State of California
Department of
Industrial Relations

Memorandum

Date: April 10, 2026

To: Millie Barajas,
Executive Officer
California Occupational Safety and Health Standards Board

From: Betsey Noth, Senior Industrial Hygienist
Michael Wilson, Senior Safety Engineer
Kevin Graulich, Principal Safety Engineer
Eric Berg, Deputy Chief of Health
California Division of Occupational Safety and Health

Re: Petition 609 to Revise 8 CCR § 5204 (Occupational Exposures to Respirable Crystalline Silica) to prohibit all fabrication and installation tasks on artificial stone that contains more than 1% crystalline silica

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Executive Summary: California is experiencing a rapidly worsening silicosis crisis among artificial stone workers, driven by dangerous materials and regulatory shortcomings. To address the crisis, the Petition requests the State of California to consider prohibiting the fabrication and installation of artificial stone.

The Health Crisis: California is experiencing a rapidly worsening epidemic of silicosis among artificial stone countertop fabrication workers. The number of confirmed cases grew from 52 cumulative cases identified through 2022 to 531 by early 2026 —a tenfold increase in approximately three years. Silicosis is an incurable, progressive, and fatal lung disease caused by inhaling respirable crystalline silica (RCS). Artificial stone is uniquely dangerous because it contains 85–95% crystalline silica by weight, combined with resins and adhesives that make the dust more toxic than that from natural stone, such as granite, which is generally less than 40% crystalline silica.[†] This higher silica content in artificial stone compared to typical natural stone results in a two to 90-fold increase in exposure to nanosized crystalline silica, which has high potential for lung damage. The disease progresses faster and is more lethal in artificial stone workers than in those exposed to natural stone.

The Affected Workforce: The workers most affected are a deeply vulnerable population: approximately 98–99% are Latino men, the majority foreign-born, with limited English proficiency, low rates of health insurance, no union representation, and little ability to advocate for safer working conditions. Immigration enforcement concerns further reduce the likelihood that workers will report unsafe conditions, creating an environment where exploitation and health harms go unchecked.

[†] Natural quartzite contains more than 90 percent crystalline silica but is less common in countertops than granite (10 to 45% crystalline silica). Other natural stones used in countertops include marble (<5% crystalline silica), soapstone (<5% crystalline silica), slate (20 to 40% crystalline silica), and limestone (<5% crystalline silica).

Regulatory Shortcomings: Cal/OSHA established the Emergency Temporary Silica Standard in December 2023 and made it permanent in February 2025 to eliminate silicosis among artificial stone workers. However, employer compliance with the regulation is very low: Cal/OSHA has cited 94% of inspected shops for violations, and 20% required emergency shutdown orders. The roughly 140 shops inspected represent only about 10% of the estimated 1,342 fabrication operations statewide. The industry is highly fragmented; most shops are very small (median of just five employees), difficult to locate, and frequently use a variety of tactics to evade enforcement. Current regulations require wet methods, HEPA vacuums, and powered air-purifying respirators (with a 1000 times protection factor). However, these measures may be insufficient, as recent research shows that even fully compliant shops may still expose workers to harmful silica levels, particularly from nanoparticles that current engineering controls cannot adequately capture.

Considerations on Prohibiting Fabrication and Installation of Artificial Stone: Australia faced a comparable crisis and, after finding that enforcement alone was ineffective, implemented a nationwide prohibition of artificial stone containing more than 1% crystalline silica in July 2024. The ban succeeded: safer alternatives replaced artificial stone without reported job losses or significant consumer impact, and enforcement became dramatically simpler. Prohibiting fabrication and installation of artificial stone in California could substantially mitigate silicosis risk while simplifying enforcement. There is, however, an important caveat — Australia controls the entire supply chain (imports, manufacture, and sale), whereas Cal/OSHA can only regulate sites of employment (such as locations where fabrication and installation occurs). If artificial stone remains commercially available in California, some non-compliant shops may go underground, concentrating risk in the least regulated settings.

Conclusion: The scientific evidence is clear that artificial stone with crystalline silica poses an inherently and uniquely severe occupational health hazard. Enforcement statistics indicate that nearly all employers are failing to follow current requirements to protect workers. A prohibition on fabrication and installation of artificial stone with more than 1% crystalline silica represents an effective path to protecting California workers from a preventable and fatal disease, short of a complete prohibition of the product as enacted in Australia. If the state were to enact upstream supply-chain controls of artificial stone, such a measure would enhance the enforceability of a fabrication and installation prohibition and create a more economically sound policy overall.

1.0 Introduction

Labor Code section 142.2 permits interested persons to propose new or revised standards concerning occupational safety and health, and requires the Occupational Safety and Health Standards Board (Standards Board) to consider such proposals, and render a decision no later than six months following receipt.

California Labor Code section 147 requires the Standards Board to refer to the Division of Occupational Safety and Health (Cal/OSHA) for evaluation of any proposed occupational safety and health standard.

On December 12, 2025, the Standards Board received a petition from Dr. R. Banasiak, MD, FACOEM (petitioner) on behalf of the Western Occupational and Environmental Medicine Association (WOEMA). To protect workers from silicosis, the petitioner requests expedited rulemaking to revise title 8 California Code of Regulations (CCR) section 5204 Occupational Exposures to Respirable Crystalline Silica to **prohibit all fabrication and installation of artificial stone that contains more than 1% crystalline silica**. The petitioner expresses concern that section 5204 is not sufficiently protective in light of the escalating number of silicosis cases and deaths among California fabrication workers and the inability to use enforcement effectively in this industry.

1.1 Definitions used in this evaluation

Artificial stone (also called engineered stone): any reconstituted, artificial, synthetic, composite, engineered, or manufactured stone product containing more than 1% crystalline silica. It is commonly made by combining natural stone or other crystalline silica-containing materials with adhesives, polymers, epoxies, resins, or other binding materials to form a slab. In California, the most popular artificial stone slabs are made and marketed by CaesarStone, Cambria, and Constantino. Alternative safer products that substitute amorphous silica (which does not cause silicosis) in place of crystalline silica (which does cause silicosis) are not referred to as artificial stone in this evaluation.

Quarried stone: natural stone that has been quarried from whole deposits and cut into slabs. It is not crushed or reconstituted into another composite material. Examples of quarried stones include granite, marble, soapstone, slate, limestone, and quartzite.

2.0 Petitioner's Proposal

The petition requests the Standards Board to direct Cal/OSHA to conduct expedited rulemaking to implement the following revisions to title 8 section 5204:

1. Prohibit all fabrication tasks on artificial stone that contains more than 1% crystalline silica.
2. Prohibit all installation tasks on artificial stone that contains more than 1% crystalline silica.

3.0 Risks Associated with Artificial Stone

In order to evaluate the merit of the petitioner's request, an assessment of both the hazard and exposure to the hazard is needed. Part 3.1 of this evaluation will describe the illness of silicosis that artificial stone fabricators in California are developing at high rates. Part 3.2 will give the details of how and why artificial stone is distinct and inherently more hazardous than quarried stone. Part 3.3 will discuss exposure controls implemented in section 5204 and the observed efficacy in California.

3.1 California is Experiencing a Statewide Epidemic of Silicosis Among Artificial Stone Fabrication Workers

Silicosis is an incurable, progressive lung disease that can, and usually does, lead to pulmonary fibrosis, respiratory failure, and eventually death. Its primary cause is occupational exposure to respirable crystalline silica (RCS). RCS exposure is also associated with other diseases, including autoimmune disorders, chronic renal disease, lung cancer, pulmonary tuberculosis, and chronic obstructive pulmonary disease (COPD).[1] Data indicates that nearly all persons with high exposures to RCS develop silicosis within a few years.[2]

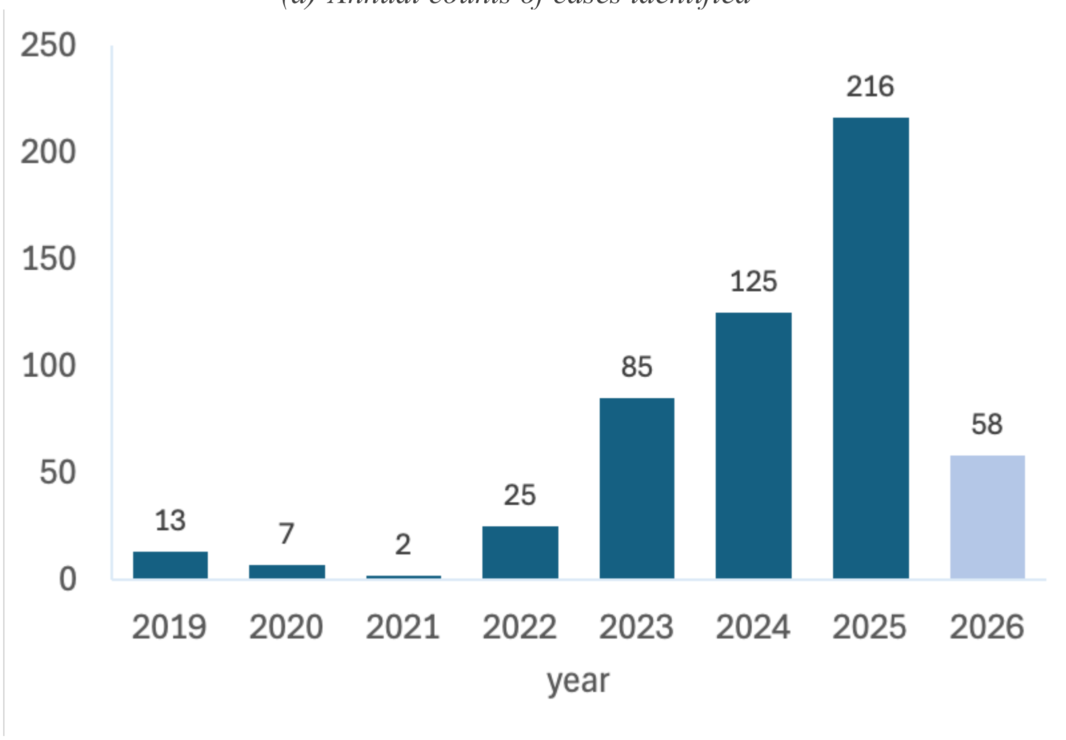
The diameter of RCS particles is smaller than 10 micrometers (µm), which is about 100 times smaller than ordinary sand.[6,7] When inhaled, RCS particles are carried deeply into the lungs, creating scarred and fibrotic areas that are unable to exchange oxygen. This scarring process continues even after exposure to RCS stops, producing the progressive respiratory insufficiency of silicosis that has been described as akin to suffocating.[8,9]

In July 2023, physicians and investigators with the University of California Los Angeles (UCLA) Olive View Medical Center and the California Department of Public Health (CDPH) Occupational Health Branch (OHB) reported that between 2010 and 2022, they had identified 52 California workers with silicosis, all of whom worked in shops that fabricated countertops from artificial stone. The majority of these cases were identified in 2019 or later.[3] Investigators determined that these individuals developed silicosis because of exposure to RCS in the artificial stone fabrication shops where they worked.[3] In this same study, the authors stated there were no reported cases of silicosis associated with artificial stone prior to 2010.

On July 25, 2023, CDPH issued a Health Advisory to healthcare providers and local health departments, entitled *Global Epidemic Comes to California: Silicosis in Countertop Workers*.[4]

On March 19, 2026, the CDPH OHB Silicosis Dashboard showed that the total number of silicosis cases among workers in the California artificial stone industry had increased from the originally identified 52 to **531** – a 10-fold growth in less than three years (Figure 1a). The cumulative number of cases over the last four years has been increasing rapidly at an exponential growth rate averaging 88% annually (Figure 1b). This means that the cumulative number of cases doubles approximately every 1.1 years, or 13 months. Assuming cases in 2026 continue to follow the same trend, the cases for 2026 alone will reach over 400 cases and the total cases will reach nearly 900. This trajectory is similar to what has been observed in both Australia and Spain.[5] The CDPH dashboard also reports that 29 young men (average age of 49) have died of artificial stone silicosis.

(a) Annual counts of cases identified



(b) Cumulative count of cases identified at year end

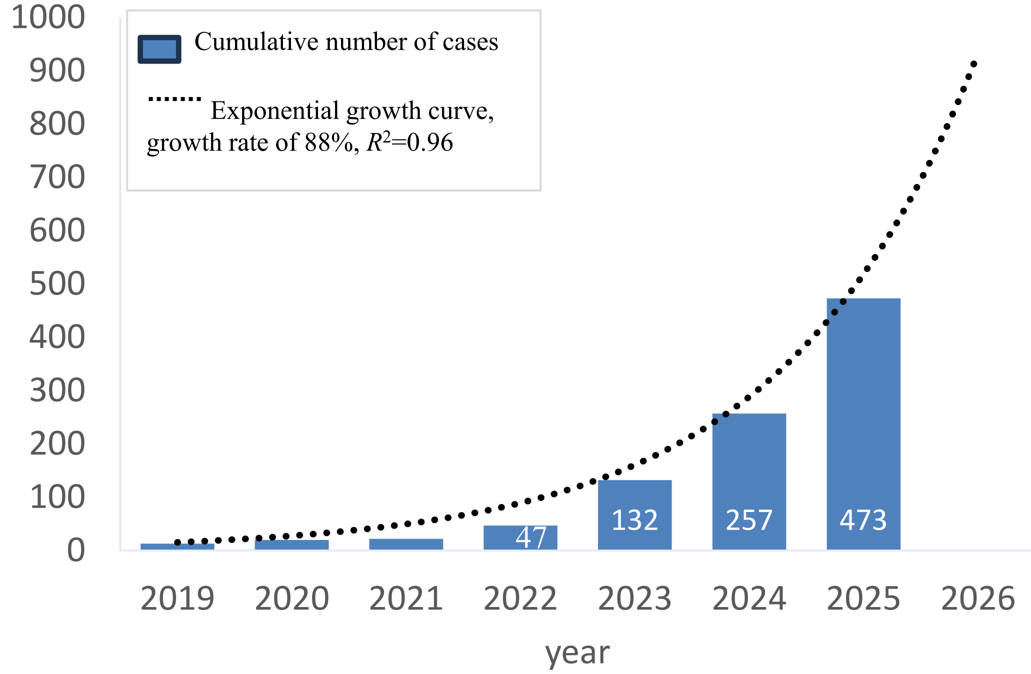


Figure 1. Exponential growth of artificial stone-related silicosis cases by year of case identification by CDPH. Data from 3/12/2026. (a) Annual counts of cases identified, (b) Cumulative count of cases identified by CDPH, with exponential growth curve.

3.2 Artificial Stone is an Inherently Toxic Substance

Artificial stone differs from natural stone in both its composition and the particles and vapors generated during fabrication. These differences significantly affect the type and toxicity of airborne contaminants produced when the material is cut, polished, or ground.

Artificial stone typically contains extremely high concentrations of crystalline silica along with toxic organic compounds and is manufactured using a process that produces materials with distinct physical and chemical characteristics that differ substantially from natural stone. These characteristics influence both the amount of respirable crystalline silica (RCS) generated during fabrication and the biological activity of the particles produced.

From the established scientific literature, it is known that RCS exposure causes silicosis. This makes the high crystalline silica content of artificial stone a serious concern. However, as this section of this evaluation describes in detail, the synthetic chemicals and compounds may also be causally implicated in the high observed rates of silicosis in artificial stone workers.

3.2.1 Artificial stone is manufactured in a known production process that is common to all manufacturers worldwide.

The artificial stone manufacturing process was invented in the late 1980s and industrialized in the 1990s. The first stage is often mining quartz, cristobalite, or another silica-based material and crushing it into a fine flour-like powder. Next, this fine powder is combined with adhesives, resins, pigments, and other materials and blended into a uniform mixture. That mixture is then added to a mold and pressed under vacuum and with vibration ("vibro-compression") to compact the material into slabs. After pressing, the slabs are cured by heating and then allowed to cool. At this point the slabs are ready to be fabricated through polishing, cutting, edging, and otherwise shaping as appropriate to the end user. The final artificial stone slabs typically contain 85-95% silica by weight, 5-15% resins, and up to 5% pigments.**Error! Bookmark not defined.**, [10–13] This process from the raw materials through the final slab occurs in a machine called a Bretonstone press (Figure 2).

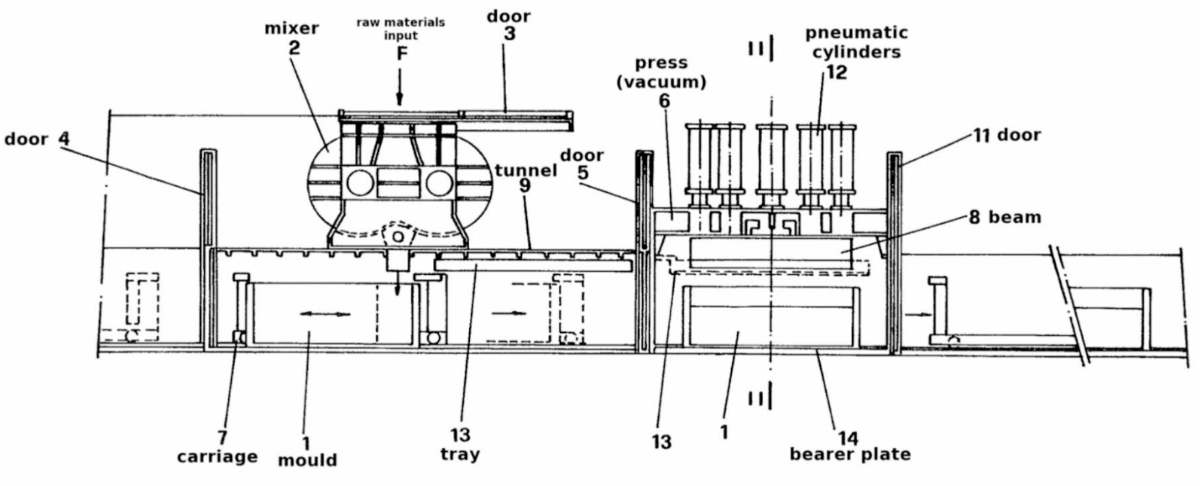


Figure 2. from Fazio 2025.[12]

There is limited published peer-reviewed exposure information on occupational exposures to RCS or other chemicals during the manufacturing of artificial stone slabs. To date, no manufacturing of artificial stone slabs takes place in California. The vast majority of artificial stone slabs are manufactured outside the United States. There are a small number of manufacturing subsidiary companies in the U.S. and a single domestic manufacturer (Cambria).

The further processing and fabrication of artificial stone slabs takes place, almost exclusively, in small workshops that bring the slab into the final shape and polish that the end user desires.[14] These processing and fabrication steps include adding holes for sinks, decorative edges, polishing, and cutting to fit specific spaces. Installation also involves processing the slab on-site to provide last-minute adjustments to fit.

3.2.2 Artificial stone slabs differ substantially in composition from natural stone slabs

There is a substantial and growing literature on RCS exposure during artificial stone fabrication tasks, as well as particle composition and particle size distribution. The most obvious difference between artificial stone slabs and natural stone used for countertops is the high crystalline silica content of artificial stone slabs. This high crystalline silica content is an important characteristic that makes artificial stone slabs inherently toxic, but the interaction between the additives – resin, pigments, and adhesives – is important, too. The contrast to artificial stone slabs are quarried natural stone slabs. These quarried natural stone slabs can be made from granite (10-45% crystalline silica), marble (<5% crystalline silica), soapstone (<5% crystalline silica), slate (20 to 40% crystalline silica), limestone (<5% crystalline silica), and natural quartzite (>90% crystalline silica). None of these natural stone slabs have resins added, but all have some amount of crystalline silica. Artificial and natural stone slabs are distinctly different. One compound is made from, essentially, gluing together extremely small particles of silica and the other has been made over millions of years of natural processes of heat and compression. When artificial stone slabs are cut, ground, polished, laminated, or otherwise worked on, the physical action produces particles and chemical vapors. Among the compounds identified in the emissions are respirable crystalline silica, including nanoparticle crystalline silica; phthalic anhydride, styrene, benzene, and polycyclic aromatic hydrocarbons (PAHs). These compounds have both individual effects on the body and synergistic effects.

3.2.3 Particulate size and surface area are key indicators in biologic activity: both are more hazardous in artificial stone compared to natural stone.

The damage to lung tissues from silica has long been attributed to the crystalline structure of the particle, but without complete understanding of the specific biologic mechanism.[15] In 2020, Dr. Pavan and her team at the University of Turin, Italy, published the discovery of the exact biological method of at least one type of damage from silica.[10] They found that the biological damage is from the biochemical activity that the crystalline structure supports not the crystalline structure itself. Essentially, when crystalline silica is acted on by the mechanical force of grinding, polishing, or cutting, the molecular crystal structure becomes "disturbed" and irregular (Figure 3). This creates a surface with a subfamily of molecules called "nearly free silanols" (NFS). These NFS are highly reactive and have the correct structure and shape to attach to the cell membranes in the lung and cause damage to the cell membrane (Figure 4). This damage is the trigger that sets off the cascade of proinflammatory responses that build scar tissue in the lung that eventually suffocates the silicosis patient. NFS molecules are present in both crystalline and amorphous silica materials but are much more

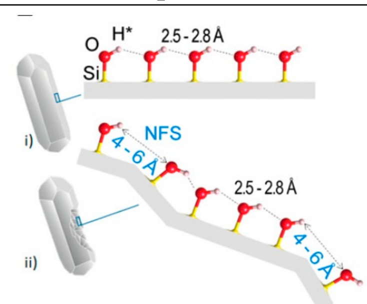


Figure 3. From Pavan 2020, the top image (i) shows the regular spacing of the crystalline silica structure in undamaged quartz; the lower image (ii) shows how the structure is broken apart and NFS are created

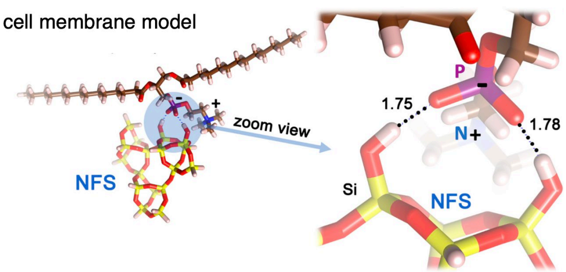


Figure 4. From Pavan 2020, NFS binding to lung cell membranes and damaging their integrity.

abundant in crystalline silica materials. Artificial stone slabs are made up of 85-95% crystalline silica that has been ground down to a fine dust prior to being formed into a slab. This dust contains a much higher concentration of NFS than a piece of natural stone, making the dust from artificial stone more toxic than the dust from natural stone.

The particle size distribution for artificial stone emissions is not significantly different than that of natural stone, although artificial stone commonly produces higher numbers of nanoparticles. Nanoparticles (aerodynamic diameter of 100 nanometers (nm) or less) are able to penetrate the human body more deeply because of their small size.[16,17] Not only do they penetrate the deepest part of the lungs but they also cross into the blood stream and travel to other parts of the body.[18–20] Nanoparticles are measured by the number of particles rather than the mass because of their negligible mass. Because of their small size, nanoparticle behavior in air cannot be accurately predicted using classical physics and instead requires quantum physics.[16] Many studies on particle toxicity have found that surface area is an important metric for understanding impact of nanoparticle exposure. As is clear in Figure 5, as particles become smaller the surface area increases by magnitudes. This increased surface area on nanoparticles, combined with the assumed association of NFS with increased surface area shows that nanoparticles may be a driving factor in the high toxicity of artificial stone. The silica content of an artificial stone or natural stone product is quantified by the percent mass of crystalline silica in a slab. This is equivalent to the first image in Figure 5, labeled "SLAB." The difference in surface area between a slab of 40% crystalline silica and 90% crystalline silica by mass is nearly *2 billion more square meters of surface area* exposed through nanoparticles. This higher particle count has significant ramifications for both biological impacts and controls that use gravity or airflow to reduce the number of particles in air. Taken together, this means that the exposure limit for artificial stone fabrication emissions, which is based on the mass of respirable crystalline silica particles, is set too high because the mixture has a significant percentage of nanoparticles and they do not contribute significant mass. In other words, the permissible exposure limit and action level of RCS in title 8 section 5204 are not protective as they do not account for nanoparticles.

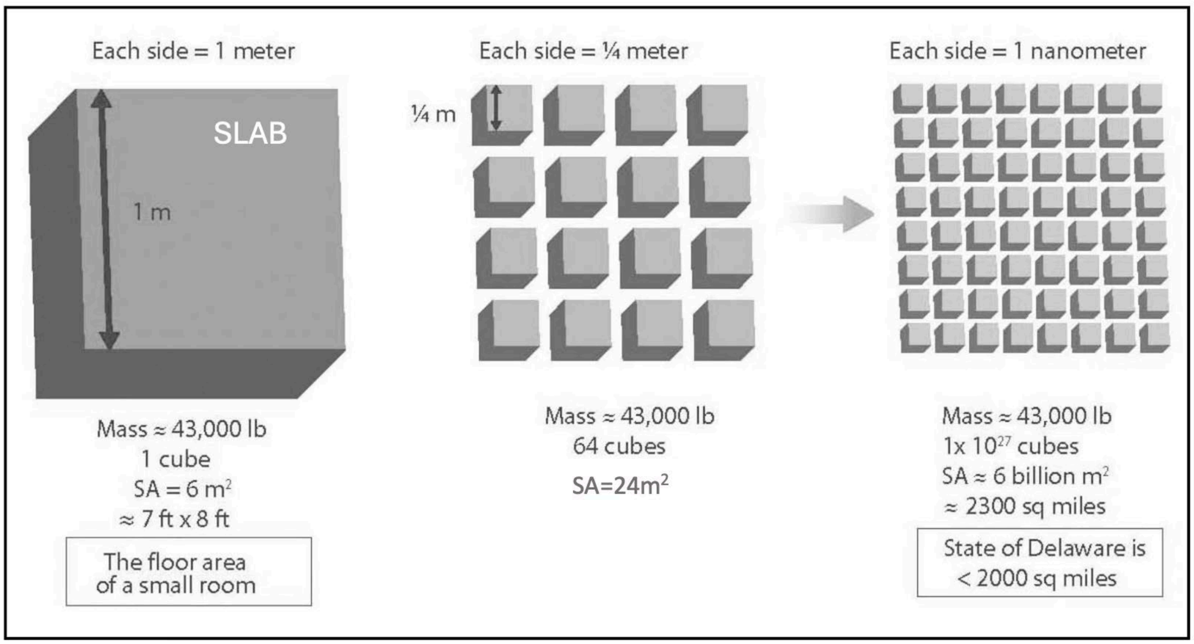


Figure 23.7 — Dividing a solid into nanometer-sized particles exposes a high fraction of the interior atoms to the surroundings, providing increased opportunity for chemical and biological interactions, and making surface area a critical metric for exposure assessment.

Figure 5. From: Anna DH, editor. The occupational environment: its evaluation, control and management. 3rd ed. Fairfax, Va.: American Industrial Hygiene Association; 2011. Surface area for 64 cubes corrected from original.

3.2.4 Artificial stone slabs contain harmful resins, adhesives, and pigments that release toxic and carcinogenic compounds when fabricated.

A second major difference between artificial stone slabs and natural quarried stone is that artificial stone contains resins and adhesives that form and hold the slab together, plus pigment to achieve different cosmetic looks for the stone based on the user's request. Not all artificial stone slabs contain the same type or amounts of resins. The types of resin identified in the peer-reviewed research literature are polyester–styrene, polyethylene terephthalate, acrylic and epoxy.[21] Each of these resin types have a different chemical composition and thus a different interaction with the ground silica that makes up the bulk by mass of artificial stone slabs. When artificial stone slabs are fabricated and installed, workers use hand tools such as diamond-head cutters and grinders, which generate both RCS from the crystalline silica, but also a number of toxic and carcinogenic compounds from the resin. In particular, researchers found that emissions from dry cutting artificial stone slabs contain significant amounts of phthalic anhydride, styrene, and benzene.[22] A second set of researchers found these same compounds, but also found that the artificial stone slab using acrylic as a binder generated methyl methacrylate.[21] In the case of phthalic anhydride, they found that during simulated work over 30 minutes, the emissions were 64 times that of the American Conference of Governmental Industrial

Hygienists (ACGIH) short-term exposure limit. While this may not reflect 8-hour working conditions, the presence of the compound is concerning. Similarly, benzene emissions were below the ACGIH STEL, but benzene was present in the suite of volatile organic compounds (VOCs) detected during the simulated work. The presence of these VOCs raises the potential for synergistic interactions in the lung between two sets of known carcinogens – carcinogenic VOCs and RCS.

3.2.5 Resins in artificial stone may facilitate greater damage from silica in the deep lung.

In addition to interactions and VOC-emissions, the resin additives may play a role in protecting the RCS particles from being eliminated from either the air or the body as would normally occur with resin-free RCS in natural stone.[23] This is because the resin not only protects RCS from elimination, but it masks the reactivity of the NFS on the surface of the RCS.[13] Unprotected RCS may be eliminated in the air through interactions with other reactive airborne species and in the body with biological fluids before reaching the deep lung. Once in the body, the resin protection may allow transport of more NFS into the deep lung, whereas unprotected (resin-free) NFS from natural stone would be neutralized through reaction before reaching the deep lung. Once in the deep lung, acidic lung fluid removes the resin protection, exposing the reactive NFS species on the surface of the RCS.[13] Then the NFS, which is highly reactive, acts directly to damage cell membranes.

3.3 Research consistently indicates that artificial stone causes a more severe form of silicosis with quicker onset and other health complications compared to other causes of silicosis.

Wu et al. reported silicosis from artificial stone had a shorter duration of exposure, more rapid disease progression, and higher mortality than silicosis from natural sources.[24]

Ramkissoon et al. explained the pathogenesis of silicosis in artificial stone workers, finding that the unique chemical composition and particle size distribution of dust from artificial stones elicits severe inflammatory responses and lung cell damage, leading to more aggressive disease progression.[25,26] Furthermore, studies have shown that artificial stone dust typically contains higher levels of fine particulate matter, which enhances deposition in the lungs, exacerbating respiratory conditions like silicosis.[15]

A study done in Australia by Hoy et al. of stone benchtop (i.e., countertop) workers (95% of whom worked with artificial stone) found the median duration of time from first silica exposure to silicosis diagnosis was substantially shorter than the typical latency of silicosis associated with natural sources of silica, such as mining. The study also found 28.3 percent of high-risk benchtop workers had silicosis, which is an extremely high prevalence rate.[27]

Research by Benedetto et al. and Hore-Lacy et al. identifies that the processes used in the manufacture of artificial stone, including resin and additive incorporation, result in a significant generation of harmful respirable dusts.[15,28] These respirable particles show increased reactivity and can promote oxidative stress within lung tissues, contributing to more severe disease outcomes as highlighted in studies examining the oxidative damage potential of artificial stone dusts.[Error! Bookmark not defined.,29]

Stacey et al. supports these observations by detailing how the physical and chemical properties of artificial stone dust differ markedly from those of natural stone dusts, further emphasizing the greater health hazards associated with artificial stones.[30]

4.0 Potential Controls of Hazardous Exposure

4.1 Cal/OSHA Found Widespread Non-Compliance with Current Title 8 Standards in the Artificial Stone Fabrication Industry.

In 2016, federal OSHA adopted title 29 Code of Federal Regulations section 1910.1053 Respirable Crystalline Silica, establishing baseline requirements to prevent silicosis and other silica-related diseases. Later that year, California adopted an identical standard (Title 8, Section 5204: Occupational Exposures to Respirable Crystalline Silica). On December 29, 2023, California strengthened these requirements through an Emergency Temporary Standard to better protect workers from crystalline silica exposure. The update eliminated broad exemptions from engineering controls, respiratory protection, and other requirements in the original 2016 rule and introduced additional worker safeguards. These emergency provisions were further strengthened and made permanent on February 5, 2025.
Since the commencement of the silica standard, the industry has been consistently out of compliance with the regulation according to Cal/OSHA Enforcement data.

From December 29, 2023 through February 9, 2026, Cal/OSHA opened inspections at 135 fabrication shops and closed 127 of those inspections. This is a rate of approximately one shop inspection per week. Of the 127 closed inspections, 120 fabrication shops were cited for violations of section 5204 or other title 8 standards. The average total initial penalties for each fabrication shop not in compliance, is approximately $14,000. At 20% of the fabrication shops inspected (25 of 127), the workplace conditions required Cal/OSHA to issue an Order Prohibiting Use (pursuant to section 5204(g) and California Labor Code 6325), immediately shutting down the fabrication shop, or in some cases a specific operation, based on an imminent silica hazard. This is essentially an emergency action taken by Cal/OSHA to immediately mitigate a hazard that is likely to cause death or serious physical harm to one or more employees.

Title 8 Section 5204 Silica Inspections of Countertop Fabricators by Cal/OSHA from Dec 29, 2023 to Feb 09, 2026		% of Closed Inspections
Total Number of Inspections Opened (containing countertop coding) from 12/29/23 to 01/13/26	135	-
Number of Inspections Closed	**127**	100%
Number of **Closed Inspections** with Violations initially cited (5204 and other T8 regulations)	120	**94%**
Number of inspections with OPUs	25	**20%**

The 135 shops Cal/OSHA has inspected represent about 10% of the 1,342 estimated fabrication operations in the state. Based on the experience to date, Cal/OSHA anticipates that the vast majority of the 90% of uninspected shops (1,141) are likely operating with multiple violations of section 5204 and other title 8 regulations.[14,31]

A subset (N=58) of these 135 inspections that were conducted in 2024 were analyzed by CDPH.[32] The evaluation found that:

- 91% did not have any administrative controls in place
- 55% of shops did not have any engineering controls,
- 36% of shops did not use respirators,
- 29% used prohibited air compression methods,
- 16% used prohibited dry methods during high exposure trigger tasks, and

- 14% were using inadequate wet methods (i.e. handheld water bottle).

They also evaluated the individual employee interviews from these inspections and found that only 21% of workers had been fit for a respirator and 9% had been given a medical evaluation.

This evaluation by CDPH showed very similar findings to their previously published analysis of silica shop inspections carried out from January 2019-February 2020.[33] Those 47 inspections found 57% of shops were in violation of the respiratory protection standard, 5144, and 72% were in violation of the silica standard, 5204.

4.2 Controls required

In the revisions to section 5204 made in December 2023, a number of new controls and conditions were added to the existing regulation and made mandatory, regardless of exposure levels, to protect workers from silica exposure. In summary, under section 5204(f), employers must do all of the following:

- (f)(2)(A): use effective wet methods to reduce exposure levels below the action level.
- (f)(2)(B): use wet methods or HEPA vacuums to clean up dust and debris in the shops and remove all visible dust from the workplace at the end of each shift, or more frequently as needed to prevent visible dust in the workplace.
- (f)(2)(D): prohibit the use of dry sweeping, dry shoveling, and use of compressed air.
- (h)(3)(A): provide and ensure correct use of a full face, tight-fitting powered air purifying respirator (PAPR) with an Assigned Protection Factor (APF) of 1000 or a respirator providing equal or greater protection equipped with a HEPA, N100, R100, or P100 filter.

4.2.1 More protective controls now recommended following scientific evidence published in 2024 to present

Scientific findings published since section 5204 was amended have revealed that the controls required in 5204 are not protective enough for a variety of reasons discussed in Section 3.2. In addition, research published in 2025 for fabrication shops in Georgia reported that even employees who exclusively used wet methods, 51% of 63 individuals had exposures at or above the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 50 $\mu g/m^3$, reaching as high as 370 $\mu g/m^3$, and 70% had exposures above the Action Limit (AL) of 25 $\mu g/m^3$.[34] These exposures were observed at both small shops with under 25 workers and larger ones.

4.2.2 Nanoparticles require sophisticated engineering control technology

The amount of crystalline silica in the artificial stone slabs is directly related to the amount of airborne RCS when ground, polished and cut. The dose-response curve for artificial stone-generated RCS exposure and silicosis is less well understood, but it is clear that artificial stone-generated RCS is substantially more toxic than natural stone-generated RCS as described in part 3.2 and 3.3 of this evaluation. Some of this additional toxicity may also be because engineering controls that are effective at removing relatively larger particles do not function as well on nanoparticles. As discussed above, nanoparticles are incredibly small and have negligible mass. The small aerodynamic diameter plus the small mass means that entraining nanoparticles into air flow requires specific attention to air velocity and direction, as well as ongoing maintenance of the equipment to ensure continual functioning. In one study of nanoparticles emitted during sawing wood with a nanoparticle coating the on-tool local exhaust ventilation was inadequate to control exposure.[35] Additionally, engineering controls that rely on gravimetric settling - the phenomenon where dust particles fall under the influence of gravity, resulting in their deposition onto surfaces - will not function as well with nanoparticles. Engineering controls that rely on gravimetric settling include:

- Ventilation systems with downward airflow
- Vacuum systems that pick up settled dust

4.3 Effective Controls

As with all hazardous exposures in the workplace, it is preferable to implement controls for reducing silica exposure in order by the Hierarchy of Controls (Figure 6). This section will describe what methods, if any, are appropriate in each rank.

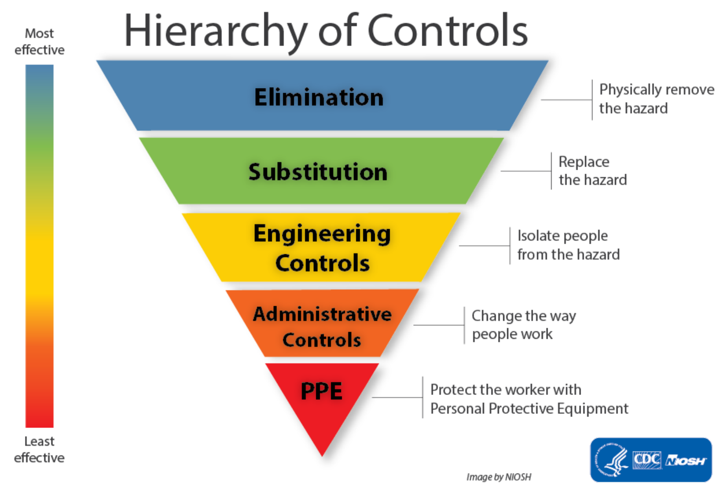


Figure 6: Centers for Disease Control and Prevention. (2024, April 10). About hierarchy of controls. National Institute for Occupational Safety and Health. https://www.cdc.gov/niosh/hierarchy-of-controls/about/index.html

4.3.1 Elimination and substitution are the most effective methods of hazard control

Elimination of hazardous products and substitution with less hazardous products, both of which completely remove the hazard, is recognized in industrial hygiene science as most effective interventions to protect workers. Additionally, elimination and substitution are passive controls that are not dependent on employer or worker behaviors or compliance. Before artificial stone had significantly entered the US market, NIOSH already recommended in their extensive review of the *Health Effects of Occupational Exposure to Respirable Crystalline Silica* that employers should be "substituting less hazardous materials for crystalline silica when feasible." [1]

4.3.2 Sophisticated engineering controls are theoretically effective in the artificial stone slab fabrication industry, but it has not been observed in California

The most effective engineering controls that potentially could be used to protect artificial stone workers from exposure to hazardous levels of respirable crystalline silica, including nano-sized silica, are systems that completely isolate the exposure from the workers. The safest and most controlled way for artificial stone slabs to be cut, ground, polished and laminated would be within a completely airtight enclosure with adequate local exhaust ventilation to remove nano-sized and larger sized particulates from the enclosure.[36] The enclosure would need to be maintained with a negative pressure so that when the doors were opened, particles did not escape into the workplace. This would isolate the workers from the hazard during high-exposure trigger tasks and would also remove the hazardous particulate from the air before the workers open the enclosure. However, no such isolation system is known to exist in the California countertop fabrication industry.

After full enclosure, wet methods on open processes, such as sheet-wetting, are the next most effective engineering control for larger than nano-sized particles. Sheet-wetting is the continuous flow of water over a slab, which creates a film of water on top of the slab to capture dust particles. Sheet-wetting techniques may reduce airborne particulate matter by physically binding dust when it collides with the water film. The water acts as a medium that traps dust particles, effectively preventing them from being suspended into the air and does not primarily rely on gravimetric settling. Sheet-wetting is not achieved by pouring water from a water bottle near the location of cutting.

However, when cutting, grinding, polishing, etc. on a slab during sheet wetting, fine airborne water aerosols are generated with silica particles entrained in microscopic water droplets, which can then be inhaled by workers. Wet methods are less effective than enclosure with ventilation and commonly result in airborne RCS concentrations above the PEL.[37] Wet methods are also not proven to be effective for airborne nanoparticle mitigation. Therefore, wet methods can reduce but not eliminate harmful exposures. Wet methods combined with local exhaust ventilation normally result in reduced exposures, but have at times resulted in higher silica air levels than wet methods alone.[38] The effectiveness of exhaust ventilation is dependent on airflow rates, proper placement of the capture device, the size and speed of the tool being used, and other factors. If not properly implemented, local exhaust ventilation can be ineffective or counterproductive.

Additionally, all engineering controls are dependent on how they are installed, maintained and used. These controls require an expert user who regularly checks for efficacy and performs maintenance. None of these controls are passive or ignorable but must be tended to and updated continuously by trained individuals to ensure proper use and protection. Because very few artificial stone fabrication shops have such an individual on staff or on call the efficacy of the same type of engineering control is highly variable. Silica airborne concentrations vary greatly from day to day and from worker to worker in the same shops.

4.3.3 Personal protective equipment is the least effective and most burdensome control method, for the employee, employer, and for state agencies.

The least effective and most burdensome controls are personal protective equipment (PPE). In artificial stone fabrication, PPE alone is not sufficient to protect workers from harmful exposures.[34,35] The combination of wet methods and PPE may be effective at protecting workers exposed to non-nano-sized particulate, but is less effective at protecting exposure to crystalline silica nano-particulates. Additionally, the effectiveness in protecting workers is dependent on highly trained workers using the correct respirator, that has been correctly fitted, and is used correctly on a daily basis. PPE is recognized as least protective because of the high variability in human body dimensions, availability of appropriately fitting respirators, and the low compliance rates for wearing respirators for long periods of time due to discomfort. Additionally, the combination of full facepiece respirators with wet methods has been reported by workers to decrease visibility. The fabrication of artificial stone slabs is a highly artistic task and this barrier to compliance is unfortunately relevant.

In conclusion, the highest level of protection from hazardous exposures to silica from artificial stone is accepted to be elimination of the product and substitution with safer alternatives. If artificial stone must remain available to consumers, the standard for worker protection is to isolate the worker to protect them from both nano- and respirable particle sizes through use of a fully enclosed process for all high-exposure trigger tasks.

5.0 Applicable Title 8 Regulations

CCR Title 8, §5204. Occupational Exposures to Respirable Crystalline Silica

Title 8 Section 5204 was updated through an emergency change on December 29, 2023 and permanent changes effective February 5, 2025. To avoid including the entire regulation text, only the relevant parts to this petition are included here:

- §5204(f)(2): Requires employers to use engineering and work practice controls during high-exposure trigger tasks
- §5204(g): Defines RSC dust exposure as an imminent hazard
- §5204(h)(3): Requires employers to provide employees who perform high-exposure trigger tasks with specific respiratory protections
- §5204(j): Requires employers to make an initial medical exam available within the first 30 days of employment and to any employee who will perform high-exposure trigger tasks for at least 10 days

each year, and to inform employees of this right. Also requires periodic repeat medical exams for the same subset of employees

- §5204(k): Adds protection from job loss for employees when a physician or other licensed health care provider (PLHCP) recommends that they eliminate or reduce their exposure to RCS.

More detail for each of these sections is provided below.

Subsection (f) Methods of compliance.

(2) Engineering and work practice controls for high-exposure trigger tasks. The employer shall use the following engineering controls and work practices for all high-exposure trigger tasks, regardless of employee exposures, exposure assessments, or objective data.

(A) Engineering Controls. Effective wet methods that reduce exposure levels below the action level shall be used.

(B) Housekeeping and Hygiene.

1. Wastes, dusts, residues, debris, or other materials that are generated from high-exposure trigger tasks or that otherwise contain or are contaminated with respirable crystalline silica shall be promptly and properly cleaned up and placed into leak-tight containers, bags, or equivalent. At a minimum, all such wastes, dusts, residues, debris, or other materials shall be cleaned up at the end of each shift or more frequently as needed to ensure there is no visible dust build-up in the workplace.

2. Wet methods or vacuum cleaners equipped with HEPA filters shall be used to collect all wastes, dusts, residues, debris, or other materials that are generated from high-exposure trigger tasks or that otherwise contain or are contaminated with respirable crystalline silica.

3. Employees engaged in housekeeping tasks shall use respiratory protection in accordance with subsection (h)(3).

4. The employer shall provide readily accessible washing facilities in accordance with Section 3366 (Washing Facilities).

(C) The Division may require the employer to take additional actions to protect employees through the issuance of an Order to Take Special Action in accordance with Section 332.3.

(D) Prohibitions. The following practices are prohibited for high-exposure trigger tasks, regardless of exposure levels.

1. Any use of compressed air:

a. On waste, dust, debris, residue, or other materials that may contain crystalline silica;

b. On any surface or clothing or body surface that may contain crystalline silica; and

c. To back flush, backwash, or clean water, air, or other types of filters that may contain crystalline silica.

2. Any dry sweeping, shoveling, disturbing, or other dry clean-up of wastes, dusts, debris, or other materials that may contain crystalline silica.

3. Use of employee rotation as a means of reducing employee exposure to respirable crystalline silica.

4. Walking or moving equipment on or through dry dust, debris, residue, or other materials that may contain crystalline silica.

(g) Imminent Hazards.

(1) Failure to comply with subsection (f)(2)(A), Engineering Controls, shall be considered an imminent hazard and shall be subject to an Order Prohibiting Use (issued pursuant to Labor Code Section 6325) by the Division.

(2) Failure to comply with any of the following shall be considered an imminent hazard and may be subject to an Order Prohibiting Use from the Division:

(A) Subsection (f)(2)(D) Prohibitions;
(B) Subsection (h) Respiratory protection;
(C) Subsection (m) Reporting of silicosis; and
(D) Section 5203 Carcinogen Report of Use Requirements.

(h) Respiratory protection.

(3) For all employees exposed to a high-exposure trigger task the employer shall provide, and shall ensure employees properly use, the following respiratory protection, in accordance with Section 5144:

(A) A full face, tight-fitting powered-air purifying respirator (PAPR), a helmet or hood PAPR with an Assigned Protection Factor (APF) of 1000 pursuant to section 5144, or another respirator providing equal or greater protection (APF or 1000 or greater) equipped with a HEPA, N100, R100, or P100 filter shall be used.

Exception 1: The employer may provide employees with a loose-fitting PAPR (APF of 25), a half-face PAPR (APF of 50), a full facepiece air-purifying respirator (APF of 50), or another respirator providing equal or greater protection where the employer demonstrates that employee exposures to respirable crystalline silica are continuously maintained below the action level through representative air sampling conducted by a qualified person at least once every six months, in accordance with subsection (d)(3). The respirator shall be equipped with a HEPA, N100, R100, or P100 filter. This exception does not apply if the PLHCP or specialist recommends use of a full face, tight-fitting PAPR, or other more protective respirator.

Exception 2: The employer may provide employees with a respirator with an APF of 10 or greater equipped with a HEPA, N100, R100, or P100 filter if all of the following conditions are met:

1. Employee exposures to respirable crystalline silica are continuously maintained below the action level through representative air sampling conducted by a qualified person at least once every six months, in accordance with subsection (d)(3).

2. All employees are fully participating in all components of the medical surveillance program, pursuant to subsection (j); no employee, either currently or previously employed, has been diagnosed with silicosis; and no current employee meets the definition of suspected silicosis.

3. This exception does not apply if the PLHCP or specialist recommends a more protective respirator.

(B) A full face, tight-fitting supplied-air respirator in pressure-demand or other positive pressure mode for any employees known to the employer to be diagnosed with confirmed silicosis, or who meet the definition of suspected silicosis, or whenever the PLHCP or specialist recommends use of a supplied-air respirator. The air source for the supplied-air respirator shall be located outside the regulated area and in an area that is free of respirable crystalline silica and other airborne contaminants.

(j) Medical surveillance. (excerpt)

(2) Initial medical examination.

(A) For each employee exposed to a high-exposure trigger task for at least 30 days each year regardless of exposure assessments or objective data, the employer shall make available, and shall inform employees of their right to, an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of subsection (j)(4) within the last year.

(B) For each employee who is occupationally exposed to respirable crystalline silica at or above the action level for 30 or more days per year, and who is not covered by subsection (j)(2)(A), the employer shall make available, and shall inform employees of their right to, an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years.

(k) Medical Removal (excerpt)

(1) When the PLHCP recommends that an employee covered by subsection (j)(2)(A) be removed from a job assignment or that the employee's job be modified to reduce exposure to respirable crystalline silica, the employer shall modify the employee's job or transfer the employee to comparable work for which the employee is qualified, or for which the employee can be trained within a period of six months.

(2) The employer shall maintain the employee's current earnings, seniority, and other benefits for up to six months.

6.0 Federal OSHA Regulations Applicable to Silica Exposure

The federal OSHA regulations specific to silica are listed below.

Industry	Title 29 Code of Federal Regulations Section
Construction	1926.1153 - Respirable crystalline silica.
General Industry	1910.1053 - Respirable crystalline silica.
Ship Building, Ship Repairing and Ship Breaking	1915.1053 Respirable crystalline silica.

California has already adopted more protective regulations than federal OSHA as described in detail the previous section (Section 5.0).

7.0 Analysis

Abundant peer-reviewed published scientific evidence strongly links occupational exposure during artificial stone slab fabrication to accelerated silicosis, as discussed in part 3.0 of this evaluation.

7.1 Workers in this industry are uniquely vulnerable to RCS exposure for several reasons

According to CDPH data, 98% of the workers in California with silicosis in this industry are Latino men; most are foreign-born and speak Spanish or an indigenous language as their primary language.[39] About 20% are uninsured, and 40% are covered under restricted-scope Medi-Cal, meaning they are only able to access emergency medical care.[3]

Nearly half (48%) of UCLA's Olive View Medical Center's 52 silicosis patients discussed in part 3.1 of this evaluation presented initially to an emergency department. A delay in diagnosing silicosis occurred in 58% of the 52 patients, who were mistakenly diagnosed with bacterial pneumonia or tuberculosis. Only 7% of workers with silicosis in the artificial stone countertop industry received workers' compensation.

Surveillance of 243 confirmed silicosis cases in California from 2019-2024 reported on by Flattery et al. provided similar results to CDPH.[40] The workers were 99.6% male and 98% Latino. Of those that reported a country of origin (N=105), 98% were born outside the United States, primarily in Mexico (66%). Of those with data available on health insurance status (N=114), 64% were covered by Medi-Cal, 17% were uninsured or self-paid, 14% had private insurance, and 7% used workers' compensation insurance.

CDPH has identified 1,342 fabrication shops, as noted in part 4.1 of this evaluation.[31] These shops are distributed throughout the state following a similar pattern to population density (Figure 7). Los Angeles

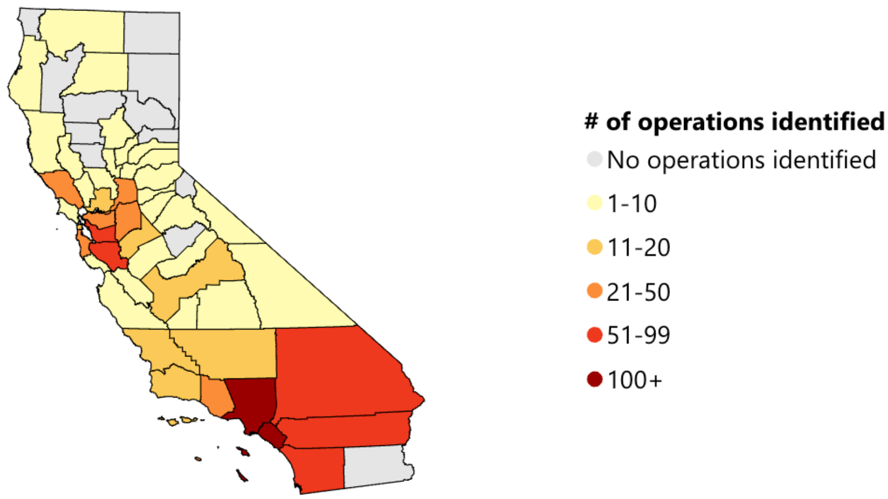


Figure 7. Fabrication operations in California identified by CDPH by county, accessed 2/17/2026
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/essdashboard.aspx

County, the most populous county in the state by a factor of three, and Orange County (historically the 2nd or 3rd most populous county) have the highest number of operations. The dashboard, shown in part in Figure 7, estimates a median of 5 workers per operation. This means there are an estimated 6,710 workers in California fabrication shops.

These workers live with significant economic insecurity; there is no evidence to suggest that any are represented by a labor union. They have little ability to advocate with their employer for workplace improvements, including in preventing exposure to RCS.[41] They face the possibility of retaliation if they report workplace hazards to Cal/OSHA or file workers' compensation claims.[42,43] The situation now with increased and more aggressive immigration enforcement by the United States Immigration and Customs Enforcement agency officers makes it even less likely that these workers will speak up about unsafe working conditions in California workplaces.[44]

7.2 Exposure to RCS, VOCs, and other compounds is widespread in California's fabrication shops.

As detailed in part 3.0, exposures to California artificial stone fabricators remains high and uncontrolled in the overwhelming majority of workplaces.

7.3 Artificial stone silica exposure control is not feasible for most CA fabrication shops

Silicosis in the Artificial Stone Fabrication Industry is possibly preventable, but the controls required by section 5204 are not feasible for the majority of shops. Compliant fabrication shops estimate that setting up a small shop that implements the controls required by section 5204 costs at least $250,000 and may still expose workers to harmful levels of crystalline silica.[45] In contrast, a non-compliant shop can set up for approximately $30,000 and expose workers to much higher levels of silica.[45] The average Cal/OSHA penalty (see part 4.1 above) for each artificial stone fabricator is approximately $14,000, which is unlikely to be sufficient to incentivize widespread compliance.

In addition to being infeasible for many small employers, the high cost creates a strong economic incentive for employers to not comply with necessary protections for workers. It also creates an unfair advantage for non-compliant employers, who can sell their products for much less at greater profit than compliant employers.

7.4 The banning of artificial stone in Australia has been successful in creating safer workplaces

7.4.1 Australia initially prohibited dry cutting and required PPE, health trainings, and screening

A silicosis outbreak began in Australia around 2015 as a result of artificial stone use in countertop fabrication. In response, Australian states screened workers for silicosis, implemented large scale enforcement, and prohibited dry cutting. These policies were ultimately deemed ineffective in mitigating the silicosis crisis.[46,47]

For example, starting on November 1, 2018, the state of Queensland, Australia prohibited dry cutting of artificial stone, required the use of PPE, air and health monitoring, and required dust control practices and training in health and exposure for workers and employers. In the four months immediately following these actions, from late 2018 through early 2019, Queensland field inspectors visited all of the known workplaces in the state that cut artificial stone – 138 shops. They issued 552 violations to these 138 shops, about four violations per shop.[48] The list of the top four citations:

- Inappropriate workplace cleaning practices,
- dry-cutting of artificial stone material,
- not undertaking health monitoring for workers, and
- failure to provide appropriate respiratory protective equipment.

Starting on September 1, 2019, the state of Victoria, Australia also prohibited dry processing (cutting, polishing, finishing) of artificial stone.[49] Similar to Queensland, Victoria launched an intensive enforcement effort employing many of its 269 field inspectors to conduct 1,731 worksite visits from May 2019 through October 2021. What they found was that in the periods following the prohibition of dry processing, the percentage of worksites with violations remained high, with 54% of visits from December 2019 to February 2020 having at least one violation, and 41% of visits from February 2020 to November 2021 having at least one violation. Additionally, both states conducted thorough health screening efforts.

7.4.2 Health screening in Australia revealed a 22-28% silicosis case prevalence

The active health screenings began at the same time as the intensive enforcement efforts. In Queensland's formal screening they screened 1,509 workers and found that 362 (24%) had silicosis.[50] The health screening carried out in Victoria was a multi-year effort that is still ongoing. In the initial effort they contacted all 1,400 artificial stone workers to offer them silicosis screening. By 2023, 544 workers had completed the screening.[27,49,51] Within these 544, 117, or 22%, were diagnosed with silicosis. However, because the effort focused on higher exposed workers, not all 544 were screened with the most sensitive methods. Among the 414 screened in secondary screening there were 117 with silicosis, or 28%.

7.4.3 The experiences of these two Australian states, plus the conclusions of the National Dust Disease Taskforce led Australia to conclude that enforcement was not sufficient to protect workers from harmful exposures.[46]

Following the National Dust Disease Taskforce recommendations, Safe Work Australia conducted a Decision Regulation Impact Analysis on managing the risks of respirable crystalline silica at work and published a Final Decision Regulation Impact Statement in February 2023. Safe Work Australia followed this analysis in August 2023 with "Decision Regulation Impact Statement: Prohibition" on the use of engineered stone, that showed how they concluded that banning the product entirely was the best course of action. In short, they found that the use of traditional enforcement and licensing were both costly yet insufficient to protect workers from the severe and often fatal outcome of silicosis.[52]

7.4.4 In July 2024, Australia banned the importation, manufacture, supply, processing, and installation of artificial stone benchtops (i.e. countertops), panels, and slabs.

The ban was determined to be the most economic method to address the silicosis crisis. The ban did not cause a loss of jobs. The ban resulted in multiple safer alternatives replacing crystalline silica containing artificial stone for countertops including natural stone, sintered stone (contains no resins), amorphous silica[‡] (recycled crushed glass), non-silica solid surface materials (acrylic or polyester), cement-based composites, porcelain, laminates, and other non-stone products (wood, bamboo, metal). Crystalline silica containing artificial stone has virtually disappeared from the market in Australia since the ban. The Australian government has concluded that the artificial stone prohibition is working as intended although future monitoring and evaluation are still needed to assess the ongoing effectiveness of the ban.[46,47] *Figure 8* shows the key steps and actions that Australia took prior to banning artificial stone.

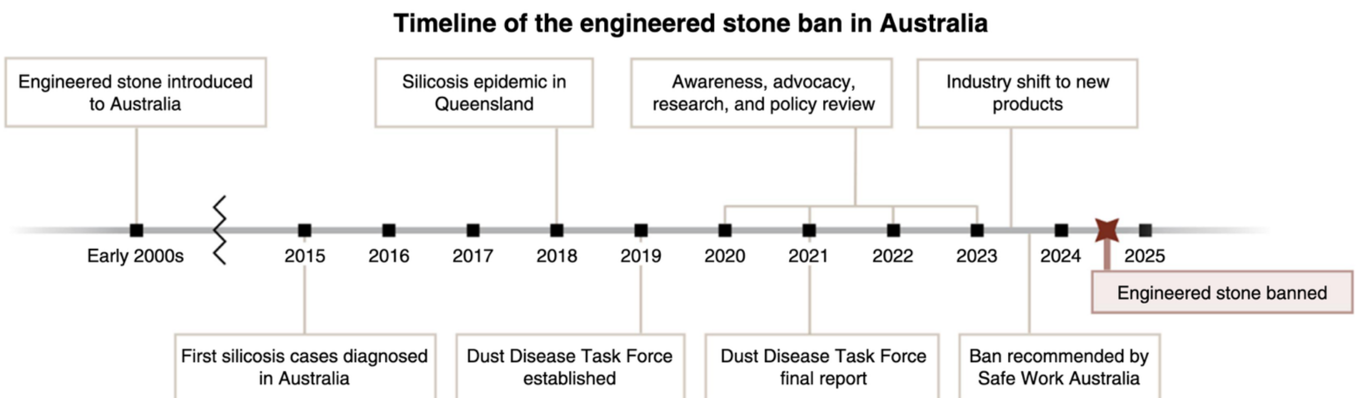


Figure 8. Timeline of the Australian artificial stone (called Engineered stone in the figure) ban, figure from Tefera et.al.,2025.[46]

7.5 Effect of potential prohibition in California

7.5.1 Incentivize use of safer alternatives

The banning of artificial stone in Australia resulted in the research, development, and distribution of safer alternatives as described in part 7.4.4 above. A prohibition on fabrication and installation of artificial stone in California could provide similar results. Responsible importers, distributors, and fabricators will switch to safer alternatives once they are aware of the prohibition. The switch to safer products by responsible businesses creates momentum for other less responsible parties as the safer products become the preferred and common product for consumers.

Even before the Australian ban, major retailers stopped selling artificial stone in Australia due to the negative publicity on the harmful effects of artificial stone on workers.[53] A prohibition on fabrication and installation of artificial stone in California could also have similar results. For large home improvement retailers or similar

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[‡] Studies indicate that exposure to amorphous silica does not result in the same degree of fibrotic lung disease as crystalline silica. The International Agency for Research on Cancer has classified amorphous silica as non-carcinogenic to humans based on available data, contrasting with the classification of crystalline silica as a known human carcinogen.

vendors, discontinuing artificial stone would be an opportunity to position themselves as proactive, worker protective, socially responsible companies at a moment when the public is paying attention. It would also create positive media coverage by showing they align their business practices with public health science and demonstrate that they are industry leaders.

In the U.S. there is a growing movement in the architecture and interior design communities to use safer alternatives.[54] For example, Habitable, an influential consensus body on healthy building materials that used to be known as the Healthy Building Network, rates building materials for safe use and takes into account the full lifecycle of the product including impacts on workers and consumer. Using a scale like a stoplight, ranging from green to red, Habitable rated artificial stone as a red product that should be eliminated when considering countertops.[55] This rating was based primarily on the impact the product makes on workers during the fabrication and installation processes. They recommend 9 safer alternatives, with natural stone, butcher block, sintered stone, and stainless steel the safest "green light" alternatives.

7.5.2 Negligible effect on jobs and the housing market.

The impact of a prohibition on jobs in fabrication and construction is negligible. Countertops would continue to be made and installed, but highly hazardous artificial stone would be replaced with safer substitutes. Australia has already shown that banning artificial stone has had no negative economic effects. Manufacturers and fabricators continue to make and sell countertops the same as before the ban. They are simply making and selling a safer substitute. There is negligible effect on the consumer as many safer substitutes look, feel, and perform similar to or the same as artificial stone.

7.5.3 Prohibition transforms enforcement from a complex evaluation of exposure controls to a simple determination of whether artificial stone is being fabricated.

Enforcement of artificial stone use prohibition would be substantially simpler than current Cal/OSHA silica enforcement. Instead of investigating, documenting, and collecting evidence on engineering controls, exposure levels, respiratory protection, housekeeping and hygiene, medical surveillance, and other specific requirements, Cal/OSHA would only need to determine if artificial stone was in use at a fabrication shop. Once artificial stone use is verified, Cal/OSHA would stop all fabrication work (cutting, grinding, polishing, drilling, edging, etc.) on artificial stone through issuance of an Order Prohibiting Use.

When arriving at a fabrication facility, Cal/OSHA would determine if artificial stone was in use through identification of products being fabricated through the following:

- Invoices, bills of lading, or other purchase records
- Product Technical Data/Specifications from the manufacturer or supplier
- Safety Data Sheets from the manufacturer or supplier
- Product labels
- Model number, SKU, brand, or manufacturer code that can be traced back to detailed product specifications.
- Interviews with employer, employer representatives, and employees.

A future regulation that prohibits artificial stone fabrication could also include a rebuttable presumption that stone slabs are assumed to be artificial stone where there is no documentation of the product identity.

Under a prohibition, if Cal/OSHA determines that artificial stone is being fabricated, it would immediately issue an Order Prohibiting Use, similar to how it is currently issuing Orders Prohibiting Use when certain silica controls are not implemented by employers. Employers would be prohibited from working with artificial stone but could continue work on existing natural stone inventory, non-stone products, and non-crystalline silica containing artificial stone.

If a prohibition were enacted, Cal/OSHA would not need any new enforcement authority to enforce it as the existing statutory authority under Labor Code sections 6309–6317 already allows entry, investigation, and collection of documents. Labor Code sections 6325 and 6326 already provide authority for Orders Prohibiting Use.

Prohibition is a fundamentally different enforcement model than current enforcement. Under the existing model, Cal/OSHA determines the effectiveness of required controls and protective measures. Under a prohibition, Cal/OSHA would determine solely if artificial stone were being used. This would make enforcement faster, less technical, and more binary (simple yes or no determination).

7.5.4 A prohibition on fabrication and installation of artificial stone fabrication could drive the fabrication industry further underground

While Petition 609 aims to protect worker health by eliminating the primary silicosis risk, a prohibition could unintentionally push parts of the industry further into hiding, where safety protections are absent and health risks are even greater. A prohibition may potentially result in:

- Best actors comply and replace artificial stone with safer alternatives.
- The worst actors go further underground (attempt to evade enforcement by fabricating in private garages, residences, or other unmarked and secluded locations).
- Worker risk concentrates in the least regulated spaces.
- Some fabricators may move out of state to avoid California requirements, so enforcement could only happen at the point of installation.

7.5.5 Australian successful artificial stone ban does not automatically translate to success in California.
There is a distinct difference between the 2024 banning of artificial stone with crystalline silica in Australia (which is widely recognized as a highly successful effort to protect workers from silicosis) and the request in Petition 609. Australia banned artificial stone and controlled its supply, whereas Petition 609 would only prohibit working on artificial stone. Australia's artificial stone ban was paired with upstream controls that California does not have:

- Import bans
- Supply and sale bans
- Tight customs and product certification controls

In Australia, crystalline silica artificial stone slabs largely disappeared from the legal market and fabricators were unable to get the material even if they wanted to use it.

California, under a fabrication and installation prohibition, by contrast:

- Would not control imports
- Would not affect legitimate independent contractors with no employees[§]
- Would not regulate or control slab distribution
- Would have no statewide material certification or tracking system

[§] In Cal/OSHA's enforcement experience, employers commonly misclassify employees as independent contractors in attempt to escape liability for employee health and safety.

- Would rely on workplace inspections and not supply-chain control

If artificial stone remains available in California, some shops will continue fabricating and installing it and attempt to remain hidden from enforcement.

7.6 A New Regulation Is Needed

The known and well-quantified risks of exposure to silica dust from artificial stone fabrication and installation present a severe and immediate harm to a large vulnerable population of California workers. The combined approach of engineering controls, PPE, and enforcement have not led to a reduction in exposures but have instead revealed industry-wide non-compliance. As detailed above, safer alternatives exist and a prohibition on fabrication and installation of artificial stone can drive technological innovation and investment in additional safer alternatives. Last, the prohibition of work with artificial stone that contains more than 1% crystalline silica appears to be the only way to protect workers from contracting a terminal disease.

Given all the evidence, a new regulation with a preventative approach to harm reduction is needed.

7.7 Alternatives for a Phased Prohibition on Artificial Stone with Crystalline Silica

While the evidence summarized in this evaluation strongly supports prohibition of fabrication and installation of artificial stone containing more than 1% crystalline silica, a phased-in prohibition could reduce economic disruption, allow supply chains to adjust, and provide employers time to transition to safer countertop material alternatives while still protecting worker health.

Several alternatives could achieve these objectives.

7.7.1 Immediate prohibition on new fabrication with limited transitional allowances

One approach would prohibit fabrication and installation of artificial stone containing more than 1% crystalline silica after the effective date of the regulation, while allowing limited temporary use of existing inventory. Under this approach:

- Fabrication and installation of artificial stone purchased, ordered, or otherwise obtained by fabricators after the effective date would be prohibited.
- Employers could continue to fabricate artificial stone that was already in inventory prior to the effective date for a defined period (e.g., 12 months). Employers would still be required to follow all worker protection requirements in title 8 and the Labor Code during the transition period.
- After the transition period expires, all fabrication and installation would be prohibited regardless of purchase date.

This approach would immediately halt expansion of artificial stone use while allowing businesses to exhaust existing inventory and transition to safer alternatives to artificial stone.

7.7.2 Gradual reduction of allowable crystalline silica content

Through this gradual phase-out approach, the manufacturer would have an incentive and time to redesign products with significantly lower crystalline silica content while still moving toward elimination of the highest-risk materials. A proposed phase-out plan timeline would be as follows:

- Phase 1: In the first year, prohibit fabrication of artificial stone products containing greater than 50% crystalline silica.
- Phase 2: In the second year, reduce the limit further (e.g., 10–20%).

- Phase 3: In the third year, prohibit fabrication of products containing greater than 1% crystalline silica.

However, this approach has limitations because even lower-silica artificial stone products can still generate hazardous dust during fabrication and installation. We would likely see more workers in artificial stone fabrication shops contract silicosis during this time period and for subsequent years.

7.7.3 Delayed effective date paired with mandatory transition planning

Another approach is to establish a future prohibition date (for example, 18–24 months after adoption of the regulation) while requiring immediate preparation for transition.

During the transition period employers would be required to:

- Develop written transition plans to shift to safer materials,
- Notify workers of the upcoming prohibition,
- Provide training on safer alternatives,
- Document efforts to identify substitute materials.

This approach would provide predictability for the industry while maintaining a clear endpoint for artificial stone fabrication.

8.0 Conclusion

Cal/OSHA finds that the fabrication and installation of artificial stone with greater than 1% silica:

- Is inherently dangerous, highly toxic, and harmful to workers
- Should be prohibited though title 8 rulemaking, such as through an immediate prohibition or use of a phase-out strategy

Cal/OSHA recommends that Petition 609 be granted to the extent that the Standards Board requests Cal/OSHA to:

1) Convene an advisory committee representing stakeholders to consider and discuss the best way to prohibit fabrication and installation of artificial stone slabs with more than 1% crystalline silica, and
2) Initiate rulemaking to revise 5204 to prohibit the use and installation of artificial stone with more than 1% crystalline silica.

Cal/OSHA also recommends that the petitioner and stakeholders be invited to provide further scientific data and information identified in Petition No. 609. This information would be reviewed and considered prior to the advisory committee meeting and included with the materials to be discussed during the meeting.

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