Emergency Silica Regulation

Adopted: December 14, 2023

Readoption Vote: May 16, 2024

STATE OF CALIFORNIA
CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

Silica Rulemaking Timeline

- Mar 2016: Federal OSHA adopts silica regulations
- Oct 2016: Silica Regulations from federal OSHA adopted into Title 8
- April 2023: Petition to Board for Emergency Regulation
- May 2023: Cal/OSHA recommends Emergency Rulemaking
- Dec 2023: Standards Board adopts Emergency Regulation
- Dec 29 2023: Emergency Regulation in effect
- May 2024: Standards Board notices permanent regulation
- May 16 2024: Standards Board vote: 1st readoption Emergency Regulation
- Aug 15 2024: Standards Board vote: 2nd readoption Emergency Regulation
- Dec 23 2024: ETS expires. Standards Board vote on permanent regulation

Changes to Silica Emergency Temporary Standard

- Changes to Emergency Silica Regulation in the Readoption are minimal and consist of:
  1. Subsection (b)(9) definition of “High Exposure Trigger Task”
  2. Subsection (h) Respiratory Protection

- Remaining requirements in the Emergency Regulation for readoption remain the same as the December 2023 version

Changes to Silica Emergency Temporary Standard

For readoption: Two new exemptions were added to the definition of "high exposure trigger tasks." Exceptions do not apply to artificial stone

(b)(9) "High-Exposure Trigger Task" means machining, crushing, cutting, drilling, abrading, etc. …

- artificial stone > 0.1% crystalline silica
- natural stone >10% crystalline silica.

- Exception 1: Geologic field research
- *Exception 2: Outdoor work at quarries or open pit mines…*
- *Exception 3: Fabrication or finishing of natural stone tombstones, monuments, memorials, burial vaults, sculptures…*

Changes to Silica Emergency Temporary Standard

For re-adoption: Added assigned protection factor (APF) for respirators required for high exposure trigger tasks to simplify searches for equivalent respirators

- Change has no effect on regulation

(h)(3)(A) A full face, tight-fitting powered-air purifying respirator *(PAPR)* *(assigned protection factor (APF)* of 1000), or a respirator providing equal or greater protection…

Changes to Silica Emergency Temporary Standard

For re-adoption: when exposure < action level

- Added APF and example of half-face PAPR to simplify searches for equivalent respirators
- Change has no effect on regulation

(h)(3)(A) Exception: Employer may provide employees with a loose-fitting PAPR *(APF of 25)*, a full facepiece air-purifying respirator (APF of 50), a half-face PAPR (APF of 50), or another respirator providing equal or greater protection where…employee exposures to respirable crystalline silica are continuously maintained below the action level…

Changes to Silica Emergency Temporary Standard

- **For Readoption:** requirements for an organic vapor cartridge and related exception were deleted

- (h)(3)(A)… For artificial stone, a HEPA, N100, R100, or P100 filter ~~*and organic vapor cartridge*~~ *shall be used*.
- ~~*Exception 1: The organic vapor cartridge may be omitted where the employer demonstrates that there are no exposures over the PEL established in Section 5155 for any organic compound known to be present in the artificial stone, based on information provided in the manufacturer's safety data sheet.*~~

Deficiencies of Pre-Existing Silica Regulations

- The Emergency Regulation continues to be necessary
- The Pre-Existing §5204 “Occupational Exposures to Respirable Crystalline Silica” was not able to effectively protect workers from the hazards of engineered stone.

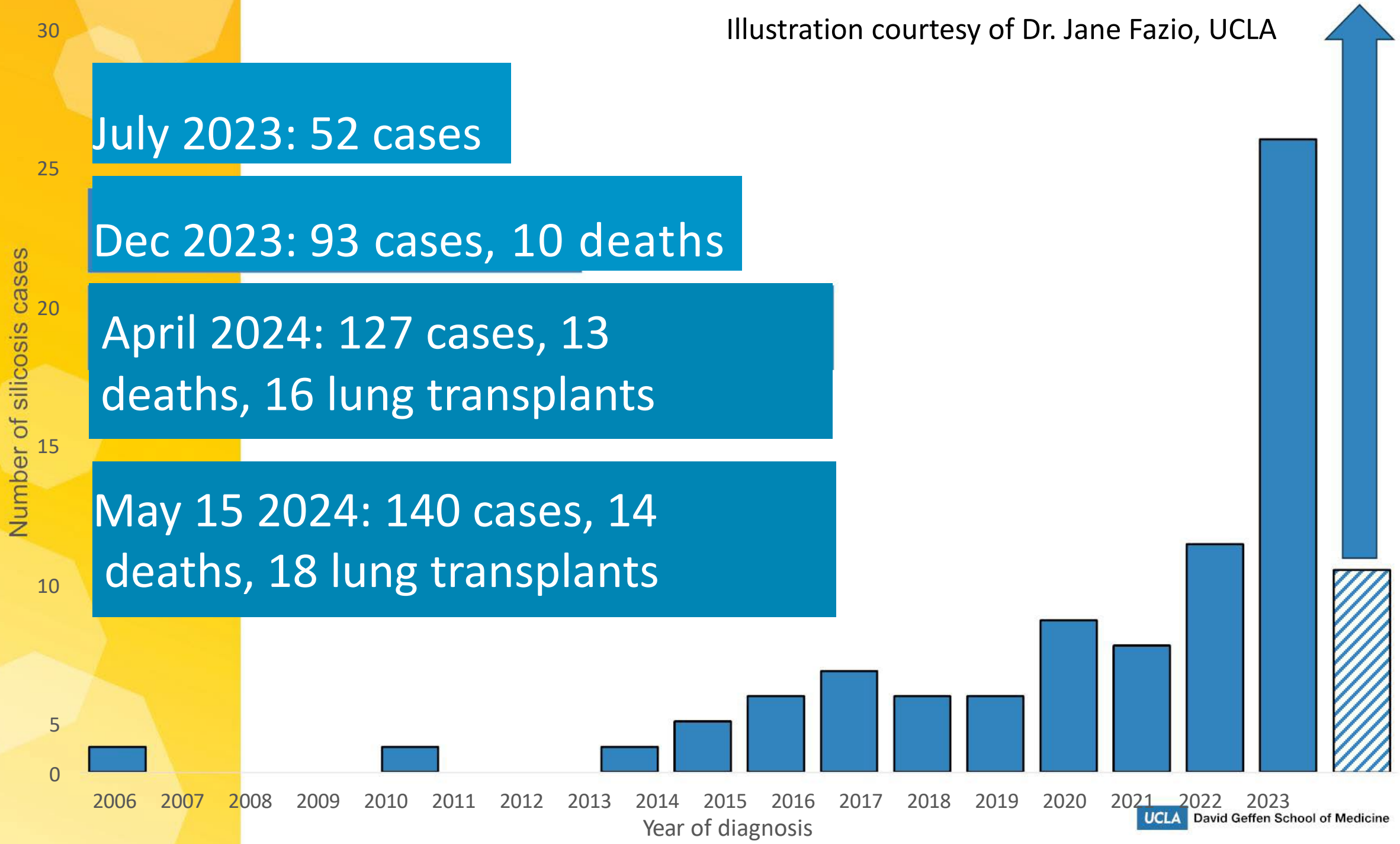
Illustration courtesy of Dr. Jane Fazio, UCLA

July 2023: 52 cases

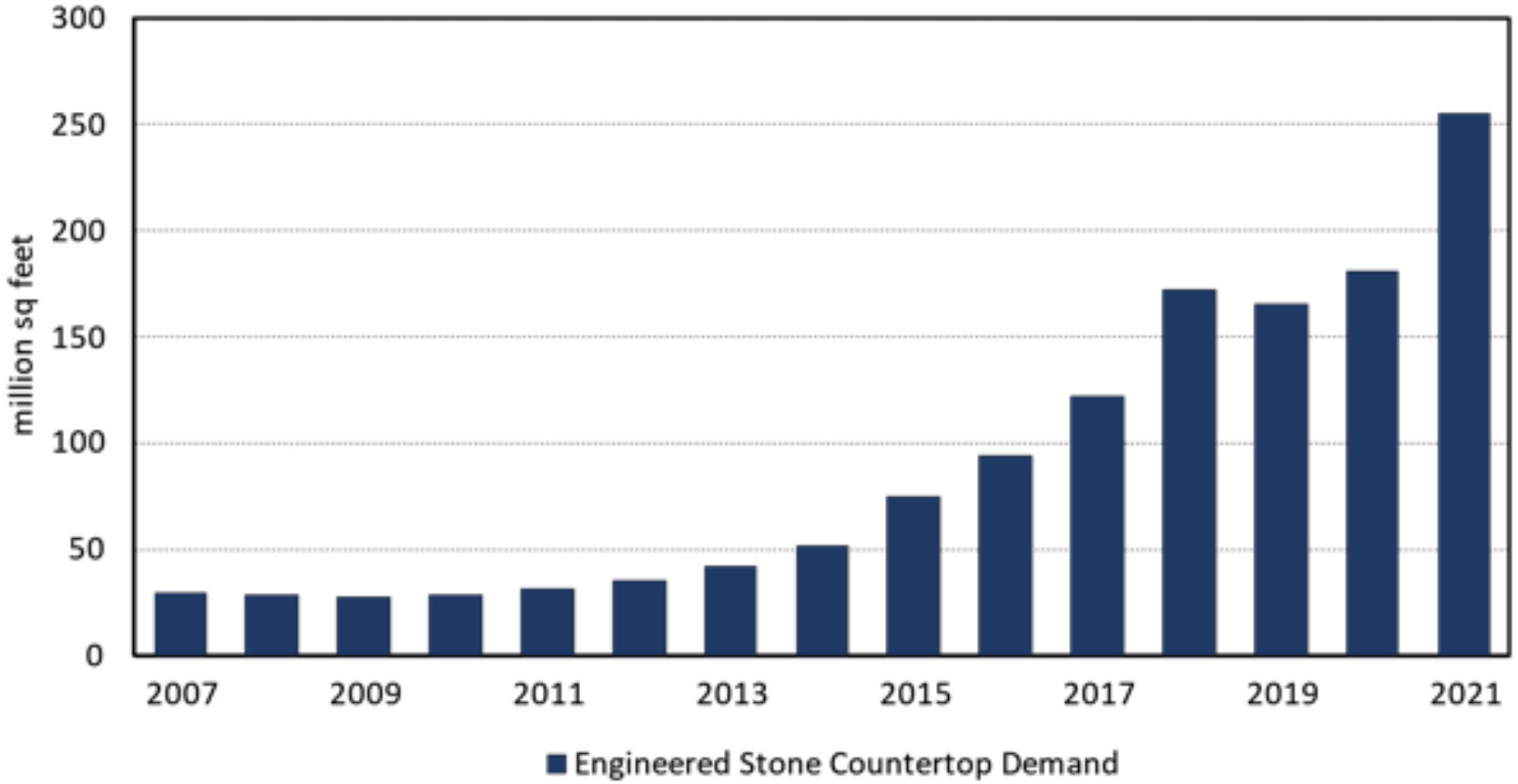
Dec 2023: 93 cases, 10 deaths

April 2024: 127 cases, 13 deaths, 16 lung transplants

May 15 2024: 140 cases, 14 deaths, 18 lung transplants



U.S. Engineered Stone Demand, 2007-2021



Global market valued at $25 billion for 2023.
Annual projected growth to 2033: 13%

Source: Freedonia Group and Engineered Stone Market https://market.us/report/engineered-stone-market/

Deficiencies of Pre-Existing Silica Regulations

Feasibility exemptions created a lack of clarity on requirements for:

- Engineering controls
- Wet sweeping
- HEPA-filtered vacuums
- Prohibition on using compressed air to clean clothing and surfaces

Deficiencies of Pre-Existing Silica Regulations

"Objective data:" 5204 allowed-employers to exempt themselves from the standard (and from air monitoring) when the employer determined that silica exposures were likely below the action level, based on "objective data."

Objective data: industry-wide monitoring data or calculations based on the composition of a substance.

Deficiencies of Pre-Existing Silica Regulations

- Monitoring: All protective measures hinged on the results of either “objective data” or air monitoring conducted by the employer.
- Cal/OSHA’s enforcement of worker protections also hinged on results of air monitoring.
- Cal/OSHA found monitoring to be variable and manipulable

Artificial Stone Workplace Covered in Silica Dust

Photos provided to Cal/OSHA courtesy of Dr. Jane Fazio, UCLA

Dry grinding to create bullnose edge

Photo: https://fedvrs.us/cutting-and-polishing-granite-countertops/

Dry edging

Photo: https://fedvrs.us/cutting-and-polishing-granite-countertops/

Dry polishing

Photo: https://fedvrs.us/cutting-and-polishing-granite-countertops/

Deficiencies of Pre-Existing Silica Regulations

Widespread Non-compliance found in the 2019-2020 Special Emphasis Program*

- 72% of countertop employers in violation of section 5204
- 51% workplaces had a worker exposed over the PEL
- 25% of all workers monitored were exposed over the PEL
- Only 5% of workers received required medical exam.
- Only 45% of workers reported using wet methods.

*Surasi K, et al. (2022). *Am J Ind Med*. 65:701-707. https://pubmed.ncbi.nlm.nih.gov/35899403/.

Cal/OSHA Silicosis Projections under the Pre-Existing Silica Regulation

- 500 to 800 of 4,000 estimated workers* could develop silicosis after median of 15 years of exposure
- 95 to 150 of these workers with silicosis could die absent a lung transplant
- Cal/OSHA estimates based on:
  - 2019-2020 inspection findings (25% of workers exposed over PEL)
  - CDPH reported silicosis rate of 12% to 21% in the industry
  - CDPH reported silicosis fatality rate of 19% in the industry

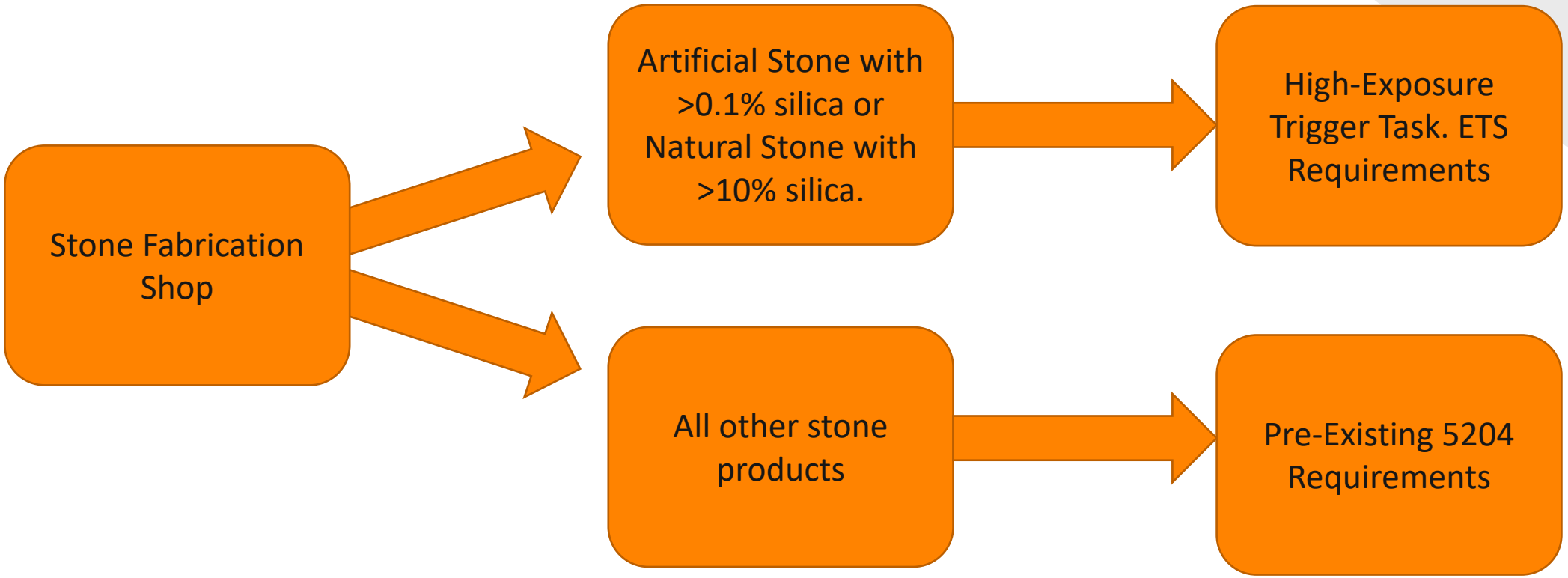
* The number of countertop workers might be as high as 11,000 (CDPH, MMWR 2018)

Silica Emergency Temporary Standard

Emergency Regulation continues to be necessary

- Emergency Regulation eliminates deficiencies in 5204
  - High-exposure trigger tasks require protections, regardless of silica exposure levels
  - Authorizes Cal/OSHA to stop dangerous work immediately through Orders to Prohibit Use (OPU)
  - Improved communication and training requirements
  - Requires reporting of silicosis cases to Cal/OSHA & CDPH

Silica Emergency Temporary Standard



Silica Emergency Temporary Standard

Existing Protections in the ETS

(f) Methods of compliance

- Use wet methods without exception
- Safely & frequently clean up all waste materials
- Do not use compressed air
- Do not dry sweep
- Do not rotate employees to reduce exposures
- Do not allow employees or equipment to move through silica dust

For readoption: no changes

Silica Emergency Temporary Standard

Existing Protections in the ETS

Requires respiratory protection in addition to wet methods

- NIOSH and Georgia Tech studies show that wet methods are not sufficient by themselves to protect workers from RCS exposure while cutting, grinding or polishing artificial stone.
- Exposures can be highly variable and not always properly represented by periodic air sampling

Videos available at: Clean Air, Clean Water: Silicosis - November-December 2020 (stonemag.online)

NIOSH 1: Water stream misdirected away from blade.

Video provided to Cal/OSHA courtesy of NIOSH

NIOSH 2: Not enough water causing exposed dry sections of countertop.

Video provided to Cal/OSHA courtesy of NIOSH

NIOSH 3: Flooding surface + internal tool stream is more effective.

Video provided to Cal/OSHA courtesy of NIOSH

Silica Emergency Temporary Standard

Existing Protections in the ETS

(k) Communicating with employees

- Ensure training and information is appropriate for the language and literacy of employees.
- Train employees on symptoms of silica exposure.
- Train employees on proper use of engineering controls, work practices, clean-up procedures, prohibited tasks.
- Encourage reporting of symptoms of silica exposure without fear of reprisal.

For readoption: no changes

Silica Emergency Temporary Standard

Existing Protections in the ETS

(l) Reporting of silicosis

- Employers must report employees with confirmed silicosis or lung cancer to Cal/OSHA and CDPH.
- Healthcare providers that provide medical services to employers under the silica regulation must report confirmed silicosis cases to Cal/OSHA.

For readoption: no changes

How does the ETS improve enforcement by Cal/OSHA?

When employees conduct high-exposure trigger tasks:

- Cal/OSHA can enforce protections without having to prove silica exposures are over the PEL
- Cal/OSHA must issue an OPU if the CSHO observes dry cutting and may issue an OPU for certain other dangerous conditions

ETS Field Enforcement

"I'm averaging about 10 citations per countertop inspection. Other CSHOs I have talked to are finding similar results. Even cutting wet, they are still over the PEL."

"By issuing OPUs without sampling we can stop the exposures immediately. We are also requiring a higher level of protection for those workers once the shops do reopen."

Karen Smith, CIH, CSP
Cal/OSHA Senior Industrial Hygienist

Photo: NIOSH, CDC

Outreach on Silica ETS

- Distributed Cal/OSHA letter with CDPH materials to 1,000 employers
- Fact sheets, guidance, FAQs
- Model Exposure Control Plan
- External trainings
- Multi-media public awareness campaign
- Meeting with CBOs and worker centers