Why the Australian expertise on the hazards of engineered stone is so relevant

Catherine Cavalin, Alfredo Menéndez-Navarro, Alain Lescoat

Why the Australian expertise on the hazards of engineered stone is so relevant

Catherine Cavalin, Alfredo Menéndez-Navarro, Alain Lescoat

Occupational and Environmental Medicine, 29 October 2024

https://oem.bmj.com/content/81/7/329.responses#why-the-australian-expertise-on-the-hazards-of-engineered-stone-is-so-relevant (page consultée le 8 décembre 2024)

We have read with great interest the editorial published by OEM, which raised the question of whether the manufacture, importation and use of engineered stone (ES) (1) should be banned, after the Australian federal government took this decision.

The Australian decision resulted from an expert appraisal process conducted between 2019 and 2023 by biomedical specialists (2,3) and Safe Work Australia (SWA), an independent federal agency.(4–6) This process of knowledge production and public decision-making is remarkable for both its scientific rigor and its democratic nature.(7) All stakeholders were consulted in the Consultation Regulation Impact Statement (CRIS), as settled in Australian Model Work Health and Safety Laws. Producers of the material, importers, processors, workers, biomedical scientists, lawyers...: anyone wishing to testify individually or collectively were able to express their views, enabling SWA to gather fieldwork information from all (human, public health, technical, commercial) interests involved.

While disagreeing with the idea that "the risks presented by engineered stone can be adequately controlled by applying the principles of good occupational hygiene control practice", the OEM editorial suggested that "a phased ban on artificial stone containing high proportion of crystalline silica" should be implemented, via a progressive reduction in the ES-silica content in the next years. However, this progressive reduction was deemed unappropriate by the Australian expertise.(6)

First, SWA emphasized that there was no scientific evidence about the crystalline silica (SiO_2) content threshold that would be toxicologically safe for ES, and that industries had not brought such evidence to the consultation process.(6)

Second, a toxic cocktail effect has not been demonstrated for ES. However, it cannot be overlooked, given the potential carcinogenic and pro-inflammatory effects of certain non-SiO_2 components in ES.(8) Some producers have also made it difficult to specifically identify these components, making the product's risks unclear.(9)(6)

Third, SWA also noted that empirical knowledge of workplace behavior suggests that banning only materials with a high SiO_2 content could lead workers and contractors handling ES to assess that a material with a lower SiO_2 content could be safe.(6) This has not been proved, and leads to the same precautionary principle as mentioned above.

Fourth, there is much reason to believe that authorizing low-SiO_2 materials for a few years would not have ended the health tragedy caused by ES in Australia. Indeed, analysis of the CRIS responses showed that "40% of engineered stone PCBUs [people conducting a business or undertaking] already work with lower silica engineered stone, and several suppliers have indicated their ability to meet market demand by 2024."(6) The evidence provided to CRIS by companies producing or importing ES in Australia (https://consult.swa.gov.au/cris-managing-the-risks-of-respirable-crystalline-silica) remind us that manufacturers in this sector have been investing for several years in the production of these

lower- SiO_2 content materials. Authorizing these materials would effectively grant the new regulation proposed by some manufacturers to Australia, along with commercial opportunities for these products, despite their safety still needing to be fully determined. The decision in Australia ultimately rejected this proposal.

Beyond the ES case, the Australian decision was also exemplary on another ground: the urgency of the health situation caused by exposure to ES did not overshadow the numerous instances of harmful SiO_2 exposure in other work environments. In 2020, Australia set the TLV-TWA (8-hour time weighted average for respirable SiO_2) at 0.05 $mg.m^{-3}$, announcing shortly afterwards that it would be soon reduced to 0.025 $mg.m^{-3}$.(6) Although they have also recognized the need to lower this threshold,(10) European regulators have not yet taken such a decision: Directive (EU) 2017/2398 is still in force and sets the TLV-TWA at 0.1 $mg.m^{-3}$.

591 words

We declare no competing interests

1. Kromhout H, van Tongeren M, Cherrie JW. Should engineered stone products be banned? Editorial. Occupational and Environmental Medicine. July 2024;81(7):329-30.

2. National Dust Disease Taskforce. Interim Advice to Minister for Health. Canberra: Australian Government Department of Health; 2019 p. 22.

3. National Dust Disease Taskforce. Final Report to Minister for Health and Aged Care. Canberra: Australian Government, Department of Health; 2021 p. 80.

4. Safe Work Australia. Managing the risks of respirable crystalline silica from engineered stone in the workplace. Code of Practice. Canberra: Safe Work Australia; 2021 p. 59.

5. Safe Work Australia. Decision Regulation Impact Statement: Managing the risks of respirable crystalline silica at work. Canberra: Safe Work Australia; 2023 p. 102.

6. Safe Work Australia. Decision Regulation Impact Statement: Prohibition on the use of engineered stone. Canberra: Safe Work Australia; 2023 August p. 107.

7. Cavalin C, Menéndez-Navarro A, León-Jiménez A, Lecureur V, Lescoat A. The ban on engineered stone in Australia: a milestone in the fight against emerging silica hazards. European Respiratory Journal [Internet]. 1 June 2024;63(6). https://erj.ersjournals.com/content/63/6/2400138

8. León-Jiménez A, Mánuel JM, García-Rojo M, Pintado-Herrera MG, López-López JA, Hidalgo-Molina A, et al. Compositional and structural analysis of engineered stones and inorganic particles in silicotic nodules of exposed workers. Part Fibre Toxicol. Dec 2021;18(1):1-16.

9. Kumarasamy C, Pisaniello D, Gaskin S, Hall T. What Do Safety Data Sheets for Artifcial Stone Products Tell Us About Composition? A Comparative Analysis with Physicochemical Data. Annals of Work Exposures and Health. August 2022;66(7):937-45.

10. European Parliament, Council of the European Union. DIRECTIVE (EU) 2022/431 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2022 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work. Official Journal of the European Union March 9, 2022 p. L88/1-L88/14.