

Lung Disease Caused by Engineered Stone

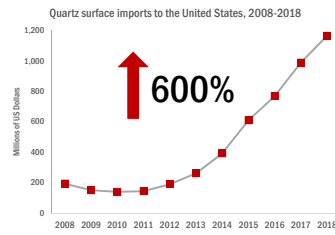


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Photo credit: Earl Dotter

Engineered Stone: An Emerging Threat



Silica Hazards from Engineered Stone Countertops

March 11, 2016 by Karen Worthington, MD, PhD, Colleen C. Margret Fitis, MS, PhD, Maryjo Kelly, MS, Robert Harrison, MS, MPH, and Kenneth D. Bostrom, MD

A new engineered stone countertop product known as "quartz surfacing" was created in the late 1980s by combining quartz aggregate with resins to create a product for use in home building and home improvements. Manufacturing of this material, including products such as Caesarstone's "Seawater", Zodiaq, or Cambria™ is a fast growing industry. First made in Israel and Spain, production of these materials has grown worldwide, driving quartz slab imports to the U.S. up 63% between 2011 and 2012 and 48% between April 2012 and April 2013 (Schwartzkopf 2013, Statwatch 2013). Quartz surfacing materials may contain up to 95% crystalline

Popular Quartz Countertops Pose a Risk to Workers

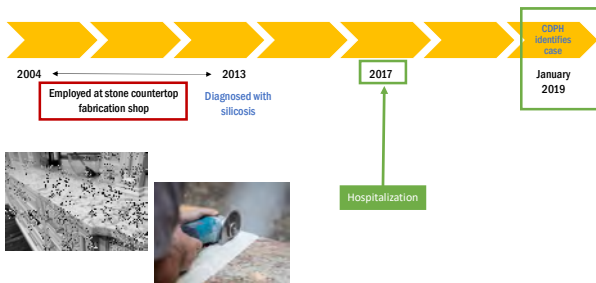


Morbidity and Mortality Weekly Report (MMWR)

Notes from the Field: Silicosis in a Countertop Fabricator – Texas, 2014
 Weekly February 13, 2015 / 64(05):129-130

Gary R. Friedman, MD¹, Robert Harrison, MD², Neil Bajak, PhD³, Karen Worthington, MD⁴, Margaret Fitis, MD⁵ (Author affiliations at end of text)

Index California Case - (2019)



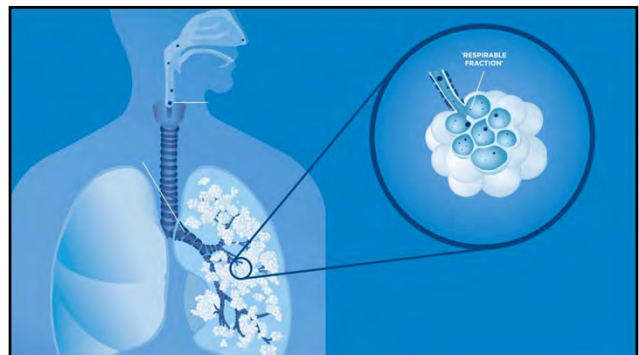
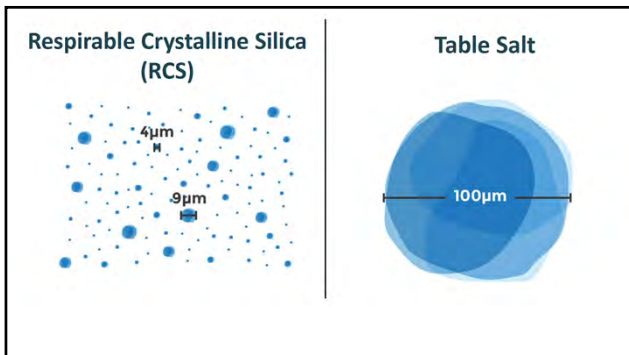
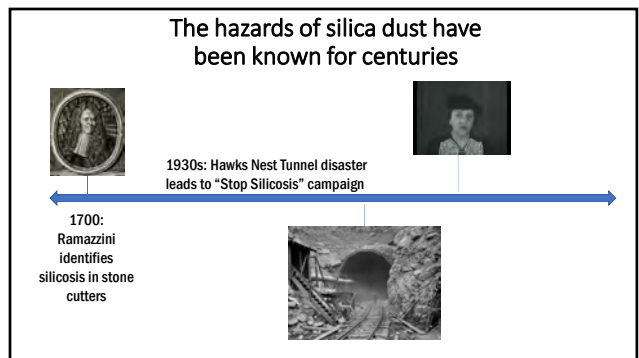
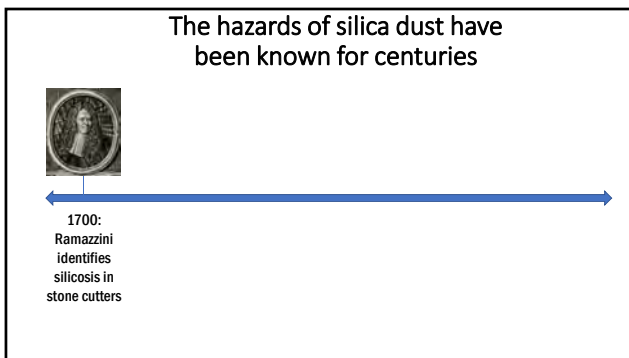
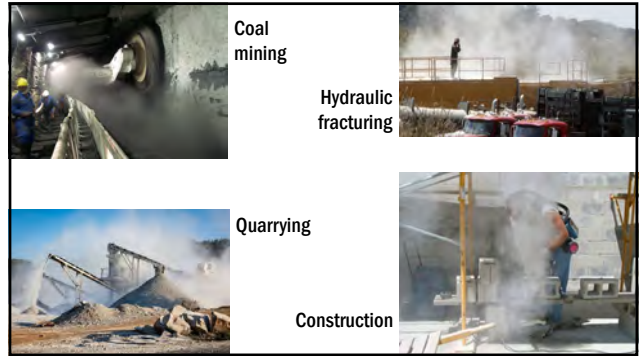
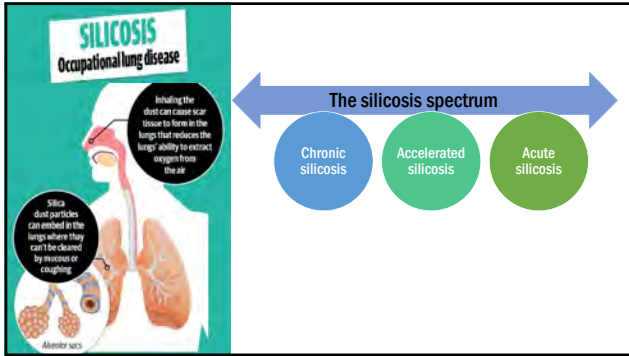
Slide Credit: Amy Heizerling MD

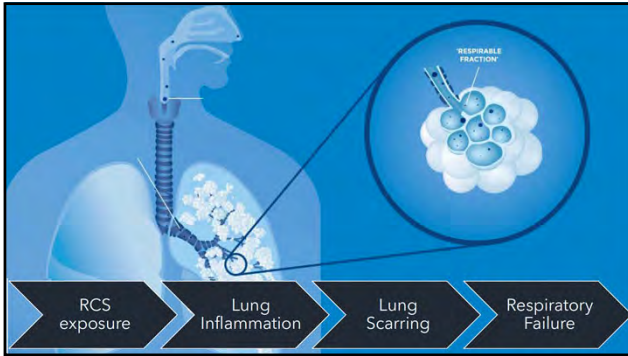
Centers for Disease Control and Prevention
 CDC Data - Saving Lives, Promoting Healthy Futures™
 Morbidity and Mortality Weekly Report (MMWR)

Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019


Weekly / September 27, 2019 / 68(38):813–818

Cecile Rose, MD^{1,2}; Amy Heizerling, MD^{1,3,4}; Keiki Patel, MD, PhD⁵; Coralynn Sack, MD⁶; Jenia Wolff; Lauren Zell-Baran, MPH⁷; David Weissman, MD⁸; Emily Hall, MPH⁹; Robbie Soorialal, MD¹⁰; Rondá B. McCarthy, MD¹¹; Heidi Rojas, PhD¹²; Brian Krimizer, MD¹³; Jennifer Flattery, MPH¹⁴; Justine Lew Weinberg, MSc^{15,16}; Joshua Pomicino, MD¹⁷; Kirk D. Jones, MD¹⁸; Carolyn K. Reeb-Whitaker, MS¹⁹; Nicholas K. Reul, MD^{20,21}; Claire R. LaSee, MPH, MSW²²; Barbara L. Materin, PhD²³; Ganesh Raghu, MD²⁴; Robert Harrison, MD²⁵ (VIEW ALL THEIR AFFILIATIONS)





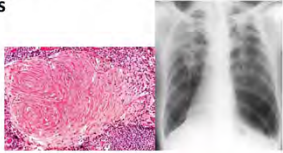
Common symptoms



- Cough
- Shortness of breath
- Chest tightness or pain

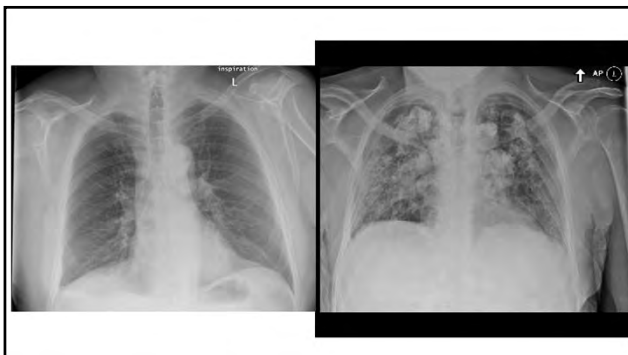
Health Effects of Silica

- Silicosis
 - Chronic = after 10+ years, lower concentrations
 - Accelerated = after 5-10 years, higher concentrations
 - Acute = after weeks to years, highest concentrations
- Mycobacterial, fungal infections
- Lung cancer, COPD
- Autoimmune disease
- Chronic kidney disease



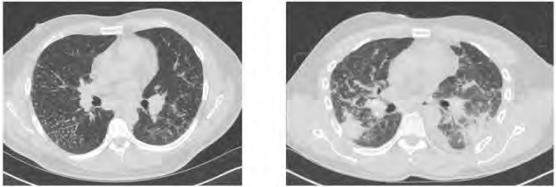
Different from the usual "simple" silicosis

- 39% with Progressive Massive Fibrosis
- 15% fatal



Often Present with Advanced Disease

Simple: 61% Complicated: 39%



OSHA Silica Standard for Employers

IN 2016, OSHA REDUCED THE PEL OF RESPIRABLE CRYSTALLINE SILICA AVERAGED OVER AN 8-HOUR SHIFT BY 5X.

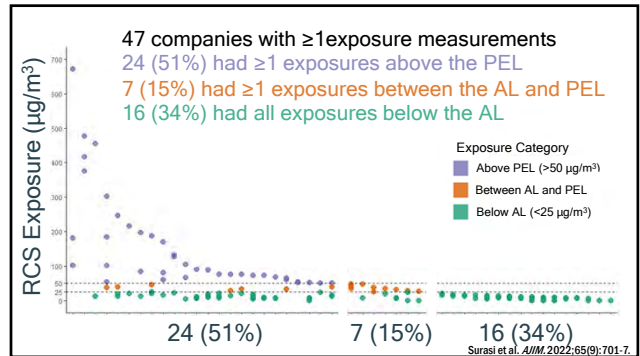
PRE-2016

250 micrograms/
cubic meter of air

2016

50 micrograms/
cubic meter of air

- Determine amount of exposure
 - Action level: 25µg/m³
 - Permissible Exposure Limit: 50µg/m³
- Use dust controls and safer work measures
- Written exposure control plan
- Train workers on health effects
- Offer medical exams
- Keep records of exposures and medical exams



Worker interviews (n=92)

- Young (< 40)
- < 4 years at work
- ¼ cutting stone dry
- no silica medical exams

Spiegel et al. AJIM. 2022; doi: 10.1002/ajim.23432.

JAMA Internal Medicine | Original Investigation

Silicosis Among Immigrant Engineered Stone (Quartz) Countertop Fabrication Workers in California

Jane C. Fazio, MD; Sheiphali A. Gandhi, MD, MPH; Jennifer Flattery, MPH; Amy Heinzerling, MD, MPH; Nader Kamangar, MD, MS; Nawal Afif, DO; Kristin J. Cummings, MD, MPH; Robert J. Harrison, MD, MPH

California Department of Public Health
Occupational Health Branch

DO YOU WORK AS A COUNTERTOP FABRICATOR?

We invite you to join our study on lung health and silica dust health issues in the quartz top fabricating sector in your county.

If you take part, you will be asked to:

- Answer questions about your health and risks you do at work
- Take breathing, x-ray, and blood tests

In exchange for your time and participation, you will receive a \$200 gift card and your test results for FREE. No cost to you or your insurance.

Contact us for more information:
 (916) 681-9411
silica-study@cdph.ca.gov

ENGINEERED STONE DANGERS

CBS MORNINGS | **DANGERS OF ENGINEERED STONE**
 POTENTIALLY DEADLY DISEASE LINKED TO MANUFACTURING OF COUNTERTOPS

February 6, 2024
<https://www.cbsnews.com/news/workers-who-cut-quartz-countertops-say-they-are-falling-ill-from-a-deadly-lung-disease/>