



AIOH

AUSTRALIAN[®]
INSTITUTE OF
OCCUPATIONAL
HYGIENISTS

THE IMPORTANCE OF EARLY OCCUPATIONAL HYGIENE INTERVENTION

THE SILICOSIS STORY

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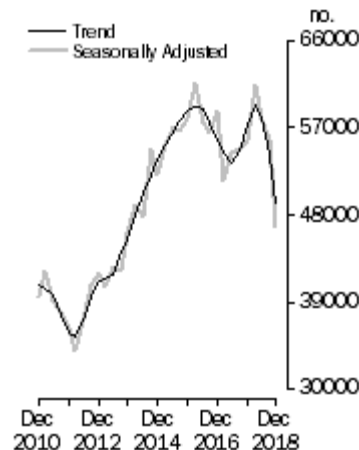
Welcome



Background

- Over the last 10 years the building industry has experienced massive growth
 - 2008 - 137 359 dwellings
 - 2018 - 215 894 dwellings (Australian Bureau of statistics, number of dwellings constructed per year)
- Residential and commercial

Dwelling units commenced



- Rise in popularity of engineered stone

What is engineered stone?

- **Natural stone**

- blocks of stone are cut from a mountain or quarry, those blocks are cut into slabs, and sold as they are.



- **Engineered stone**

- natural materials are put through a manufacturing process that improves durability and consistency of the slab.



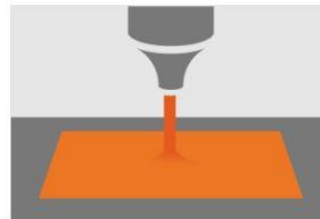
How is engineered stone made?

- 93% Quartz + Pigments and Polymer resins



Feeding & Mixing

Raw materials are inspected, then fed into mixers and blended together.



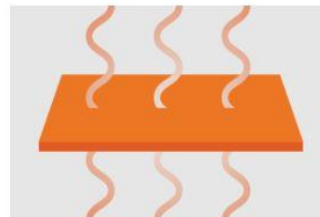
Molding

The mixture is then poured into a mold and formed into slab sizes of 3,050 x 1,440 mm.



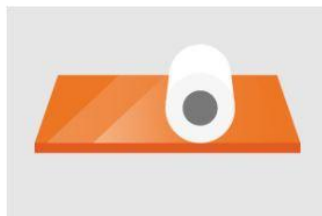
Pressing

The slab is then compacted by a special vacuum and vibration process at a pressure of 100 tonnes.



Curing

The slabs are moved to the curing kiln and heated to 90°C for 45 minutes which gives them the ultimate strength and solidity.



Polishing

Slabs are then gauged, calibrated and polished to a perfect finish in a wide range of colours and designs.



Quality Assurance

Finally, the slabs pass through quality inspection to ensure our customers receive a top quality product.

- Formed into standardised slabs which are cut in workshops to size
- The resultant slabs contain >90% silica (marble 3% silica, granite 30% silica)

Benchtop manufacture- the issues

- Workers required to:
 - cut
 - grind
 - polish
 - Joinery
 - Bevelled edges
- Power tools including
 - grinder with a stone cutting wheel
 - bridge saws
 - sophisticated computer numerical control routers (CNC routers)
 - water jet cutters
- Sink, stove or tap holes may either be cut at the factory, or onsite during installation.



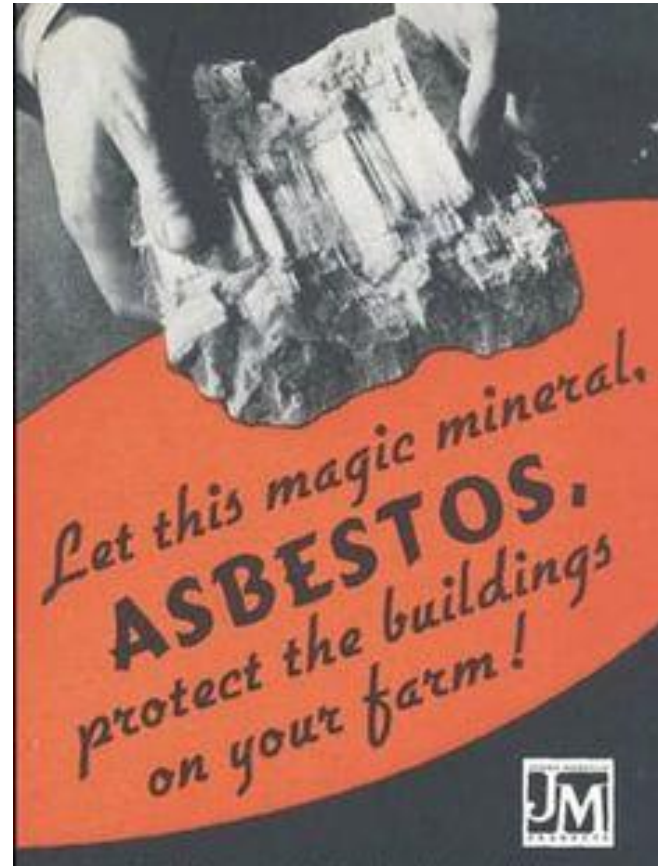
Why Quartz

- Quartz is **beautiful** and it is also one of nature's **hardest** minerals
- **Durable**
 - Quartz is more durable than most stone, marble and granite. It is impervious to stains, scratches and cracks, and is highly heat and cold resistant.
- **Scratch & stain resistant**
 - extremely hard-wearing and will withstand virtually all the challenges of everyday life.
- **Easy care and maintenance**
 - surfaces don't need sealing, treating, polishing or any other form of maintenance, except a simple wipe clean with regular detergent and water.
- **Easy to install**
 - quartz surfaces are highly adaptable and can be cut to fit nearly any space.
- **<https://www.caesarstone.com.au/about-us/why-caesarstone%C2%AE>

Sounding familiar?



Resistant to heat, water, wear and weather...



Asbestos, the magic mineral of the middle ages...fireproof, rot proof and practically indestructible!



- Strong
- Fire resistant
- Insulating
- Non conducting
- Mould resistant

What happens next?



Emergence of Accelerated Silicosis

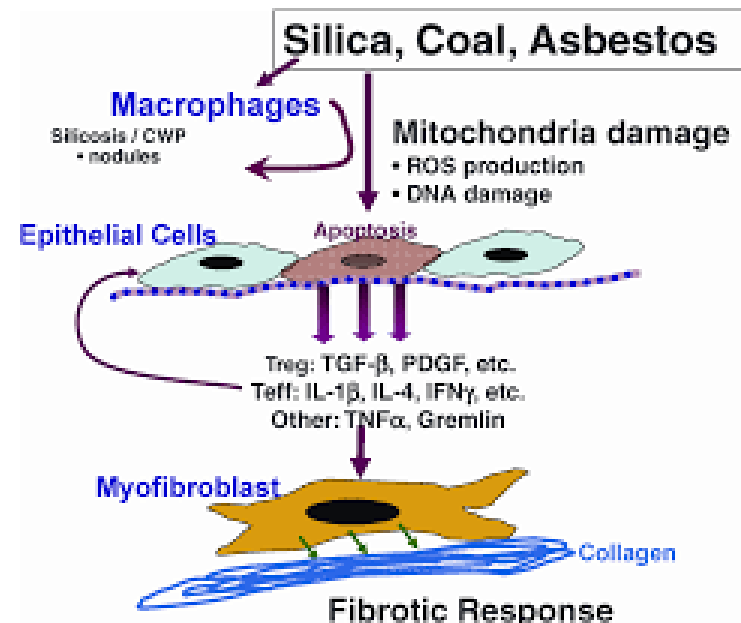
- *24th August 2018*
 - Manufactured stone benchtop company in Queensland sends 5 workers for silica health monitoring
 - 4 of 5 are diagnosed with ILO Chest X-ray confirmed silicosis
- *5th September 2018*
 - Worksafe Queensland mandate health monitoring of 35 employees from 2 workplaces
 - 12 workers diagnosed with silicosis according to ILO Chest X-ray
 - Additional 7 with progressive massive fibrosis via HRCT chest

Emergence of Accelerated Silicosis cont...

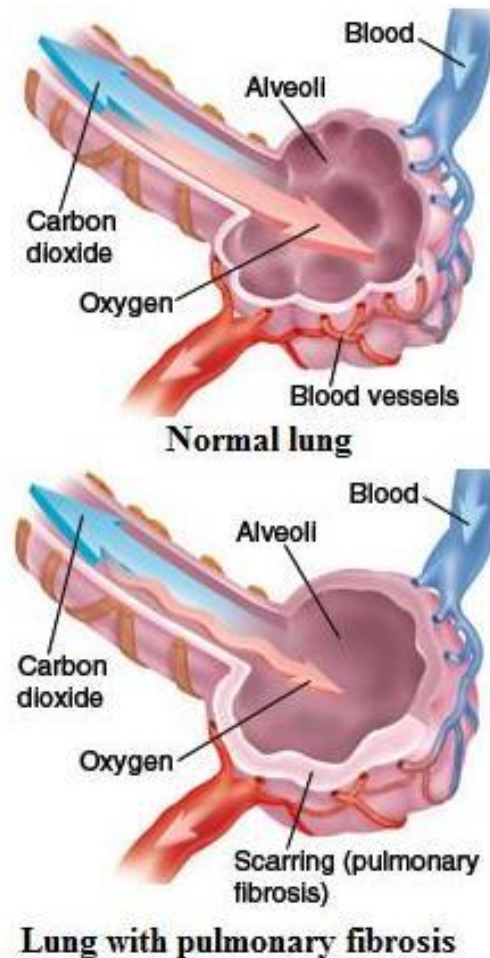
- *21st February 2019*
 - Report on 799 Queensland artificial stone masons who had undergone health monitoring
 - 98 confirmed with silicosis of whom 15 have massive progressive fibrosis (end stage disease)
 - Youngest was 23 and worked in the industry for 6 years
- *9th March 2019*
 - First artificial stone mason died of massive progressive fibrosis...he was **36 years old**
 - **Numbers now increased to 106 with silicosis and 16 with PMF (terminal phase of disease)**

Silicosis Pathophysiology

- Silicosis is a progressive, irreversible and incurable fibrotic lung disease



Fibrosis

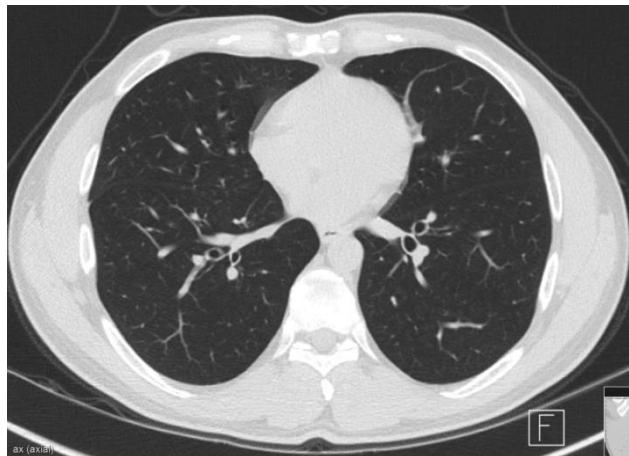


Types of silicosis

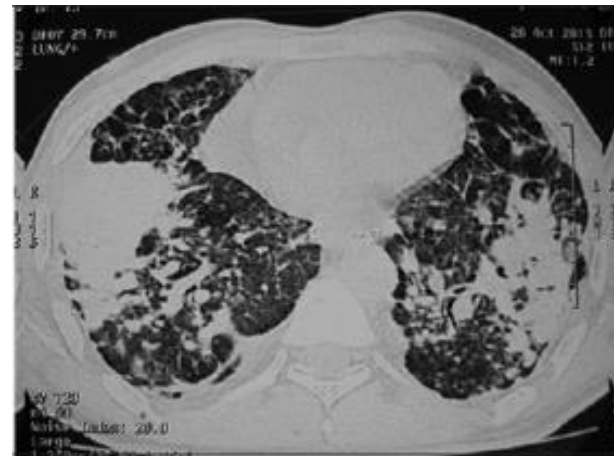
- *Chronic (nodular) Silicosis*
 - traditionally well known
 - Exposures over 10 years or more and often 20-30 years
- *Accelerated Silicosis*
 - Exposures over 1-10 years, but usually 3-10 years
- *Acute silicosis*
 - Exposure for less than 1 year

Progressive massive fibrosis

- Terminal phase of the disease
- Incurable
- Requiring lung transplant



Normal HRCT



Progressive Massive
Fibrosis

So why were we so surprised?



Key issues

- We didn't know!!
- SME and family operated businesses
 - Largely unknown and unregulated
 - High migrant and ESL workforce
- No coordinated approach
- No dust disease register/ data collection to monitor trends

Initial response by Australian Government

- *Lower the Workplace Exposure Standard (WES)*
 - COAG Health Ministers noted that the Australian Standard for crystalline silica was set decades ago and ... an increase in silicosis diagnoses resulting from the use of fabricated stone bench tops.
 - The Commonwealth write to Safework Australia to request further examination and the updating of the Australian Standard for crystalline silica and the trading of imported stone products.
 - *March 2019 Safe work Australia released a draft proposed WES of $0.02\text{mg}/\text{m}^3$ for respirable crystalline silica, for comment*

Initial response by Australian Government

- *Establish a national register of disease*
 - Ministers requested that the Clinical Principal Committee examine the creation of a national register of dust disease.
 - In progress
- Over a four-month period, workshops known to fabricate engineered stone benchtops were given **552 breach notices** for inappropriate workplace cleaning practices, dry-cutting of engineered stone, and inadequate protective equipment.

Response of Medical Agencies

- National Dust Disease Register
- Government funded health assessments
- Accredited doctors to perform standardised medical assessments
- Diagnosis
 - CXR –v- HRCT
 - Early diagnostic tools
- Focus on research for treatment to halt progress of disease in early stages

However....

...None of these address prevention!!



The only way to prevent further cases of accelerated silicosis is to control exposures!

We know that!!....but how do we change their mind set...



AIOH Advocacy

- *Call for preventative strategies in the national response:*
 - Prime minister and leaders of other major political parties
 - Minister for Health/shadow minister
 - Minister for jobs and small business/shadow minister
 - Minister for Industrial relations
 - Safe Work Australia



Meetings

- Senator Di Natale- senate motion
- Jobs/health/SWA- in principle agreement to support
- QLD DMNRE/Workcover/worksafe- two occupational hygienists involved in taskforce
 - Developed from a project to establish health assessment protocols to a project to develop code of practice for engineered stone industry

Key messages throughout

- Prevention
- Control
- Education



Going in with a solution!!



BREATHE FREELY AUSTRALIA

Controlling exposures to prevent
occupational lung disease in the
construction industry

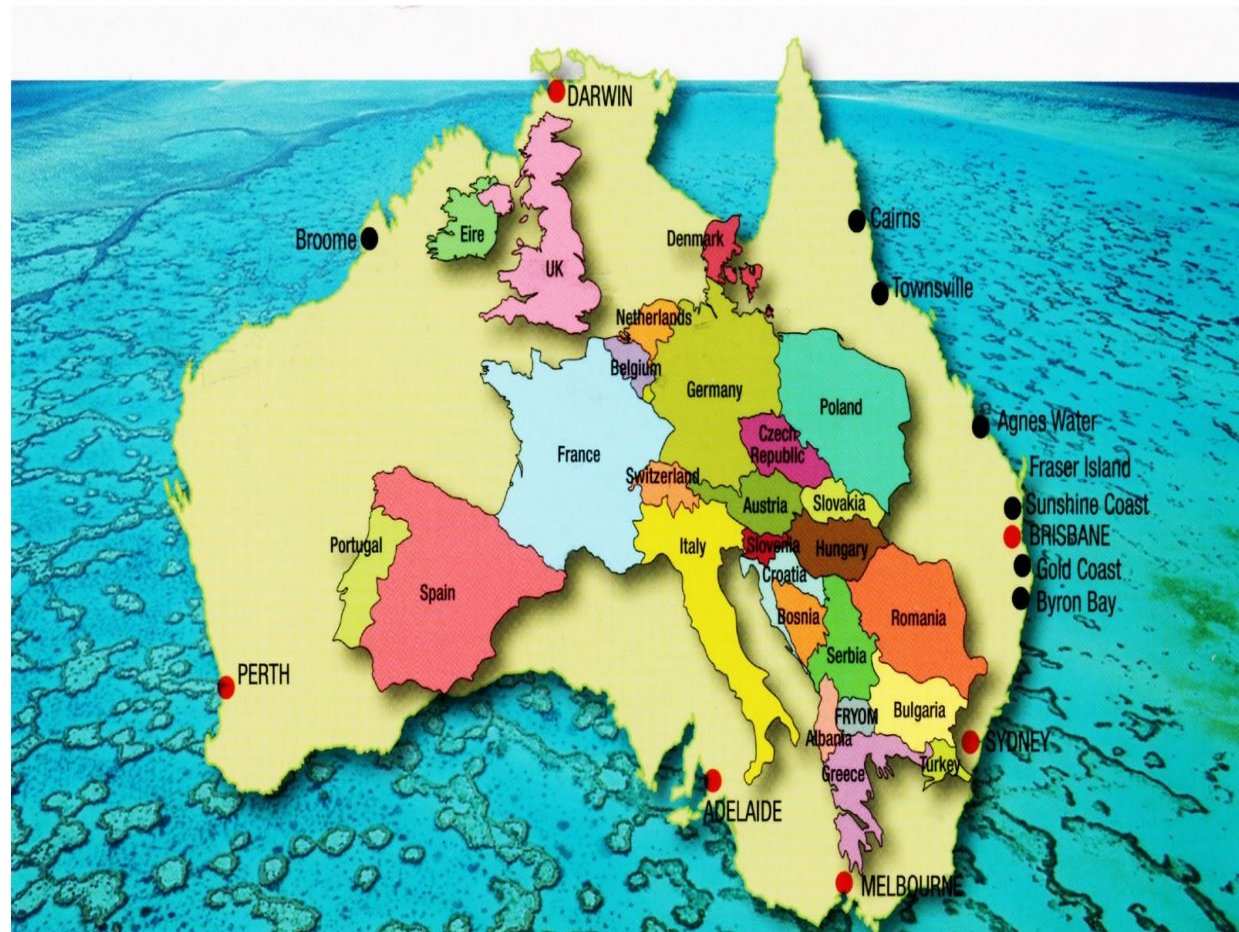
Do you breathe
freely?



Still work to do

- Engagement
 - Legislator engagement (State Based)
 - Industry engagement
 - Employee groups/unions
- Steering group with key stakeholder engagement for each theme including silica, construction and mining

Logistics

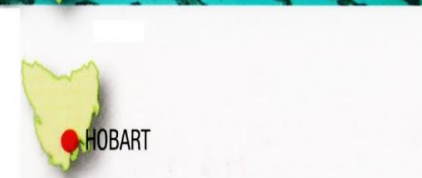


Australia and Europe area comparison

Australia's area: 7.7 million sq km

Europe's area (shown): 3.5 million sq km

Darwin to Perth 4396 km • Perth to Adelaide 2707 km • Adelaide to Melbourne 726 km
Melbourne to Sydney 887 km • Sydney to Brisbane 972 km • Brisbane to Cairns 1748 km



Complications



...but we have come a long way!

- Prevention and control is now firmly on the agenda
- People are inviting us to collaborate
 - Joint statements
 - RACP/AFOEM
 - TSANZ
 - Lung foundation
 - Cancer council
 - ANZSOM
- AIOH invited to engage in policy and guideline development
 - Code of practice for “Managing respirable crystalline silica dust exposure in the stone benchtop industry” QLD



Key messages

- Never forget that our role is to advocate for worker health so knock on doors
- Remember the value of collaboration
- Create opportunities for advocacy, if issues are there, raise them!!
- Keep the spotlight on prevention
 - **Its what we do!!**

Thank you and good luck

