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What's Lurking in Your Countertop?

By KATE MURPHY

SHORTLY before Lynn Sugarman of Teaneck, N.J., bought her summer home in Lake George, N.Y., two years ago, a routine inspection revealed it had elevated levels of radon, a radioactive gas that can cause lung cancer. So she called a radon measurement and mitigation technician to find the source.

"He went from room to room," said Dr. Sugarman, a pediatrician. But he stopped in his tracks in the kitchen, which had richly grained cream, brown and burgundy granite countertops. His Geiger counter indicated that the granite was emitting radiation at levels 10 times higher than those he had measured elsewhere in the house.

"My first thought was, my pregnant daughter was coming for the weekend," Dr. Sugarman said. When the technician told her to keep her daughter several feet from the countertops just to be safe, she said, "I had them ripped out that very day," and sent to the state Department of Health for analysis. The granite, it turned out, contained high levels of uranium, which is not only radioactive but releases radon gas as it decays. "The health risk to me and my family was probably small," Dr. Sugarman said, "but I felt it was an unnecessary risk."

As the popularity of granite countertops has grown in the last decade — demand for them has increased tenfold, according to the Marble Institute of America, a trade group representing granite fabricators — so have the types of granite available. For example, one source, Graniteland (graniteland.com) offers more than 900 kinds of granite from 63 countries. And with increased sales volume and variety, there have been more reports of "hot" or potentially hazardous countertops, particularly among the more exotic and striated varieties from Brazil and Namibia.

"It's not that all granite is dangerous," said Stanley Liebert, the quality assurance director at CMT Laboratories in Clifton Park, N.Y., who took radiation measurements at Dr. Sugarman's house. "But I've seen a few that might heat up your Cheerios a little."

Allegations that granite countertops may emit dangerous levels of radon and radiation have been raised periodically over the past decade, mostly by makers and distributors of competing countertop materials. The Marble Institute of America has said such claims are "ludicrous" because although granite is known to contain uranium and other radioactive materials like thorium and potassium, the amounts in countertops are not enough to pose a health threat.

Indeed, health physicists and radiation experts agree that most granite countertops emit radiation and radon at extremely low levels. They say these emissions are insignificant compared with so-called background radiation that is constantly raining down from outer space or seeping up from the earth's crust, not to mention emanating from manmade sources like X-rays, luminous watches and smoke detectors.

But with increasing regularity in recent months, the Environmental Protection Agency has been receiving calls

7 from radon inspectors as well as from concerned homeowners about granite countertops with radiation measurements several times above background levels. "We've been hearing from people all over the country concerned about high readings," said Lou Witt, a program analyst with the agency's Indoor Environments Division.

Last month, Suzanne Zick, who lives in Magnolia, Tex., a small town northwest of Houston, called the E.P.A. and her state's health department to find out what she should do about the salmon-colored granite she had installed in her foyer a year and a half ago. A geology instructor at a community college, she realized belatedly that it could contain radioactive material and had it tested. The technician sent her a report indicating that the granite was emitting low to moderately high levels of both radon and radiation, depending on where along the stone the measurement was taken.

"I don't really know what the numbers are telling me about my risk," Ms. Zick said. "I don't want to tear it out, but I don't want cancer either."

The E.P.A. recommends taking action if radon gas levels in the home exceeds 4 picocuries per liter of air (a measure of radioactive emission); about the same risk for cancer as smoking a half a pack of cigarettes per day. In Dr. Sugarman's kitchen, the readings were 100 picocuries per liter. In her basement, where radon readings are expected to be higher because the gas usually seeps into homes from decaying uranium underground, the readings were 6 picocuries per liter.

The average person is subjected to radiation from natural and manmade sources at an annual level of 360 millirem (a measure of energy absorbed by the body), according to government agencies like the E.P.A. and the Nuclear Regulatory Commission. The limit of additional exposure set by the commission for people living near nuclear reactors is 100 millirem per year. To put this in perspective, passengers get 3 millirem of cosmic radiation on a flight from New York to Los Angeles.

A "hot" granite countertop like Dr. Sugarman's might add a fraction of a millirem per hour and that is if you were a few inches from it or touching it the entire time.

Nevertheless, Mr. Witt said, "There is no known safe level of radon or radiation." Moreover, he said, scientists agree that "any exposure increases your health risk." A granite countertop that emits an extremely high level of radiation, as a small number of commercially available samples have in recent tests, could conceivably expose body parts that were in close proximity to it for two hours a day to a localized dose of 100 millirem over just a few months.

David J. Brenner, director of the Center for Radiological Research at Columbia University in New York, said the cancer risk from granite countertops, even those emitting radiation above background levels, is "on the order of one in a million." Being struck by lightning is more likely. Nonetheless, Dr. Brenner said, "It makes sense. If you can choose another counter that doesn't elevate your risk, however slightly, why wouldn't you?"

Radon is the second leading cause of lung cancer after smoking and is considered especially dangerous to smokers, whose lungs are already compromised. Children and developing fetuses are vulnerable to radiation, which can cause other forms of cancer. Mr. Witt said the E.P.A. is not studying health risks associated with granite countertops because of a "lack of resources."

The Marble Institute of America plans to develop a testing protocol for granite. "We want to reassure the

7 public that their granite countertops are safe,” Jim Hogan, the group’s president, said earlier this month “We know the vast majority of granites are safe, but there are some new exotic varieties coming in now that we’ve never seen before, and we need to use sound science to evaluate them.”

Research scientists at Rice University in Houston and at the New York State Department of Health are currently conducting studies of granite widely used in kitchen counters. William J. Llope, a professor of physics at Rice, said his preliminary results show that of the 55 samples he has collected from nearby fabricators and wholesalers, all of which emit radiation at higher-than-background levels, a handful have tested at levels 100 times or more above background.

Personal injury lawyers are already advertising on the Web for clients who think they may have been injured by countertops. “I think it will be like the mold litigation a few years back, where some cases were legitimate and a whole lot were not,” said Ernest P. Chiodo, a physician and lawyer in Detroit who specializes in toxic tort law. His kitchen counters are granite, he said, “but I don’t spend much time in the kitchen.”

As for Dr. Sugarman, the contractor of the house she bought in Lake George paid for the removal of her “hot” countertops. She replaced them with another type of granite. “But I had them tested first,” she said.

Where to Find Tests and Testers

TO find a certified technician to determine whether radiation or radon is emanating from a granite countertop, homeowners can contact the American Association of Radon Scientists and Technologists (aaarst.org). Testing costs between \$100 and \$300.

Information on certified technicians and do-it-yourself radon testing kits is available from the Environmental Protection Agency’s Web site at epa.gov/radon, as well as from state or regional indoor air environment offices, which can be found at epa.gov/iaq/whereyoulive.html. Kits test for radon, not radiation, and cost \$20 to \$30. They are sold at hardware stores and online.