



## RADON

### What is radon?

Radon is a colorless, odorless, and tasteless gas found in nature worldwide. Radon is a radioactive gas, meaning that it sends out atomic particles or energy. It is formed when uranium decays slowly into radium, which breaks down to radon.

Radon itself goes through radioactive decay, emitting atomic particles called radiation. The decay process produces alpha, beta, and gamma radiation. Alpha radiation can travel only a short distance and not go through your skin. Beta radiation can go through your skin but not through your body. Gamma radiation can go through your body.

### Where can radon be found and how is it used?

Radon enters the environment from the soil. Sometimes radon results from uranium and phosphate mines, and from the burning of coal. Naturally occurring radon in the ground can enter the air and attach to dust and other tiny bits of matter. Radon can also move into groundwater. In the past, radon was used to treat diseases including cancer, arthritis, diabetes, and ulcers. Radon in the soil was also being studied as a way to predict earthquakes and in exploring for petroleum and uranium.

### How can people be exposed to radon?

You could be exposed to radon through:

- **Breathing** it in outdoor or indoor air. Outdoor levels of radon are usually low and tend to be higher indoors where radon gas can accumulate. Radon moves into your home through cracks in the foundation or basement. It can move into schools and office buildings in the same way.
- **Drinking** radon found in drinking water. Levels may be higher in well water than in surface water sources.

### How does radon work and how can it affect my health?

Radon enters your body when you breathe or swallow. Most radon in the body is breathed in, then breathed out again. However, some radon and its decay products remain in the lungs, where they further decay radioactively. The resulting radiation can cause lung damage. If radon is swallowed in drinking water, it goes to the stomach, intestines, and the blood stream, and then the lungs, where most of it is exhaled. Any remaining radon will decay.

**Poison Control Center 24/7 Emergency Contact Number: 1-800-222-1222**

**DPH 24/7 Contact Number: 1-888-295-5156**

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Breathing radon over a long period increases the chance of lung cancer and other lung diseases such as thickening of lung tissues. Small exposures may also increase the risk of developing lung cancer, especially for cigarette smokers.

Scientists have studied the human effects of radon in miners, but they do not know if radon impacts other organs besides the lungs. There is no information on the effects of radon if you drink water or eat food containing radon. Since radon gives off little gamma radiation, harmful effects from exposure outside the body are unlikely.

### **How is radon exposure treated?**

There are no specific treatments for radon exposure. However, if a person is exposed to elevated radiation through work or accident, decontamination is essential to remove the radiation. All clothing is removed, and the exposed individual's entire skin surface is scrubbed with soap and water. Clothing, along with soap, wastewater, and towels, should be placed in a sealed container and labeled as radioactive waste.

### **What should I do if exposed to radon?**

All work sites and medical facilities should have procedures in place to handle exposure to radiation. If you are exposed to high levels of radiation, decontamination should begin immediately. Emergency workers should first protect themselves with proper gear. The individual's clothing should be removed. Then, the entire skin surface must be scrubbed with soap and water. Clothing, along with soap, wastewater, and towels, should be placed in a sealed container and labeled as radioactive waste. It is important to determine the exact type of exposure, so the emergency workers and doctors provide the best treatment. It will also help protect the hospital staff.

### **What factors limit exposure to radon?**

Testing your home for radon is the most important way to understand your exposure. Radon test kits are available at a local hardware store. It is recommended that all homes be tested for radon, with basements being tested first. In Delaware, the geographic areas where radon is most prevalent are those closest to Pennsylvania and central New Castle County. Take steps to reduce radon entry into a home by sealing gaps and openings and installing a radon mitigation system. This will reduce your radon exposure.

### **Is there a medical test to show whether I've been exposed to radon?**

Radon in human tissues cannot be found with routine medical testing.

## Technical information for radon

CAS Number: 10043-92-2

Chemical Formula: Rn

Carcinogenicity (EPA): Causes cancer.

MCL (Drinking Water): There is no MCL specifically for radon.

OSHA Standards: 30 pCi/L

NIOSH: NIOSH has recommended breathing protection be used in concentrations above 0.083 WL.

## Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. *Toxicological profile for radon*. Atlanta, GA: U.S. Department of Health and Human Services. [www.cdc.gov/niosh](http://www.cdc.gov/niosh)

Agency for Toxic Substances and Disease Registry (ATSDR). 2012. *Toxicological profile for radon*. Atlanta, GA: U.S. Department of Health and Human Services. <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=407&tid=71>

Delaware Healthy Homes Program, Delaware Department of Health and Social Services, Division of Public Health. <http://www.RadonSafeDelaware.org>

U.S. Environmental Protection Agency, <http://www.epa.gov/radon>