

## **Radiation: It's All Around Us**

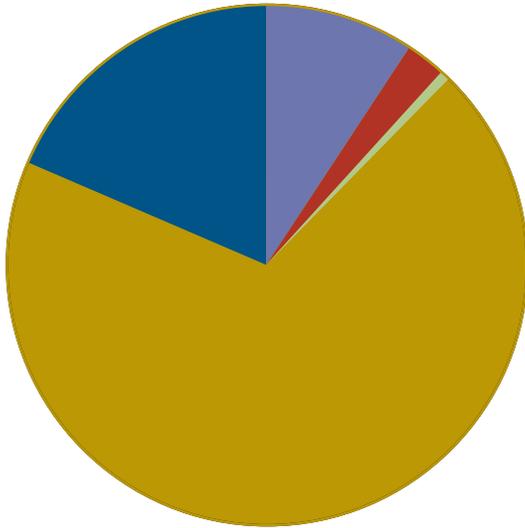
It's in the air we breathe, in the water we drink, in the soil and rock we stand on, and in the sun's rays we like to bask in! Added to this is the radiation we get from man-made sources, such as x-rays, medical treatments, building materials, etc.

## **Radiation in Granite is Not Dangerous**

Numerous scientific studies conclude that there are two ways in which countertops, tiles and other finishes made of granite might emit any level of radiation. The first is by the release of tiny amounts of the radioactive gas radon which can be inhaled. The second is by direct radiation from the surface itself to the homeowner. In both cases, the radiation emitted is from the same process – natural radioactive decay of one element into another.

Compared to other radiation sources in the home and outside, the risk to the homeowner from radioactivity emitted from a granite countertop or tiles is practically non-existent.

## **Typical Contributions to Radon Content of Indoor Air (pCi/L)**



- 69.3% Soil around house
- 18.5% Well water
- 9.2% Outdoor air
- 2.5% Building materials
- .5% Public water supplies

## **About the Marble Institute of America**

For over 60 years the Marble Institute of America (MIA) has been the world's leading information resource and advocate for the natural stone industry. MIA members include marble, granite, limestone, sandstone and other natural stone producers and quarriers, fabricators, installers, distributors and contractors around the world.



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# The Truth About Granite and Radon/Radiation



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Over the past few years there has been some consumer confusion about rumored radiation levels occurring in natural granites used for residential countertops, floors, tiles, etc. Unfortunately, the origin of these concerns are advertisements and other communications from the manufacturers of radon detection devices and the producers of competing synthetic materials. Levels of radiation from granite products, though technically measurable, are in fact small fractional values of established thresholds for environmental safety.

The truth of the matter is that granite is a safe product. It's been used for thousands of years and the relationship between granite and radon has been studied for years and years. How safe is granite? Numerous independent, scientific studies have concluded that granite countertops are safe.

The Marble Institute of America has produced this brochure to help you understand granites, radioactivity and natural stone.

### **Radioactivity in Granite: It's Natural**

All rocks have a small amount of radioactivity in them due to the presence of minerals that contain radioactive elements uranium (U), thorium (Th) and potassium-40 (40K). Because granite typically

contains more of these elements than most other rocks, it will be more radioactive than a slate or marble. All of the minerals in granite contain some radioelements; the white or pink feldspars contain 40K, the black biotites and horn-blendes contain 40K, U and Th, and the small inclusions of minerals such as zircon, apatite, sphene, etc. contain the most U and Th.

### **Some Frequently Asked Questions and the Answers**

#### **Q. What is radon?**

A. It is a naturally occurring gas found throughout our environment. It is commonly found in the basements of homes built in the Midwestern and Eastern regions of the U.S. Radon is radioactive and prolonged exposure at elevated levels in a closed environment can increase the risk of lung cancer. Government studies show the most effective remedy for radon concentrations at elevated levels in the home is to increase ventilation, usually by adding vent fans to enclosed spaces like basements.

#### **Q. How dangerous is radon?**

A. Radon is not like carbon monoxide, which is produced by automobiles, home furnaces and water heaters. Concentrations of carbon monoxide can kill quickly. At elevated levels, naturally occurring radon can increase the risk of lung cancer if people are exposed over long periods of time. However, if a home, basement or other building is properly ventilated, the radon concentrations drop to those commonly found outdoors. Because radon is commonly emitted from the ground across much of the United States, we can never completely isolate ourselves from it. The government says such environmental exposure is safe.

#### **Q. How much radon is being emitted by my granite countertop?**

A. Based on the findings of several scientific studies conducted through the years, it is extremely unlikely that your granite countertop is emitting harmful levels of radon. If you're really concerned, you should hire a certified radon inspector to test the countertop.

#### **Q. How can I be absolutely sure my countertop is safe?**

A. The safety of granite has been proven. It has been confirmed by numerous, independent, scientific studies. They repeatedly have shown that levels of radon from granite countertops are not a health concern. Despite these reports, if you're still concerned, you should hire a certified radon inspector to test the countertop.

#### **Q. What about food that is prepared directly on the granite surface? Is there a chance that it could absorb radioactive energy, which later would be ingested by those eating the food?**

A. The only way that radioactive elements such as uranium can get into the food is if they became dissolved in water and absorbed in the food. However, granite is one of the most insoluble materials known to man and the amount that could be dissolved is miniscule in comparison to the radioactive elements that are already in the food (in meat or from uptake by soil or air-borne particles during growth). Radioactive energy given off at the granite surface will enter food that is directly in contact with the surface but, like all energetic rays, it changes into heat and/or non-radioactive particles. These processes happen quickly so the radiation does not remain in the food.



If you have further questions about radon and granite, contact the Marble Institute of America at 440-250-9222, send an email to [miainfo@marble-institute.com](mailto:miainfo@marble-institute.com), or visit [www.marble-institute.com](http://www.marble-institute.com)