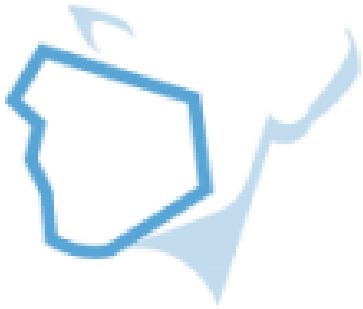
Priority 4: Research and development

ADDRI Asbestos and Dust Diseases Research Institute

- silicosis.org.au
- Independent, up-to-date information on silica exposure and health
- Resources tailored to workers, employers, GPs, and allied health professionals
- Support pathways for those diagnosed or concerned
- Updates on emerging research, policy reforms, and screening programs

AIOH

Welcome to the AIOH Silica Hub. Here you'll find resources to help you manage the risks associated with respirable crystalline silica. By consolidating research, guidelines, and best practices, the Silica Hub supports the prevention of silica-related diseases and promotes safer working environments.



RESP-FIT

RESPIRATOR FIT TESTING
TRAINING & ACCREDITATION

AN AIOH
PROGRAM

- Early detection + bold action matters
- Elimination is the most effective control
- Coordination is essential
- Worker engagement drives sustainable change

Call to Action

- Support effective control implementation
- Advocate for vulnerable workers
- Share lessons internationally

Thank You!

Forensic Analytical Consulting Services, Inc.

Right People.

Right Perspective.

Right Now.