Submission No 8

INQUIRY INTO 2021 REVIEW OF THE DUST DISEASES SCHEME

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Submission for the
2021 Review of the Dust Diseases scheme

11 December 2021

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Opening statement

The review of the to be welcomed. The cases of accelerated silicosis in stone-masons working with engineered stone have been described by Professor Brendan Murphy as an epidemic. It is difficult to disagree with this statement. In 40 years of practice as an occupational hygienist, working in hazardous industries, I have never witnessed such a terrible condition, yet which was completely preventable.

By way of background, I provided evidence to the 2019 NSW review. Since then, I have submitted evidence to the National Dust Disease Taskforce on behalf of the AIOH and currently represent the AIOH on the National Occupational Respiratory Disease Registry Advisory Board.

I have also acted as an expert witness and provided evidence on several cases regarding compensation for the victims. This has given me some powerful insights into the state of their health and wretched conditions that they find themselves in.

Most recently, I provided expert evidence on a very recent prosecution of a Tasmanian stone company, under the WHS Act. This was successful and it is to be hoped that other jurisdictions, including New South Wales, will follow their lead.

I note that this year's review will provide the opportunity to evaluate the progress of the recommendations made in the 2019 review on the management of silicosis in the manufactured stone industry. In this regard, it will be useful to consider other information that has come to light since then.

Page references refer to the report of the *2019 Review of the Dust Diseases Scheme, Silicosis in the manufactured stone industry*.

Anthony Martin Jennings,
11 December 2021

Consolidated recommendations

The author has included the following recommendations for consideration:

> Recommendation 1: that for the most egregious employer offenders, SafeWork NSW should now consider prosecution, under the WHS Act (page 7);
>
> Recommendation 2: That auto-immune conditions, should be considered for inclusion in the list of NSW deemed diseases (page 12);
>
> Recommendation 3: That a short term exposure standard and other supporting documentation be developed, to be used in conjunction with the real time RCS monitor (page 14);
>
> Recommendation 4: It is recommended that WorkSafe NSW consider rigorous enforcement of WHS Act duties on manufacturers, on importers and on suppliers (page 19).
>
> Recommendation 5: that the NSW Government recommend that the Commonwealth Industrial Chemicals (General) Rules 2019, is amended to extend to substances such as engineered stone (page 18);
>
> Recommendation 6: That the NSW government consider accrediting a product stewardship scheme for manufacturers of engineered stone. (page 16);

THE MANUFACTURED STONE INDUSTRY (PAGE 16)

Observations on the nature of the manufactured stone industry

Recommendation 9:

> *That the NSW Government immediately introduce an explicit ban on dry cutting.*

Typically, manufactured stone fabricators are small to medium enterprises (SMEs). As stated by Andrew Orfanos (2019), the "biggest concern is not the worker that is working for a big company—they have the resources, the money, the extraction systems—I am worried about the smaller micro businesses, the father and son businesses that are subcontracting to a principal and they have to get in[1]".

Based upon my personal experience in this industry, stone masons are subject to social and economic constraints that contribute to the problem of silicosis among the workforce. These include:

- Lack of awareness – when engineered stone was first introduced into Australia, stone masons assumed that it was no different to other natural stone products, such as marble or granite, and handled it accordingly;
- Lack of information – manufacturers and suppliers did not inform fabricators about the nature of the hazard, despite evidence that they were fully aware of the risks; nor did they provide adequate information on the necessary precautions for handling it;
- The competitive nature of the industry – it is a source of frustration to good companies trying to comply with legislation, that they are undercut by competitors that seek a commercial advantage by cutting corners;
- Stone masons avoiding health surveillance – there is some evidence that stone masons avoid health surveillance, as diagnosis may indicate that they are no longer fit for work;
- The lack of preparedness in the industry – the 'newness' of accelerated silicosis in engineered stone workers caught many by surprise, including experts. This contrasts with silicosis in mature industries such as mining or tunneling.
- Lack of resources – Unlike major projects or enterprises, SMEs do not have access to professionals such as occupational hygienists.

Just recently, WorkSafe Tasmania successfully prosecuted stone masonry company, under the WHS Act, after 4 employees were diagnosed with silicosis. This is an extremely rare type of prosecution[2]. WorkSafe alleged the business failed to take measures to minimise the workers' exposure to RCS by:

[1] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, para. 6.87
https://www.parliament.nsw.gov.au/lcdocs/inquiries/2538/Report%2073%20–%20%202019%20Review%20of%20the%20Dust%20Diseases%20Scheme%20–%2024%20March%202020.pdf

[2] ABC News, In Tasmania's first, stonemasonry pleads guilty after workers exposed to risk of silicosis, Wed 17 Nov 2021, https://www.abc.net.au/news/2021-11-16/workers-in-tasmania-exposed-to-risk-of-silicosis/100625756

- failing to isolate worksites with temporary screens
- failing to display signs alerting of the risk of RCS exposure
- failing to provide an isolated areas for fabricating benchtops using stone, including by installing a dedicated dry isolation extraction booth that would reduce or eliminate airborne contaminants, including RCS
- failing to prevent the use of vacuum cleaners, high-pressure air and brooms to dust off floors, work clothes, tools and off-cuts from benches
- failing to adopt wet processes and wet hand tools instead of dry processes, including dry-cutting and grinding methods
- failing to ensure use of P3-rated masks at all times when producing stone products
- failing to conduct health monitoring to ensure workers weren't exposed to risk of inhaling RCS
- failing to monitor the health of workers when it was possible to carrying out dust monitoring for air contaminants, especially RCS

A particular misconception in SMEs, is that respirators will provide adequate protection. Moreover, it is believed RPE need only be worn for the duration of a dusty task, such as grinding, cutting or polishing, when airborne dust is visible. However, it is not generally appreciated that respirable sized particles will remain airborne for many hours after being generated, as shown in Figure 1 below. This indicates that if dust is being generated, say on a Monday afternoon in a workshop, the workshop atmosphere could still be contaminated on the Wednesday. In practice, it is likely to be the case that due to the continual pace of work, the level of dust in a workshop atmosphere will accumulate over time. It is completely unrealistic to expect workers (or even visitors) to wear respirators for the entire duration of the day. This indicates the importance of capturing or suppressing dust at source, to prevent release into the workshop atmosphere.

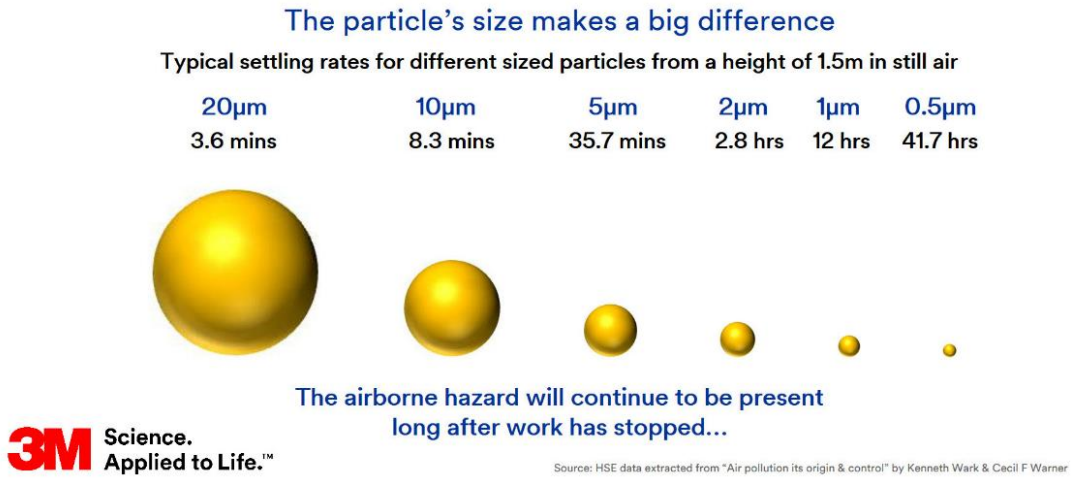

Figure 1

The chart below shows the concentration of dust being generated in a dry cutting operation. During the process, a real time respirable dust monitor was placed on the bench close to the grinding work.

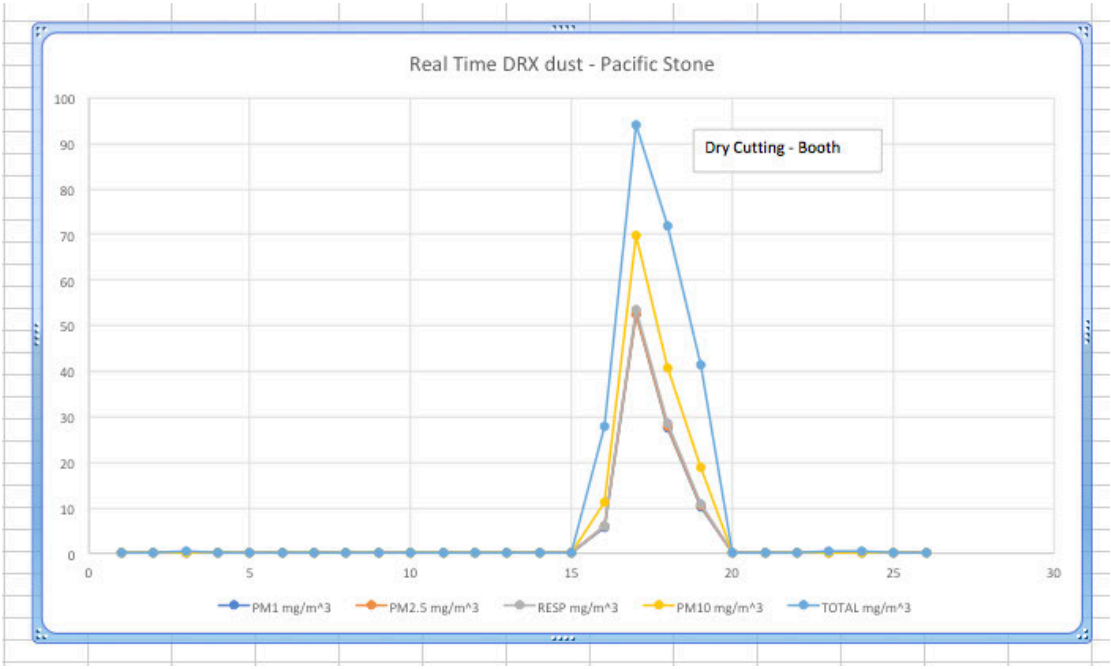

Figure 2

Airborne dust concentration inside the dry booth

Despite the booth being under extract ventilation, the peak total airborne dust concentration was measured at approximately 93.9 mg/m^3; the respirable fraction was measured at 53.6 mg/m^3. Although the mason was wearing a powered air purifying respirator (PAPR) with a nominal protection factor of 100+, he would still have been exposed to a respirable dust concentration of 0.536 mg/m^3. Assuming the engineered stone has a crystalline silica content of 90%, this means the airborne concentration of RCS would be 0.536 x 0.9 = 0.4824 mg/m^3. This exceeds the current exposure standard of 0.05 mg/m^3. So, the despite the combined controls, the mason is still exposed at a level nearly x10 the exposure standard.

The above data emphasizes the absolute necessity of implementation of Recommendation 9:

> *That the NSW Government immediately introduce an explicit ban on dry cutting.*

Based on the above, there is a strong case for educating stone companies about the limitations of respiratory protective equipment (RPE). RPE should only be used in conjunction with dust suppression (wetting) and dust collection (local exhaust

ventilation). The recent Crystalline silica technical fact sheet (SafeWork NSW)[3] is an excellent publication. This needs to be enforced by the NSW WHS regulator.

Recommendation 1: that for the most egregious employer offenders, SafeWork NSW should now consider prosecution, under the WHS Act.

MEDICAL SCREENING, ASSESSMENT AND SUPPORT (PAGE 31)

Secondary or Bystander exposure (page 21)

Recommendation 8

> *"That the NSW Government introduce a legislative amendment to ensure all manufactured stone fabrication sites and employers are registered with SafeWork NSW and will maintain such registration every 12 months, and are conducting regular air monitoring and regularly providing the results to SafeWork NSW ".*

Recommendation 12:

> *"That the NSW Government immediately establish the Silicosis Health Register and ensure that it captures not only diagnosed cases of silica-related disease but also screening results and investigative reports undertaken for workers exposed to crystalline silica".*

The 2019 review discussed the potential for secondary or "bystander exposure[4]" raised by Dr Susan Miles. This needs further consideration. In February 2021, the Sydney Morning Herald reported on the tragic case of a 34-year-old mother of two, who was diagnosed with silicosis last year after returning from maternity leave. She was not a process worker. She worked in an administration role at a quarry and was exposed to dust with her office close to the main blast site[5].

The reason for this can be seen in the chart below. This shows real time monitoring of the airborne dust concentration, during a visit to a Canberra engineered stone factory in March 2021. This shows how the airborne concentration of respirable dust continually exceeds the exposure standard within all areas of the workshop, including the stores, shown as the blue line. It only dropped below the exposure standard of 0.05 mg/m^3, when the monitor was taken outside the factory.

[3] SafeWork NSW, Crystalline silica technical fact sheet, https://www.safework.nsw.gov.au/__data/assets/pdf_file/0006/319344/Crystalline-silica-technical-fact-sheet-SW08705.pdf

[4] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, para. 2.40 – 2.43.

[5] 'The unknown is terrifying': Young mum's deadly lung disease the tip of the iceberg, Rob Harris, Sydney Morning Herald, 8 February 2021, https://www.smh.com.au/politics/federal/scandalous-union-pushes-government-to-broaden-silicosis-protections-20210208-p570kq.html

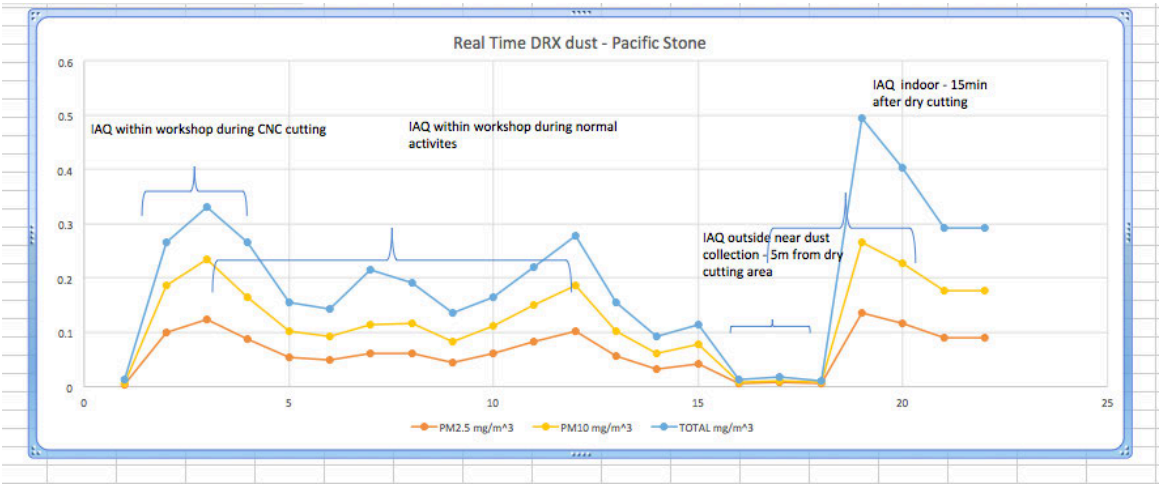

Figure 3

Based upon this, there are some grounds for reconsidering a definition of what constitutes 'exposure' or an 'exposed' worker. To some extent, this question will possibly be resolved by bystander cases being reported to the proposed National Occupational Respiratory Disease Registry; however, it is far more likely that such cases will be overlooked.

In the 2019 Review, Recommendation 12 was to the effect,

> *"That the NSW Government immediately establish the Silicosis Health Register and ensure that it captures not only diagnosed cases of silica-related disease but also screening results and investigative reports undertaken for workers exposed to crystalline silica".*

This recommendation would now seem to have been made redundant by the proposed National Registry. The need for a National Registry is supported and, there has been significant progress since the 2019 review. However, because it relies on correct diagnosis and subsequent reporting of sick workers, it is an 'after the event' system. With highly mobile workforces and the number of workplaces where a worker may be employed, especially if a sub-contractor, it may be difficult to establish an exact cause and effect relationship of a worker's disease. The difficulty increases with the period of time between exposure and onset of symptoms.

This highlights the importance of State governments capturing contemporaneous data to compliment the Registry. The State and Territory WHS Regulators are already well placed to collate information based upon enforcement actions. This is facilitated by the Model WHS legislation and having a nationally endorsed National Compliance and Enforcement Policy[6].

It is noted that in Recommendation 8,

> "*That the NSW Government introduce a legislative amendment to ensure all manufactured stone fabrication sites and employers are registered with SafeWork NSW and will maintain such registration every 12 months, and are*

[6] Safework Australia, (2011), National Compliance and Enforcement Policy, https://www.safeworkaustralia.gov.au/resources-and-publications/legislation/national-compliance-and-enforcement-policy

conducting regular air monitoring and regularly providing the results to SafeWork NSW[7]".

It is strongly recommended that the results of all such monitoring are compiled into a exposure monitoring database. This will assist greatly in the formulation of policy and research into epidemiology, and effectiveness of controls. As such, it will greatly enhance the value of the National Occupational Respiratory Disease Registry, especially if the database adopts identical codification of data fields.

RECENT DEVELOPMENTS (PAGE 6)

Non-respirable dust disease and non-silicotic conditions

It is noted that the only silica related diseases covered by iCare are silicosis and silico-tuberculosis[8], as scheduled under the Workers' Compensation (Dust Diseases) Act 1942 No 14. However, there are other diseases caused by inhalation of crystalline silica and these include[9]:

- Chronic obstructive lung disease
- Cancer
- Heart effects
- Other health effects

Crystalline silica has been linked with cases of autoimmune diseases such as scleroderma, systemic lupus erythematosus (lupus) and rheumatoid arthritis. Chronic renal disease, possibly due to immunological abnormalities, has also been linked with silica dust exposure.

The last group of conditions are particularly brought to the attention of the NSW Dust Diseases Review. As noted above, these are not covered by icare. Moreover, the National Occupational Respiratory Disease Registry (National Registry) as proposed in the Final Report of the National Dust Disease Taskforce report, will not monitor non-respiratory silica related diseases. This creates the risk that heart disease and auto-immune diseases may not be recognized by the authorities.

Unlike silicosis the current state of the law, in terms of statutory Workers Compensation schemes, across various Australian jurisdictions fails to acknowledge

[7] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, para. 6.87 https://www.parliament.nsw.gov.au/lcdocs/inquiries/2538/Report%2073%20–%20%202019%20Review%20of%20the%20Dust%20Diseases%20Scheme%20–%2024%20March%202020.pdf

[8] Icare, Who we care for, https://www.icare.nsw.gov.au/injured-or-ill-people/work-related-dust-disease/who-we-care-for#gref

[9] South Africa National Centre for Occupational Health (NCOH)/SORDSA, Crystalline Silica: Health Hazards and Precautions, February 1999, cited by National Occupational Health and Safety Commission Regulation Impact Statement on the Proposed Amendments to the National Exposure Standards for Crystalline Silica October 2004

autoimmune conditions such as rheumatoid arthritis and scleroderma as proclaimed diseases/injuries under the relevant Workers Compensation Act. That is failure to deem the disease as one being due to the nature of employment at such place or in such occupation where silica dust exposure has been of prevalence[10].

In December 2018, the AIOH published a position paper on RCS and occupational health issues[11]. The paper noted that RCS exposure may be a significant risk factor for developing systemic sclerosis, particularly in males. The report also cited a meta-analysis which found a significant increased overall risk of scleroderma after exposure to RCS, and concluded that RCS was a likely substance related to the pathogenesis of systemic sclerosis.

In 2015, Safework Australia conducted a review of deemed diseases[12]; NSW has a Deemed Diseases List as part of their workers' compensation system[13]. Scleroderma (progressive systemic sclerosis) is a rare autoimmune disease involving the connective tissue. The review noted that a variety of occupational exposures have been linked to scleroderma, with the evidence strongest, but not definite, for silica. Since the disease is rare and the evidence about occupational causation not strong, it was recommended that scleroderma not be included on the List. The basis for this recommendation was that scleroderma did not meet the following criteria:

1) There is strong evidence of causal link between the occupational exposure and the disease;

3) The disease comprises a considerable proportion of the cases of that disease in the overall population or in an identifiable subset of the population.

In 2020, a study was conducted to determine the frequency of self-reported occupational exposure to silica in Systemic Sclerosis (SSc) patients enrolled in the Australian Scleroderma Cohort Study, and to compare the disease characteristics of the silica-exposed patients with those of the non-exposed patients. Data collected over a 12-year period from 1670 SSc patients were analysed. Overall, 126 (7.5%) of the cohort reported occupational silica exposure. The authors found that these individuals were more likely to be male (73 of 231, i.e. 31.6% males exposed) and to have worked in mining and construction industries. The authors concluded that these findings supported the association between occupational silica exposure and the subsequent development of SSc[14].

[10] The Department of Health, National Dust Disease Taskforce, Targeted Consultations – Submissions Received, Shine Lawyers Submission in Response to the National Dust Disease Task Force Consultation Document, https://www1.health.gov.au/internet/main/publishing.nsf/Content/F0BF9E6F8C144842CA258705007AA0D2/$File/Shine-Lawyers.PDF

[11] AIOH, Respirable Crystalline Silica and Occupational Health Issues, Position Paper, Approved by Council: December 2018, page 13, Prepared by: AIOH Exposure Standards Committee.

[12] Safework Australia, Deemed Diseases in Australia, August 2015, Prepared for Safe Work Australia by Professor Tim Driscoll https://www.safeworkaustralia.gov.au/system/files/documents/1702/deemed-diseases.pdf

[13] State Insurance Regulatory Agency, Eligibility/Compensable Injuries, GN2.2A Disease Injury, https://www.sira.nsw.gov.au/workers-compensation-claims-guide/insurer-guidance/eligibility-compensable-injuries/disease-injury

[14] Patel, S., et. al. (2020), Occupational silica exposure in an Australian systemic sclerosis cohort, Rheumatology, Volume 59, Issue 12, December 2020, Pages 3900–3905, https://academic.oup.com/rheumatology/article-abstract/59/12/3900/5903867?redirectedFrom=fulltext

The above study by Patel was so significant that it was the subject of an Editorial in the journal Rheumatology (2020)[15]. It was noted that this study is among the largest nationwide original studies ever conducted on this issue of silica-associated SSc, and the prevalence of this exposure, particularly in men, is much higher than in the background Australian working population in the total working population. It was stated that if almost one-third of men with SSc self-declare an occupational exposure to crystalline silica, this can no longer be ignored. This result is even more striking when one remembers that almost 70% of the patients suffering from this disease are women. The author's concluding remarks were that, "Patel et al.'s study reminds the rheumatology community that the association of SSc with silica exposure in general does not belong to the past, and still deserves our attention, particularly in men."

In more recent years, a number of cases have been reported in the Australian media. In 2013, the Northern Territory News described the case of a 65 year old plasterer, who had developed scleroderma and silicosis, caused by breathing the silica dust present in some plasters. The story included his comments that, ""There were no warnings on the bags of plaster back then," he said. "Now there's warnings that it causes scleroderma[16]."

In 2020, both the Melbourne Herald Sun and the Sunday Telegraph[17] reported on the case of a Mr Bradley Konndouras, who developed scleroderma from working in a silica company[18]. His silica exposure occurred while working in the Unimin factories in Lang Lang and Dandenong. " The report stated that, "So debilitating is the disease that, at only 40 years old, he was forced to give up work last year. Struggling to breathe and with his skin constantly tightening —both symptoms of the rare auto-immune illness — he struggles with everyday tasks. He has had two toes amputated, lost teeth, his gums are receding, fingers are skeletal and his right hand is almost permanently closed in a fist".

Shine Lawyers dust disease litigation expert Roger Singh said while silicosis injuries were readily accepted by the WorkCover insurer for compensation, the auto-immune disease caused by the same dust was not. Mr Singh has been reported as having 11 clients with scleroderma from exposure to silica dust make successful WorkCover insurance claims across the country, (including Konndouras, declared 97% incapacitated to work, despite scleroderma not being a proclaimed disease under the Victoria Workers Compensation Act).

In March 2021, WorkSafe Victoria insurers accepted a compensation claim for an employee who was diagnosed with lupus after being exposed to toxic silica dust, also employed by Unimin, in what lawyers believed could be an Australia-first decision. Dianne Adams, 58, was one of seven people who claimed they developed

[15] Lescoat, A., et. al. (2020), The neglected association of crystalline silica exposure and systemic sclerosis, Rheumatology, 59:3587-3588. https://academic.oup.com/rheumatology/article/59/12/3587/5918123
[16] Neville's working life may be killer, Alison Bevege, The Northern Territory News; Darwin, N.T. 07 Aug 2013.
[17] Workers sue over rare disease linked to silica dust, Sunday Telegraph; Surry Hills, N.S.W. 07 June 2020.
[18] Disease leaves life in ruins, Herald Sun; Melbourne, 07 June 2020

autoimmune conditions after working at Unimin silica milling factories in Dandenong and Lang Lang[19]. Ms Adams was diagnosed with silicosis the previous year.

As part of the Victorian Government's action plan to address workplace risks relating to silica use, WorkSafe Victoria reviewed the list of proclaimed diseases for stonemasons and those working with engineered stone. Following this review, two new diseases, lung cancer with silicosis and scleroderma with silicosis, have now been proclaimed[20].

The above comments indicate that there is a range of conditions associated with exposure to RCS, other than those covered by icare. Some of these, such as silicosis have been well understood for decades, if not centuries, despite the recent epidemic of accelerated silicosis in stone masons working with engineered stone. The carcinogenic nature of RCS was recognized by IARC in 1997, when it was confirmed as a Group 1 carcinogen. There has also been a much smaller, but significant, number of cases of auto-immune diseases in this same category. This has raised awareness of a relationship, which is not well characterized, of silica and auto-immune disease. However, there is a danger that

Recommendation 2: That auto-immune conditions should be considered for inclusion in the list of NSW deemed diseases.

THE WORKPLACE EXPOSURE STANDARD AND AIR MONITORING REQUIREMENTS (PAGE 56)

The case for a revised exposure standard

Recommendation 7:

> "*That the Minister for Better Regulation ensure that steps are taken to further reduce the workplace exposure standard to a time weighted average of 0.02 mg/m^3 for non-mining industries as soon as possible, to ensure workers are protected from the harmful effect of silica dust*[21]*"*

Recommendation 10:

> "*That the NSW Government provide an appropriate level of additional annual funding to SafeWork NSW to strengthen its regulatory enforcement and monitoring of health and safety standards within the manufactured stone industry".*

Recommendation 14:

[19] Lupus linked to silica dust exposure in Australia-first workplace compensation claim, ABC Radio Melbourne, Matilda Marozzi, Posted Thu 4 Mar 2021, https://www.abc.net.au/news/2021-03-04/silica-dust-exposure-linked-to-lupus/13211638

[20] WorkSafe Victoria, New silica-related diseases now proclaimed, Updated on 17/06/2021, https://www.worksafe.vic.gov.au/new-silica-related-diseases-now-proclaimed

[21] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, Recommendation 7, https://www.parliament.nsw.gov.au/lcdocs/inquiries/2538/Report%2073%20–%20%202019%20Review%20of%20the%20Dust%20Diseases%20Scheme%20–%2024%20March%202020.pdf

> *"That the NSW Government provide additional funding to the Dust Diseases Board and Centre for Work Health and Safety specifically for research projects related to the prevention, management and treatment of silicosis, and in terms of sourcing additional funding for research projects, commission icare to scope out possible funding models that would be based on a cost recovery basis from the industry".*

It has long been argued by occupational hygienists and others, that the issue is not about reducing the exposure standard even lower, but one of the regulators failing to enforce existing standards[22].

So, it is pleasing to note recommendation 10, to the effect that,

> "*That the NSW Government provide an appropriate level of additional annual funding to SafeWork NSW to strengthen its regulatory enforcement and monitoring of health and safety standards within the manufactured stone industry".*

The 2019 review recommendation 7 was to the effect that,

> "*That the Minister for Better Regulation ensure that steps are taken to further reduce the workplace exposure standard to a time weighted average of 0.02 mg/m^3 for non-mining industries as soon as possible, to ensure workers are protected from the harmful effect of silica dust[23]".*

It is difficult to recall any inquiry, in which robust air sampling data has been submitted for consideration in this debate. Therefore, this argument is not supported by substantive evidence for or against any further reduction.
As a time weighted average, for 8 hours, this proposed standard means that a doubling of the airborne concentration requires a halving of the exposure time, to meet the 0.02 mg/m^3 standard. As the concentration rises, the time to reach the exposure time shortens accordingly, as shown in the table below:

	Respirable crystalline silica dust exposure levels (mg/m^3)									
	0.02	0.04	0.08	0.16	0.32	0.64	1.28	2.56	5.12	10.24
Time to reach ES	8 h	4 h	2 h	1 h	30 m	15 m	7.5 m	3.75 m	1.88 m	56 s

To put these figures in perspective, in 2001, the UK Health and Safety Executive (HSE)[24], indicated that dust cutting of natural stone could generate airborne dust concentrations in excess of 500 mg/m^3. It was also noted in the same report, "Recent evidence suggests that the higher the exposure to respirable crystalline silica dust the greater the risk of silicosis and that the risk rises faster the higher the

[22] Senate Community Affairs References Committee, Workplace exposure to Toxic Dust, May 2006, para 5.82. https://www.aph.gov.au/parliamentary_business/committees/senate/community_affairs/completed_inquiries/2004-07/toxic_dust/index

[23] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, Recommendation 7, https://www.parliament.nsw.gov.au/lcdocs/inquiries/2538/Report%2073%20–%20%202019%20Review%20of%20the%20Dust%20Diseases%20Scheme%20–%2024%20March%202020.pdf

[24] HSE, (2001), Controlling exposure to stonemasonry dust, Guidance for employers, HSG201, page 54. https://www.hse.gov.uk/pubns/priced/hsg201.pdf

exposure – it is multiplicative. That is, the risk of silicosis at, say, sustained exposures at 4 mg/m^3 is not simply twice that from exposures at 2 mg/m^3, it is four times riskier. This new information reinforces the need for very effective controls where exposures to respirable crystalline silica dust are high[25]".

The exposure standard for respirable crystalline silica (RCS) is based upon the prevention of silicosis. However, there is substantial evidence of other conditions linked to exposure to silicosis, as discussed above. There is also evidence that the risk of silicosis is based upon intensity of exposure, and the cumulative exposure over a period of time, rather than non-compliance with a time weighted average exposure standard.

Quantification of the risks of silicosis should take account of variations in exposure intensity. This is particularly the case for exposure to high quartz concentrations, even if exposure is for relatively short periods. The risks of silicosis over a working lifetime can rise dramatically with exposure to such high quartz concentrations over a timescale of merely a few months (Buchanan, 2003)[26].

In a similar vein, Hoy and co-workers (2017)[27] have stated that, "While exposure control is a key preventative measure against silicosis, the differing composition of materials and working practices within this industry may require a new approach. The … 8-hour standard does not provide guidance related to the risk associated with high-intensity, short-duration exposures, such as dry cutting artificial stone".

This is highly relevant to Recommendation 14, to the effect that,

> *"That the NSW Government provide additional funding to the Dust Diseases Board and Centre for Work Health and Safety specifically for research projects related to the prevention, management and treatment of silicosis, and in terms of sourcing additional funding for research projects, commission icare to scope out possible funding models that would be based on a cost recovery basis from the industry".*

Given the above, it is highly commendable that the NSW Government has committed resources to the development of a real-time RCS monitor[28]. This will allow monitoring of intense short term exposure, but will also enable employers to rapidly assess the effectiveness of controls and to use the monitor as a training tool. It is recommended that the NSW Centre for Work Health and Safety follow this up with promulgation of an appropriate hygiene standard accompanied by the development of relevant documentation.

[25] HSE, (2001), ibid., para. 22. https://www.hse.gov.uk/pubns/priced/hsg201.pdf
[26] D Buchanan, B G Miller, C A Soutar, (2003), Quantitative relations between exposure to respirable quartz and risk of silicosis, https://oem.bmj.com/content/oemed/60/3/159.full.pdf
[27] Hoy, RF et. al. (2017), Artificial stone-associated silicosis: a rapidly emerging occupational lung disease, Occup Environ Med 2018;75:3–5. doi:10.1136/oemed-2017-104428 https://oem.bmj.com/content/75/1/3

[28] NSW Government, Centre for Work Health and Safety, https://www.centreforwhs.nsw.gov.au/Projects/current-projects/silica-detection

It is very exciting to see the announcement that this is a world first and that trials are about to begin on the Trolex monitor[29]. Given that it is a world first, it will require development of a suite of suitable supporting documentation, such as

- Application notes;
- An short term or peak exposure standard and interpretative documentation;
- User manual.

Recommendation 3: That a short term exposure standard and other supporting documentation be developed, to be used in conjunction with the real time RCS monitor.

[29] Safework NSW, NSW Government, World-first silica detection device in NSW, media release, 29 Nov 2021, https://www.safework.nsw.gov.au/news/safework-media-releases/world-first-silica-detection-device-in-nsw

PRODUCT LABELS & SAFETY DATA SHEETS (PAGE 51)

In the 2019 report, recommendation 6 addressed manufacturer duties:

> *That the NSW Government introduce a mandatory requirement for manufacturers and suppliers to:*
> *• affix standardised warning labels on all manufactured stone products;*
> *• provide safety data sheets with all manufactured stone products, in a comprehensive range of languages.*

It is considered that given the extremely hazardous nature of the product, this recommendation is inadequate. The information provided on labels and SDSs does not provide fabricators with the information required to enable them to handle manufactured stone safely.

This lack of knowledge in fabricators was highlighted in the TV show, 'The Project' in 2019[30]. In this program, two step-bothers Dean Morris and Daniel Zarb are interviewed by Waleed Ali. He states that they are both stonemasons with more than 20 years experience. Two months previously, they had both been diagnosed with silicosis. The program specifically refers to Caesarstone, Dekton (Cosentino), Essastone and Quantum Quartz. When asked what he knew about it, Mr. Zarb replies, "Not a lot. Just sort of adapted what you already knew from working with natural stones and took it across and just kept going[31]." He also added that, "There was no emphasis on if you breathe it in, it'll kill you[32]."

The information provided by manufacturers and suppliers in the stone industry has only improved in quality in the latter part of the last decade. Nevertheless, SDSs are still far from being of a uniform acceptable standard. Major faults include:

- a failure to provide information on the serious, potentially fatal, nature of accelerated silicosis;
- not providing information on Australia legislation or standards;
- not providing adequate information or detail on the engineering controls to ensure the levels of dust are kept below the exposure standard;
- recommending respiratory protection that was inadequate for the purpose; and,
- not advising processors of the absolute necessity of exposed workers having regular health surveillance.

As fabricators typically buy product from several suppliers, they would be reading different suppliers' information that was often inconsistent, conflicting and would ultimately have been confusing. Some early information, particularly from overseas suppliers did not reference Australian legislative requirements, standards or guidance; or they referenced irrelevant and inappropriate US or EU legislation. Other

[30] The Project, Occupational Lung Disease, 18 June 2019, https://www.facebook.com/TheProjectTV/videos/occupational-lung-disease/641877726329462/
[31] The Project, Op cit. 1 min. 30 sec.
[32] The Project OP Cit. 2 min. 05 sec.

MSDSs from overseas suppliers, could be so poorly translated with the resultant information being difficult to implement.

Given this lack of clear and specific direction, it would not be surprising if fabricators chose to select recommended measures that were most readily within their means. Typically, this could result in use of P1 or P2 respirators, the lowest and least effective of measures in the hierarchy of control, instead of installing more expensive engineering controls. As shown in the SDS[33] in Figure 4, this shows a P1 or P2 respirator, with the wearer showing facial hair. Given the typical airborne concentrations described on page 5, this would not provide adequate protection. Ideally this picture should promote the use of a powered air purifying respirator (PAPR).

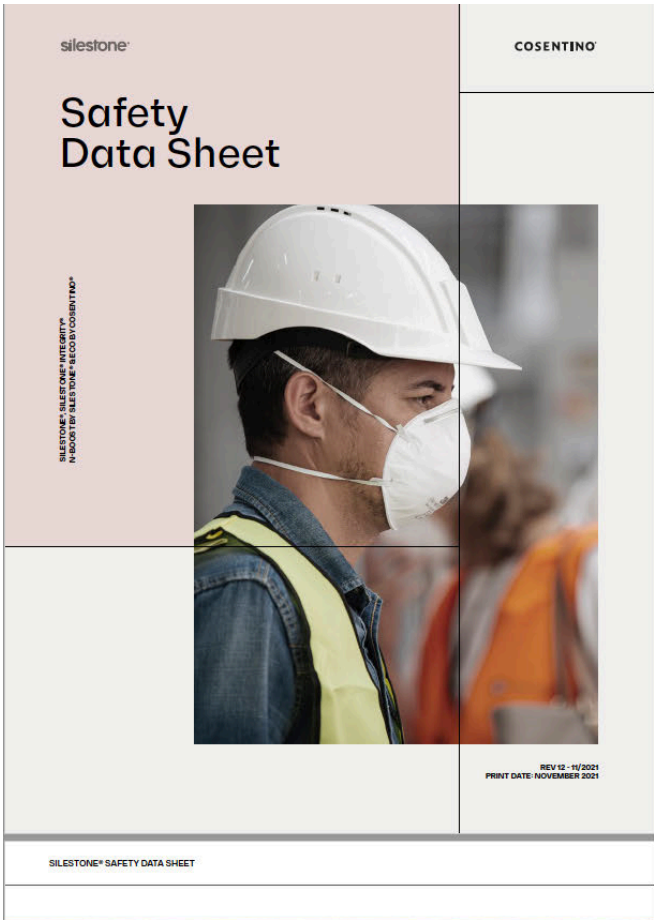

Figure 4

[33] Silestone Cosentino Safety Data Sheet, Rev 12 – 11/2021
https://assetstools.cosentino.com/api/v1/bynder/doc/B628B0D0-D69B-4D72-A8FAEC265A436176/silestone-safety-datasheet-en.pdf?dl=silestone-safety-datasheet-en.pdf

CHAPTER 5 REGULATION AND ENFORCEMENT (PAGE 81)

The review report is strangely silent on the duties on manufacturers, importers and suppliers. This is particularly relevant to recommendation #5, in the Interim report of the NDDT,

> "*Develop a strategic national approach to improve Australia's ability to detect and rapidly respond to any future emerging occupational diseases of significance*[34]*".*

There is ample evidence to indicate that manufacturers were well aware that their products were causing accelerated silicosis in stonemasons, several years before this became known in Australia. Despite this, the manufacturers did very little, if anything, to alert Australian authorities to these cases of silicosis in stonemasons.

The fact that Australian researchers had little awareness of accelerated silicosis in engineered stone workers, is supported by a study by Si et. al. (2016)[35] in which the Australian workforce was surveyed for exposure to silica. Some 4,993 respondents (55.4% males and 44.6% females) completed the occupational survey. Among them, 317 (6.4%) were exposed to respirable crystalline silica at work, and 165 (3.3%) were assigned high RCS exposure. Only 5 stone masons or stone cutters were identified and manufactured or engineered stone was not mentioned.

Consider the evidence that manufacturers were fully aware of the hazardous nature of their products:

1. Reports in the Spanish news media [in 2010-2011], which included reports of Caesarstone and Cosentino being prosecuted for failing to provide adequate information to fabricators;[36] [37] [38] [39];
2. After publication of the article by Kramer in *Chest* Journal [in March 2012], Caesarstone threatened legal action against the publication, which had documented the outbreak of silicosis in Israel. Originally, the article used the term "Caesarstone silicosis" in its title[40], in reference to the company's major position in the Israeli market for engineered stone. But soon after the study appeared, Caesarstone threatened to bring a lawsuit against the American College of Chest Physicians, the publishers of the journal, unless the term was removed[41];

[34] NDDT, Interim report, Op cit.
[35] Si, S, Carey, RN, Reid, A., Driscoll, T., Glass, DC, Peters, S., Benke, G., Darcey, E and Fritschi, L. (2016), The Australian Work Exposures Study: Prevalence of Occupational Exposure to Respirable Crystalline Silica, Ann. Occup. Hyg., 2016, Vol. 60, No. 5, 631–637 doi:10.1093/annhyg/mew007
[36] Revisión general de todas las marmolerías, (General review of all marble shops), El Pais; Madrid, 02 Apr 2010
[37] Catorce años sin información, (Fourteen years without information), El Pais; Madrid, 06 Apr 2010
[38] La fiscalía investiga los seis casos de silicosis en una empresa de Vizcaya, (The prosecution investigates the six cases of silicosis in a company from Biscay), Gorospe, Pedro, El Pais; Madrid, 06 Apr 2010
[39] La silicosis se enreda en Gernika (Silicosis becomes entangled in Guernica), Gorospe, Pedro . El Pais; Madrid, 29 May 2011
[40] Kramer, M., Blanc, P., Fireman, E., & Amital, A., Guber, A., Abdel rahman, N., & Shitrit. (2012). *CaesarStone Silicosis, Disease Resurgence Among Artificial Stone Workers*. Chest. 142. 419-24. 10.1378/chest.11-1321. – republished in August 2012 as: *Artificial Stone Silicosis, Disease Resurgence Among Artificial Stone Workers*, CHEST;142(2):419–424. https://journal.chestnet.org/article/S0012-3692(12)60455-3/fulltext ;
[41] Popular Quartz Countertops Pose a Risk to Workers, Barry Meier, The New York Times, April 1, 2016

3. Caesarstone annual report to the US Securities and Exchange Commission, for the period ending 12/31/2014, stated, "We are party to 60 pending bodily injury lawsuits that have been filed against us directly since 2008 in Israel or that have named us as third-party defendants by fabricators or their employees in Israel, by the injured successors, by the State of Israel or by others. … The plaintiffs claim that they contracted illnesses, including silicosis, through exposure to silica particles during cutting, polishing, sawing, grinding, breaking, crushing, drilling, sanding or sculpting our products. … Such claims could be asserted by claimants in different jurisdictions, including … Australia and other markets where our products are distributed and sold and could result in significant legal expenses and damages[42]".

It appears that when the engineered stone industry became aware of silicosis associated with engineered stone, there were limited attempts to notify processors. A more responsible action by the manufacturers, importers and suppliers would have been to impose a complete global moratorium on supply to processors until they could ensure, through direct customer engagement, that the product was being handled safely. Even something as simple as warning them not to dry machine engineered stone could have prevented many cases of silicosis.

It is noted that under Australian Consumer Law, suppliers are required to report any product-related death, serious injury or serious illness associated with a consumer product[43]. As it was, the authorities only became aware of the gravity and magnitude of the situation as cases of accelerated silicosis were reported in the media. Despite this, there appears to be no corresponding requirement for non-consumer products to be notified to authorities. Had engineered stone manufacturers notified Health authorities when they first became aware of the earliest cases of silicosis, it would have enabled governments to act more proactively. It is proposed that, if the *Industrial Chemicals (General) Rules 2019*[44], were amended to include substances such as engineered stone, under the Australian Industrial Chemicals Introduction Scheme (AICIS), this may offer a relatively straightforward means of closing this loophole. This legislation is administered by the Office of Chemical Safety, within the Health Department.

> Recommendation 4: that the NSW Government recommend that the Commonwealth Industrial Chemicals (General) Rules 2019, is amended to extend to substances such as engineered stone.

[42] Annual Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934, For the fiscal year ended December 31, 2014, FORM 20-F, (Annual and Transition Report (foreign private issuer)), Filed 03/12/15 for the Period Ending 12/31/14, United States Securities and Exchange Commission, Washington, D.C. 20549, pages 9-11, https://www.annualreports.com/HostedData/AnnualReportArchive/c/NASDAQ_CSTE_2014.PDF

[43] Australian Competition and Consumer Commission, A guide to the mandatory reporting law in relation to consumer goods, 2016 https://www.productsafety.gov.au/system/files/cps%20ham%20rm%20publications%20mandatory%20reporting%20guidelines%20final%20feb%202016%20%28D....pdf

[44] Industrial Chemicals (General) Rules 2019, https://www.legislation.gov.au/Details/F2019L01543 Accessed 19 April 2021.

If the manufacturers, importers and suppliers followed the example of other industries, e.g. the product stewardship code by PACIA (Plastics and Chemicals Industry Association), the engineered stone industry association could have developed information products appropriate to the nature and magnitude of the hazard. By acting in concert, this would have ensured fabricators received clear and consistent information.

The final report of the national taskforce has proposed licensing fabricators (not suppliers), but it is noted that a product ban is under consideration. This should provide an incentive for the manufacturers, importers and suppliers to lift their game. However, it is also incumbent upon the WHS Regulators to ensure that these persons discharge their Risk management duties under s. 17 of the WHS Act[45] to the fullest extent.

> Recommendation 5: It is recommended that WorkSafe NSW consider rigorous enforcement of WHS Act duties on manufacturers, on importers and on suppliers.

PROPOSAL FOR SELF-REGULATION (PAGES 88 – 94)

Product Stewardship & the legislated Duty of Care on manufacturers, suppliers.

The role of product stewardship is raised in the Golder (2021) report[46] and briefly in the Final report of the National Dust Disease Taskforce (2021)[47]. However, the concept of product stewardship in this context is not new. The need for manufacturers to exercise a higher standard of cradle to grave responsibility for their products, was canvassed in the Senate inquiry (2006)[48]. In 1993, the author undertook a study tour to the US, to look at product stewardship as practiced by major chemicals companies, including ICI Americas and Du Pont[49].

In 1997, the author took a prosecution of a supplier of hairdressing products for failure to provide information on their products, under s.23(4) of the WA OHS Act. The prosecution took the view that, "Without this information, an employer that uses these products is unable to discharge their duties under sections 19(1)(b) and

[45] **17 Management of risks**
A duty imposed on a person to ensure health and safety requires the person:
(a) to eliminate risks to health and safety, so far as is reasonably practicable; and
(b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable. https://www.legislation.gov.au/Details/C2018C00293 Accessed 22 April 2021.

[46] Golder Associates Pty Ltd, Case Finding Study - Respirable crystalline silica exposure in the NSW manufactured stone industry, Data triangulation of NSW Government Agency information, Submitted to: Meagan McCool, SafeWork NSW 17 May 2021, Section 10 Manufactured Stone Product Stewardship Considerations, p. 30. https://www.nsw.gov.au/sites/default/files/2021-08/case-finding-study-respirable-crystalline-silica-exposure-nsw-manufactured-stone-industry.pdf

[47] National Dust Disease Taskforce, Final Report to Minister for Health and Aged Care, June 2021, p.47. https://www1.health.gov.au/internet/main/publishing.nsf/Content/562CF83B7AECFC8FCA2584420002B113/$File/NDDT-Final-Report-June-2021.pdf

[48] Senate Community Affairs References Committee, Workplace exposure to Toxic Dust, May 2006, paras 5.47 – 5.49. https://www.aph.gov.au/parliamentary_business/committees/senate/community_affairs/completed_inquiries/2004-07/toxic_dust/index

[49] Jennings, M., (1993), 1992 AIOH-Bilsom Award Report, AIOH 12th Conference Proceedings, December 5 – 8 1993, Terrigal NSW.

(e) of the Occupational Safety and Health Act 1984 by properly assessing the risks involved with the products and to train staff and implement appropriate procedures[50]".

In 1997, based on the above experiences, the author wrote a paper in which he compared product stewardship to the legal Duty if Care[51]. The former can offer businesses significant opportunities in the marketplace, whereas a failure in the duty of care can result in prosecutions, major reputational damage and long term health impacts on fabricators. There are currently eight regulated and one voluntary accredited product stewardship scheme in Australia, plus 18 unaccredited schemes and 13 in development[52].

So, in this context, it is interesting to note the proposal of the Australian Engineered Stone Advisory Group (AESAG) to introduce a self-regulatory scheme as outlined in the 2019 Review Report[53]. This was an accreditation program for fabricators. AESAG took the proposal to the ACCC, but then withdrew it after some negative comment.

Recommendation 6: That the NSW government consider accrediting a product stewardship scheme for manufacturers of engineered stone.

END OF SUBMISSION

[50] Government of Western Australia, Department of Mines, Industry Regulation and Safety, WorkSafe, Prosecution Details: OHS Act s. 23(3), Headfirst International Pty Ltd, 23 September 1997 https://prosecutions2005.commerce.wa.gov.au/prosecutions/view/197

[51] Jennings, M., (1997), The Legal Duty of Care and the Concept of Product Stewardship, AIOH 16th Annual Conference, November 29 – December 3,1997 Albury, NSW.

[52] Product Stewardship Centre of Excellence, Product Stewardship https://stewardshipexcellence.com.au/product-stewardship/

[53] Legislative Council Standing Committee on Law and Justice 2019 Review of the Dust Diseases Scheme Silicosis in the manufactured stone industry, Report 73 March 2020, pages 88-94. https://www.parliament.nsw.gov.au/lcdocs/inquiries/2538/Report%2073%20–%20%202019%20Review%20of%20the%20Dust%20Diseases%20Scheme%20–%2024%20March%202020.pdf