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June 30, 2008

## Buzzword: Radon

**What it is.** Radon is a colorless, odorless radioactive gas that results from the natural decay of uranium in soil and rock. The gas moves up from the ground and can diffuse into the air or enter a home, typically through cracks and holes in the foundation or concrete slab. (Radon can also enter the home through well water and by way of some building materials). The presence of radon in the home can pose a danger to your health, according to the [Environmental Protection Agency](#). In fact, radon is the second leading cause of lung cancer in this country.

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**Why the buzz?** Radon has been in the news recently with reports that some granite countertops can release dangerous levels of radon. This isn't a new claim—it surfaced in the 1990s—and it's fairly controversial. In April 2008, BuildClean, a nonprofit that aims to educate consumers about safe and healthy building materials, made news when it announced that its pilot project would provide free in-home radon testing of 300 homes in Houston to determine whether granite countertops emit harmful levels of radon. It's worth noting that two big makers of quartz countertops, Cambria and Cosentino (which also sells granite counters), are the sole funders of BuildClean. "By its nature, granite emits radon—the second leading cause of lung cancer in the U.S.," said Sara Speer Selber, BuildClean's president, in a press release at the time.

Next, in early May, W.J. Llope, Ph.D., a senior faculty fellow at the T.W. Bonner Nuclear Laboratory at Rice University in Houston, released a report in which he analyzed 18 articles covering 95 granite samples. In "[Radiation and Radon from Natural Stone](#)" (PDF download), Llope reported that 92 of the granite samples emitted no or very little radon, though two were in the 3.1-to-3.4 picocuries per liter (pCi/L) range, and one registered 4.2. (These measurements assume a hypothetical unventilated room, not a standard home, according to Llope's study.) The EPA estimates that the average indoor radon level is 1.3 pCi/L and suggests that you reduce radon when the level in your home is 4 pCi/L or higher.

Shortly after Llope released his report, the Marble Institute of America trade group announced the [results of a study of its own](#). A professor of geology at the University of Akron tested 52 samples of the most popular granites used for countertops in the U.S., representing the majority of granite countertops sold here, according to the MIA. Ten added "almost immeasurable amounts of radon to the house," reads the study, while two had radon levels of 0.04 pCi/L. The highest level of radon emitted from one stone was 0.27 pCi/L. The study did not account for natural ventilation in a home, which would dilute the concentration of radon.

Looking for some clarity on this issue, I interviewed Michael Kitto, Ph.D., a research scientist for the New York State Department of Health. As part of a study he's planning to submit for peer review, he measured the radon emissions from more than 40 granite and engineered stones in airtight containers, without ventilation. Kitto found that the engineered stones emitted almost no radon and many of the granite stones were very low emitters of radon. A few stones emitted slightly more radon, and only one emitted a substantial amount of radon. (Kitto defines substantial by saying it could produce from a few to several pCi/L in a room; he adds that the exact value depends on many variables, including kitchen volume and countertop size.) BuildClean and Cosentino also fund Kitto's study.

*Consumer Reports* has done limited radon testing on granite counters. Using a radon meter in a room with the door closed, we tested one sample of granite from two national companies and one slab from a local stone yard. None added any radon to the air. (Look for our report on short-term radon tests kits in the September 2008 issue of

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*Consumer Reports*, on sale and online this August.)

The EPA emphasizes the importance of testing the air in your home for radon, whether or not you have countertops made from granite. But there are too many variables and too little information to generalize about the radon risk granite counters pose to humans, according to Dave Ryan, an EPA press officer. The EPA has not conducted studies on radon in countertops and has no plans to do so at this time. Limestone, soapstone, and marble countertops do not pose a radon concern, according to Kitto.

If you have granite countertops and want to test them for radon, place a short-term home radon test kit near the granite and another kit in the basement or lowest usable level of the home. Follow the manufacturer's directions carefully, as the test results are affected by heat and humidity.

\* If the test results state a radon level of that's lower than 2 pCi/L in your basement, you don't need to do anything.

\* If the test reveals a radon level of 2 to 4 pCi/L in your basement, follow up with a long-term test kit to more accurately measure the level.

\* If the long-term results from your basement are between 2 and 4 pCi/L, consider professional remediation to minimize risk.

\* If the short- or long-term results in the basement are 4 pCi/L or above, hire a radon professional for an assessment and, if necessary, remediation.

\* If the kit in the basement/lowest level registers a lower level of radon than the one near the granite, you can be fairly sure that the granite is the source of radon and not something beneath your home. If the level near the granite is 2 to 4 pCi/L, our experts say you might consider remediation—removal. If the level is 4 pCi/L, our experts recommend remove the granite countertop.—[Kimberly Janeway](#)

**Essential information:** Read "[Dealing With the Dangers of Radon Gas](#)" for information about remediation and finding a qualified pro in your area. Find out about the best countertops in our [Ratings-based report](#) in the August 2008 issue of *Consumer Reports*.

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## Comments

**Posted by:** Christina Weigel | [Jun 30, 2008 2:32:39 PM](#)

First of all, in the MIA funded Akron study, there were only 13 stones tested, not 52.

If this is so controversial it's only because the MIA has made it to be. By fighting any such discussion about radon emanation & granite countertops they only make things worse for themselves in the future. The MIA has made anyone who would talk about testing & safety with granite material to be someone who competes against granite or hates granite. I don't hate granite, it used to be my favorite material.

In all of the hub bub no one is saying that all granite is dangerous. Testing two samples & one slab does not prove the problem doesn't exist.

What I have discovered is that some of the radioactive stones are coming from areas of high radioactivity. Like Niagara Gold granite for instance. Niagara Gold comes from Namibia & Namibia is the 5th largest producer of Uranium. I've tracked the stone down to quarry called Stone Africa which is about 8 - 12 miles from Rossing Uranium mine. There are about 4 (5 by next year) operating uranium mines in central Namibia & if you go <http://www.mme.gov.na/pdf/licences-dimension-stones-1207.pdf> & then <http://www.mme.gov.na/pdf/licences-nuclear-fuel-1207.pdf> you'll see overlapping licenses for nuclear fuel & dimensional stone exploration.

We've found a slab of Niagara Gold clocking in at over 400 uR/hr. (background is about 6 uR/hr) gamma. We found another clocking in at around 200 uR/hr. & we sent it off to a physics professor for him to check (It was incredibly hot, but we'll let him go public with that, soon).

We have a Bordeaux core analysis showing a level of 986 pCi/g for RA-226 & 128 pCi/g for RA-228. Thats Radium if you don't know it yet. Its in the Uranium decay chain. When an oil & gas company wants to return a site to its original state, the EPA says it must be remediated to 5 pCi/g of radium or lower. At one point in time the EPA in Florida considered creating a standard for concrete for homes & they wanted to set it a 5 pCi/g of radium. Now if the soil that your house sits on has to be "cleaner" than your countertop, what's wrong with that picture?

We who conduct this research only want testing to be done on granite to ensure safety of the granite being put into people's homes. We have never said all granite is dangerous, but there are some that obviously are & they must be dealt with. If the MIA continues to fight the testing effort they are only putting a nail into their own coffin.

The core analysis results, Bordeaux, & hot Niagara Gold granite samples are available to Consumer Reports if they're interested.

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**Posted by:** Christina Weigel | [Jun 30, 2008 2:44:55 PM](#)

This is from a leading scientist in Radon research regarding the MIA's Akron study.

"There are problems with the model used to interpret the contributions of a scaled slab in a real home. For example, if I had a 6 ACH home I'd be either broke or frozen to death. Nonetheless, these radon measurements give us some information, provided they are accurate.

I suspect the disclaimer reflects a fear (not unjustified) of legal entanglement that scientists neither want nor are prepared for. Generally we don't carry insurance and we certainly don't want to spend years in court."

**Posted by:** alba | [Jun 30, 2008 3:47:29 PM](#)

Pay for a radon test as part of your house inspection when you're buying a new home. If the level is high, ask the sellers to fix the issue before you buy the house. It can cost over \$1000 to fix the problem.

**Posted by:** [replacementcounters.com](#) | [Jul 1, 2008 8:45:08 AM](#)

I wonder how this will effect homeowners decisions on purchasing Granite. Luckily there are other equally beautiful surfaces these days including the quartz countertops you mentioned.

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