COUNTERING AN OLD HAZARD MADE NEW

Thank you
Robert Harrison, MD, MPH
Karen Worthington, MS, RN, COHN-S
Artificial Stone Silicosis: Disease Resurgence Among Artificial Stone Workers

Krasner et al: 2012
Great-looking countertops that last:
The results of Consumer Reports tests of 16 countertop materials

#1 = Quartz Surfacing Materials
Steep growth in U.S. imports of quartz surfacing materials

2012 U.S. Quartz Imports Boom

By Emerson Schwartzkopf

The foreign flow of quartz surfaces continued in 2012, setting import records reminiscent of granite-slab traffic in the mid-2000s.

U.S. ports-of-entry saw 20,688,957 ft² of quartz slabs last year, up 63% from 2011, according to an exclusive Stone Update analysis of import figures from the U.S. International Trade Commission.

While the data doesn’t account for all quartz-surfaces use in the United States, the large push in imported material shows the continued rise in popularity for the man-made slabs.

Spain led all countries with 8.3 million ft² shipped here in 2012, up 78% from the previous year. Israel staked a strong second, with its 6.1 million ft² representing an impressive 118.5% annual rise.

StatWatch: Quartz Slab Imports Up in March

U.S. imports of quartz-surface slabs this March made a substantial improvement from 2011, with volume outpacing total value by almost a 2:1 ratio.

U.S. ports-of-entry accepted 1.2 million ft² of quartz slabs in March, a 36.4% increase from the previous March.

Spain led the march handily, shipping 549K ft² in March, up 69.2%. Israel came in second by almost half—275K ft²— but that represented a 184.0% increase from March 2011.

Other larger exporters didn’t fare as well, as four of the 10-top countries supplying quartz slabs showed a decrease from last March, including Canada (111K ft², down 44.9%), China (79K ft², down 12.6%) and Italy (47K, down 17.6%). Some of the decline with Canada, however, may be reflective of panel production shifting to new U.S. operations.
# Safety Data Sheet

**Product Name:** Caesarstone® / Conetto®

**MSDS Date:** March 26th, 2012

### 1. Product and Company Identification

**Product Name:** Caesarstone® / Conetto®

**Product Use:** Caesarstone® Quartz Surfacing and Conetto® Natural Stone Surfacing

**Company:** Caesarstone
Kibbutz Sdot-Yam
MP Menashe, 38805
Israel

**Emergency Phone Number:** 972-3-6264-500

### Crystalline Silica and other natural stone

<table>
<thead>
<tr>
<th>Material</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline Silica and other natural stone</td>
<td>14808-60-7</td>
<td>&gt;85</td>
</tr>
<tr>
<td>Cristobalite</td>
<td>14464-46-1</td>
<td>&lt;50</td>
</tr>
<tr>
<td>Polymeric resin</td>
<td>7-15</td>
<td></td>
</tr>
<tr>
<td>Additives</td>
<td>0-8</td>
<td></td>
</tr>
</tbody>
</table>

### 3. Hazards Identification

**Emergency Overview**

Information Pertaining to Particular Dangers for Man and Environment: Classification: This preparation is not classified as hazardous according to the latest adaptation of European Union Directives 67/548/EEC and 1999/45/EC.
An old story?

Simcox et al: *Silica exposure during Granite countertop fabrication.* App Occ Env Hyg 1999

<table>
<thead>
<tr>
<th>Company ID</th>
<th>No. of workers sampled</th>
<th>Range (mg/m³)</th>
<th>Mean (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>0.11–0.77</td>
<td>0.49</td>
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<tr>
<td>3</td>
<td>9</td>
<td>&lt;0.04–0.58</td>
<td>0.22</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>&lt;0.08–0.22</td>
<td>0.16</td>
</tr>
</tbody>
</table>

*Reported exposures may include several activities: grinding, cutting, and polishing. Companies used similar equipment, such as angle grinders and circular saws.*
Silica Dust Poses Health Hazard in Stone Fabrication Industry

May 1998

Fabricating granite countertops and other silica-containing materials may expose workers to levels of respirable crystalline silica that can cause silicosis.

HAZARD ALERT

To: Employees and employers in the granite countertop fabrication industry

Fabricating granite countertops and other silica-containing materials may expose workers to levels of respirable crystalline silica that can cause silicosis.

Dry Cutting & Grinding is RISKY BUSINESS

Silicosis from Synthetic Countertops

Synthetic quartz-containing bathroom and kitchen countertops were first introduced in 1987. These artificial stone countertops are composed of a mixture of synthetic polymer resin with natural quartz aggregates, and have a silica content ranging from 85-93%. In contrast, the average silica content of pure granite countertops is 60-70%. Synthetic countertops with high silica content are manufactured under different brand names such as CaesarStone®, Silestone®, and Zodiac®. The synthetic countertops have attained increased popularity because of their strength, water resistance and pigment options in comparison to pure granite.

Risky business out in the States
“Practical guidance for preventing the terrible occupational illness of silicosis…”

John Howard, MD
Director, NIOSH
Though based on sampling in only a small number of workplaces, the results of this study provide evidence that whenever dry methods are used, even for limited periods, there is a high likelihood that full-shift TWA exposure to respirable quartz could exceed the TLV of 0.025 mg/m³, and a significant chance that exposure may approach or exceed the effective permissible exposure limit (PEL) of 0.1 mg/m³ established by the Occupational Safety and Health Administration (OSHA).\(^{18}\)
“The proposal seeks to lower worker exposure to crystalline silica, a deadly dust which needlessly kills hundreds of workers and sickens thousands more each year.”

August 23, 2013
David Michaels, PhD
Assistant Secretary of Labor
Silica Hazards from Engineered Stone Countertops

Categories: Construction, Manufacturing, Personal Protective Equipment, Respiratory Health, Silica

March 11th, 2014 3:11 pm ET - Karen Worthington, MS, RN, COHN-S; Margaret Filios, SM, RN; Mary Jo Reilly, MS; Robert Harrison, MD, MPH; and Kenneth D. Rosenman, 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 improvement. Manufacturing of this material, including products such as CaesarStone™, Silestone™, 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
Silicosis in a Countertop Fabricator — Texas, 2014

Gary K. Friedman, MD,1 Robert Harris, MD2
Heidi Rojas, MD,3 Karen Washington, MS3 Margaret Fikes, MS4

In May 2014, the Texas Department of State Health Services was notified of a case of silicosis with progressive massive fibrosis in a Hispanic male aged 37 years who worked for an engineered stone countertop company as a polisher, laminator, and fabricator. He was exposed to dust for 10 years from working with composite or quartz surfacing materials containing 70%-90% crystalline silica. This is the first reported case of silicosis associated with exposure to quartz surfacing materials in North America.

In 2010, the patient presented to a primary care provider with a 2-year history of persistent cough and dyspnea on exertion. He had no history of tobacco use or pulmonary disease. On physical examination, he had diminished bilateral breath sounds and a right-sided inspiratory wheeze. Pulmonary function studies showed a combined obstructive and restrictive defect with no change post bronchodilator and reduced diffusion capacity. An electrocardiogram showed right ventricular hypertrophy and cardiac catheterization confirmed the presence of pulmonary hypertension. A chest radiograph classified the patient's chest radiograph as large opacities Category C2 with 3/2 profusion, q/l bilateral upper and middle lobe rounded opacities. Computed tomography scan of the chest showed bilateral upper and middle lobe small rounded and large opacities, with hilar and mediastinal adenopathy. The worker was reassigned to a different job to minimize silica dust exposure. He is oxygen-dependent, and his medical condition is being monitored for possible lung transplantation.

Clusters of silicosis cases, some requiring lung transplantation, have occurred among fabrication workers exposed to silica dust from quartz surfacing materials in Israel, Italy, and Spain (1–4). In the last year, imports of quartz surfacing materials to the United States have risen 49%, and these materials are among the most popular countertop materials. The increased use of this silica-containing material poses a new risk for silica exposure (http://blogs.cdc.gov/niosh-science-brief/2014/03/11/countertops). An investigation by CDC's National Institute for Occupational Safety and Health of the patient's work site is ongoing to identify work hazards and assess silica exposures and the health of the other employees. Healthcare providers need to be aware of quartz surfacing materials as a source of silica exposure, advise management of patients with silica to jobs without silica dust exposure, and report cases to their state public health agency. In 2010, silicosis was reportable in 25 states. Employers are responsible for maintaining a safe workplace by measuring silica exposure, limiting access to areas where silica exposures are high, using effective methods to reduce exposure, and use of personal protective equipment, providing medical examinations to workers with high exposures, and training workers about silica hazards and how to limit exposures.5 6

Acknowledgments
Kenneth D. Rosenman, MD, Michigan State University, Krista Yessen, MD, National Institutes for Occupational Safety and Health, CDC.

1Dermatology, University of Texas Health Science Center, Dallas, Texas. 2University of Texas Health Science Center, Dallas, Dallas, Texas. 3University of California, Los Angeles, California. 4National Institute for Occupational Safety and Health, CDC. 5 Corresponding author: Margaret Fikes, mdfikes@cdc.gov, 304-237-5774.
Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation

The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) have identified exposure to silica as a health hazard to workers involved in manufacturing, finishing and installing natural and manufactured stone countertop products, both in fabrication shops and during in-home finishing/installation. This hazard can be mitigated with simple and effective dust controls in most countertop operations.
“...the continuing occurrence of new occupations and tasks that place workers at risk for silicosis, including fabricators and installers of quartz-containing engineered stone products...underscore the need for strengthening efforts to limit workplace exposure to crystalline silica”

Jacek Mazurek et al
June 19, 2015 - MMWR
Pulmonary Fibrosis Associated with Aluminum Trihydrate (Corian) Dust

TO THE EDITOR: A 64-year-old man who was an exercise physiologist was noted to have clinical and physiological features of idiopathic pulmonary fibrosis. On detailed questioning, he stated that he had ground, machined, drilled, and sand-garage for about 16 years (Fig. 1A). He had typical clinical features of idiopathic pulmonary fibrosis and radiographic features of usual interstitial pneumonia, and a surgical lung biopsy showed histologic features of usual interstitial...
Can we prevent silicosis in stone fabrication workers?
“Government agencies are collaborating with stone industry professionals to develop solutions for safer working conditions inside fabrication shops, including the prevention of silicosis.”