



## ARSENIC

### What is arsenic?

Arsenic is an element that occurs naturally in the earth's crust, usually in compounds with other elements.



It is a silver-gray crystalline solid with no smell and no distinctive taste. Most arsenic compounds can dissolve in water, but do not evaporate into the air.

Arsenic compounds are found in two different forms in nature, inorganic and organic. Organic arsenic is the type found naturally in plants and animals. It is less harmful to humans than inorganic arsenic.

Although inorganic arsenic is typically found in the environment at naturally low levels, it is considered a poison to humans at higher levels.

**In the past,** inorganic arsenic was used in the production of certain pesticides used to kill insects and weeds and in the production of some paints and dyes.



**Currently,** inorganic arsenic's primary industrial use is to preserve wood. It is also used in the production of glass, the electronics industry, the

manufacturing of copper and other metals, and in some medicines.

### What happens to arsenic in the environment?

Arsenic is released naturally into the environment from erupting volcanoes and erosion of mineral deposits. Arsenic also gets into the air from human activities when materials containing it are burned or sprayed or when they are cut and produce dust. Some common materials containing arsenic are preserved wood, oil, coal, gasoline, and cigarettes.



Once in the air, arsenic settles to the ground. Because most arsenic compounds can dissolve in water, they can pass from soil into water sources. Arsenic does not break down in nature, but it can change from one form to another.

### How are people exposed to arsenic?

We are all exposed to some amount of arsenic in the food we eat every day.



Organic arsenic, the less harmful type of arsenic, is found naturally in plants and animals. It also builds up in the tissues of fish and shellfish.

**Please note, these natural food sources of organic arsenic are not considered harmful to humans.**

On the job exposure to arsenic typically occurs by breathing workplace air in industries that use or handle arsenic or products that contain it. You may also be exposed to arsenic by breathing sawdust or smoke from cutting or burning preserved wood at home or at work.



Depending on where you live in the world, you may be exposed to arsenic by breathing air or ingesting water or soil in and around your home and jobsite. This may happen if you live in a geographical area that is naturally high in arsenic or if you live or work near a waste site where arsenic or products containing arsenic have been discarded.

If you use city or municipal drinking water, then exposure to arsenic in your water should be low. The United States Environmental Protection Agency as well as State and local governments regulate and monitor these public water supplies to ensure they are safe to drink.

## **Can arsenic affect my health?**

Once arsenic enters your body, it is quickly absorbed into the bloodstream and removed from your body in the urine.

Inorganic arsenic is considered poisonous to humans at high levels. Organic arsenic is considered less harmful to humans. The health effects that follow pertain primarily to inorganic arsenic exposure.

**Short Term Exposure** - Breathing very high levels of arsenic or eating or drinking food containing very high levels of inorganic arsenic can result in death. Health effects from exposure to lower levels of inorganic arsenic range from nausea, vomiting, and diarrhea to abnormal heart rhythm, decreased blood cell production, and blood vessel damage. Low levels of exposure may also cause a “pins and needles” or numb sensation in your hands and feet.

**Long Term Exposure** – Symptoms of long-term exposure to inorganic arsenic are darkening of the skin and the appearance of small “corns” or “warts” on the palms of the hands, the soles of the feet, and on the torso.

The **Department of Health and Human Services (DHHS)** has determined that inorganic arsenic is a known human carcinogen. Breathing inorganic arsenic increases the risk of lung cancer. Ingesting inorganic arsenic increases the risk of skin cancer and tumors of the bladder, kidney, liver, and lung.

**For more information:** If you have questions regarding the information in this fact sheet, please contact the Navy Environmental Health Center, Environmental Programs Directorate at (757) 953-0932.