



## POLONIUM-210

### What is POLONIUM-210?

Polonium is a radioactive element, meaning it sends out energy in the form of rays, waves or particles. It is also called Radium F. Polonium in its pure form melts at low temperatures and easily turns into a vapor.

### Where can polonium-210 be found and how is it used?

Polonium-210 is widely found in small amounts in the earth's crust. This is because it is produced during the decay of another natural element called uranium-238. It can also be produced by processing uranium ores or minerals, but the amount produced is very small. Very small amounts of polonium-210 are found in food.

Polonium-210 is used mainly in machines to get rid of static electricity. Machines used to make paper, sheet plastics and synthetic fibers often use this element. Polonium-210 is also used in brushes to remove dust from photographic films and camera lenses. It can be used to make atomic weapons.

### How can people be exposed to polonium-210?

*You could be exposed to polonium-210 through:*

**Eating** food, since very small amounts of polonium-210 are found in food.

**Breathing** tobacco smoke. This is the primary way most people are exposed.

It is not likely that you could be exposed through drinking, touching, or having eye contact with polonium-210.

### How does polonium-210 work and how can it affect my health?

Polonium-210 is harmful only if it is taken into the body. The primary means of exposure are ingesting food and water containing polonium-210 and inhaling polonium-contaminated dust. Inhalation is of particular concern in the vicinity of a source of airborne dust, such as a phosphate plant, and in areas of high radon concentrations, or for cigarette smokers.

Polonium-210 can affect the body's lymph nodes, liver and tissues. Effects are more common in the kidney and the spleen. When polonium-210 is inhaled, it can come to rest on the mucous lining of the breathing tract. When you breathe out, polonium-210 can damage the cells lining the airways. This could lead to lung cancer over time.

### How is polonium-210 poisoning treated?

It is rare that a person would have polonium-210 poisoning. There are no treatments just for polonium-210 poisoning. The treatment given would be for radiation exposure.

### What should I do if exposed to polonium-210?

**If you touch polonium-210**, remove all clothing. Scrub the entire skin surface with soap and water for 20 minutes. Place clothing, soap, wastewater and towels in a sealed container. Label the container as radioactive waste.

**If you swallow polonium-210**, get medical help or contact a poison center.



## What factors limit use or exposure to polonium-210?

Polonium-210 is found almost everywhere in nature in low levels, so exposure cannot be completely prevented. The best way to limit exposure is to not breathe tobacco smoke. Radiation from polonium-210 cannot go through outer dead layers of skin or through clothing. Eyes or open wounds must be carefully protected.

## Is there a medical test to show whether I've been exposed to polonium-210?

Tests can show radioactivity in the body. These tests cannot tell what caused the radioactivity.

## Technical information for polonium-210

CAS Number: 13981-52-7

Chemical Formula: Po-210

Carcinogenicity (EPA): The EPA has classified all radionuclides as human carcinogens.

MCL (Drinking Water): Polonium-210 is an alpha emitter, and therefore, it would fall under the MCL for alpha particles which is 15 pico curies per Liter (pCi/L).

OSHA Standards: There is no OSHA standard.

NIOSH Standards: There is no NIOSH standard.

## References and Sources

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

*NIOSH Pocket Guide to Chemical Hazards*. 2003. Atlanta, GA: U.S. Department of Health and Human Services

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