



# Radiation Protection

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## Granite Countertops and Radiation

This page contains information about granite and radioactivity in granite.

### TENORM

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### Granite Overview

In geological terms, granite is an igneous rock, meaning it was formed when magma (molten rock) cooled very slowly until it solidified in a process that can take many of thousands, or even millions of years. Since the rock forms so slowly, minerals have a long time to grow into the crystals that give granite its decorative appearance. Depending on the crystals that are formed, granite can come in a wide range of colors. This and other factors, make granite a popular building material in homes and buildings.

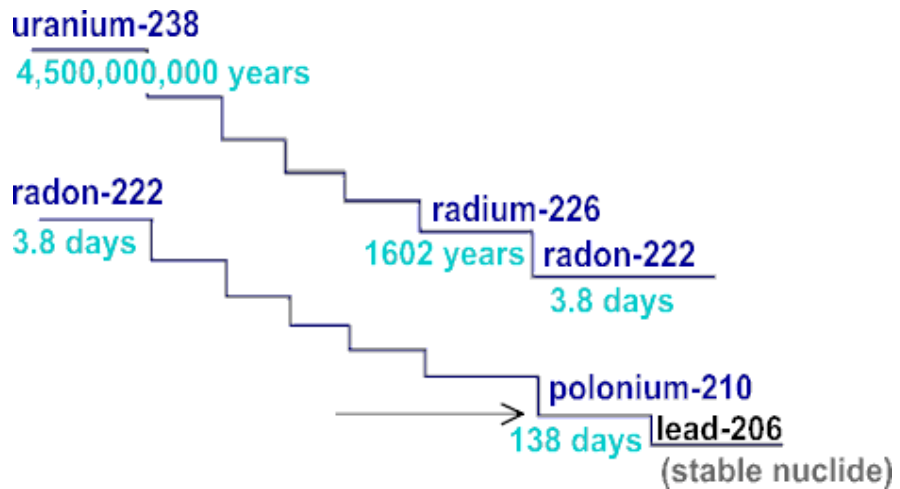
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### Radiation From Granite

Any naturally formed rock material has the potential of containing varying amounts of [naturally occurring radiation](#). Natural radioactive elements like uranium, radium, and thorium can be present in a wide number of minerals that appear as crystals in granite from around the world. So, it is not unusual for materials such as granite to have some amount of radioactivity (emissions of [alpha](#) or [beta](#) particles or [gamma](#) rays). Depending on the composition of the molten rock from which they formed, some pieces of granite can exhibit more radioactivity than others.

EPA has not conducted studies on radioactivity in granite countertops. However, based on the limited information available, EPA believes that most types of granite used in countertops and other aspects of home construction are probably not major contributors of radiation and radon in the home. EPA will continue to monitor and analyze the evolving research on this issue and will update its recommendations if appropriate.

When present, certain radioactive elements in granite will [decay](#) into [radon](#), a colorless, odorless, radioactive gas which may be released from the granite over time. You can see in the diagram below how the decay of [Uranium-238](#) (a radioactive element) produces Radon-222 gas:



To learn more about radioactive decay and radioactive half lives, see our [half-life](#) page.

However, since granite is generally not very porous, less radon is likely to escape from it than from a more porous stone such as sandstone. It's important to know that radon originating in the soil beneath homes is a more common problem and a far larger public health risk than radon from a granite countertop or other building materials. Also, any radon from granite in kitchens or bathrooms is likely to be somewhat diluted in the typical home since those rooms are among the most ventilated.

To reduce your risk of lung cancer from exposure to radon you should test the air in your home. There are many inexpensive do-it-yourself home radon test kits available at the retail level, on-line, or from 1-800-SOS-RADON (767-7236).

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## Testing

Radiation coming from granite countertops results from natural radioactive material in the granite. Identifying the presence and concentration of radioactive elements in granite requires expensive and sophisticated portable instruments or laboratory equipment. These instruments and equipment require proper calibration, and interpretation of their readings requires a knowledgeable and trained user. At this time, there is no generally accepted home testing protocol for radiation in granite countertops.

At the website maintained by The Conference of Radiation Control Program Directors (CRCPD), you can find contact information for each state's radiation protection program. Please visit, <http://www.crcpd.org/Map/map.asp> [EXIT Disclaimer](#), to find information for your state.

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## Resources

- [Frequently Asked Questions About Radiation in Granite](#)
- [Frequently Asked Questions About Radon in Granite](#)
- [A Citizen's Guide to Radon](#)
- [Information from the US Geological Survey on Rocks \(Including Granite\)](#)

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