

Thorium - ToxFAQs™

What is thorium?

Thorium is a naturally occurring radioactive substance found in small amount in rocks, soil, and water. There are four naturally occurring forms of thorium. As thorium breaks down, it releases small amounts of radiation.

Thorium can be used to make ceramics, gas lantern mantles, and metals used in the aerospace industry and in nuclear reactions. Thorium can also be used as a fuel for generating nuclear energy.



What happens to thorium in the environment?

When rocks containing thorium break down by wind and water, the thorium becomes part of the soil. In most soils, thorium will attach strongly to the soil, which prevents it from moving into the groundwater.

Windblown dust and volcanic eruptions are natural sources of thorium in the air. Thorium can move through the air and settle out onto the ground or in water. The amount of thorium found in water is generally very low. Any thorium that is in water will usually be found in the sediment at the bottom.

How can I be exposed to thorium?

Because thorium is found naturally on earth, everyone is exposed to small amounts in air, water, and food.

You may be exposed to higher levels of thorium if you live near or work at facilities where uranium, phosphate, or tin ore are processed. Also, living near a radioactive waste disposal site or a place where soil levels of thorium are high may increase your risk of exposure.

How can thorium affect my health?

There is very little information on the health effects of thorium in humans. Most information comes from workers exposed to levels that are higher than levels in the environment. Studies on thorium workers have shown that breathing dust containing thorium (and other substances) may damage the lung after years of exposure. Thorium is not known to cause birth defects or affect the ability to have children.

Thorium is a naturally occurring element found at very low levels in the air, food and drinking water. It is not easily taken up by your body. It is unlikely that health effects will occur in the general population.

In animal studies, lung damage was seen after breathing high levels of thorium for 3–6 months. Placing thorium on the testicles of rats caused swelling of the testicles and changes in sperm.

Thorium

Can thorium cause cancer?

Thorium was once thought to cause cancer in mine and mill workers. However, it was later concluded that cancer in those workers was due to cigarette smoking and breathing silica dust.

From 1928–1955, a solution of thorium was given to people for special x-ray tests. In patients given high amounts of thorium, an increase in the number of cancers of the liver, gall bladder, and blood was found.

The [U.S. Department of Health and Human Services \(DHHS\)](#) has classified thorium as reasonably anticipated to be a human carcinogen (causing cancer in people).

The U.S. Environmental Protection Agency (EPA) has not determined whether thorium can cause cancer in people.

The [International Agency for Research on Cancer \(IARC\)](#) has classified thorium as carcinogenic to humans.

Can I get a medical test to check for thorium?

Special tests are available that measure the level of radioactivity in your urine and feces to determine if you have been exposed to high levels of thorium. These tests are only useful if done within several days to a week after exposure. These tests cannot predict whether you will have health problems from exposure to thorium. The tests require special equipment and are probably not available at your local clinic or hospital.

How can I protect myself and my family from thorium?

Most people don't need to take any special steps to avoid being exposed to high levels of thorium in their daily lives. Keep children from playing near hazardous waste sites to avoid coming in contact with thorium.

For more information:



Call **CDC-INFO** at 1-800-232-4636, or submit your question online at <https://wwwn.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for Thorium: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=660&tid=121>

Go to ATSDR's Toxic Substances Portal: <https://wwwn.cdc.gov/TSP/index.aspx>

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html