



ARSENIC

What is ARSENIC?

Arsenic is a silver-gray or white metallic solid element found in nature. Arsenic combines with other elements to form organic and inorganic compounds. Inorganic arsenic compounds are thought to be more toxic than organic arsenic compounds.

Where can arsenic be found and how is it used?

In the United States, the highest levels of natural arsenic are found in western states. Arsenic is found in groundwater in all 50 states, mainly in areas with shallow groundwater reserves and large amounts of arsenic in soil and mineral deposits. In Delaware, little arsenic is found in groundwater or public water.

Industry, farming and medicine have all used inorganic arsenic compounds. Arsenic is no longer produced in the United States but it is still imported from other countries. Until the 1940s, inorganic arsenic compounds were often used as agricultural pesticides. Now most uses of arsenic in farming are banned in the United States. The use of chromated copper arsenic to make a wood preservative for pressure-treated wood has been greatly reduced since 2003.

Arsenic in soil results from human activities including pesticide use, mining and ore processing operations, operating coal burning power plants, and waste disposal. Sites of former tanneries, which make leather from animal hides, have large amounts of arsenic in the soil. Tanneries once used pits in the ground for preserving the hides or for waste.

How can people be exposed to arsenic?

You could be exposed to arsenic through:

Breathing air containing arsenic, breathing sawdust or burning smoke from wood treated with arsenic.

Touching arsenic at your job, if you work where arsenic is used. Occupations involving arsenic include copper or lead smelting, wood treating, and jobs using pesticides.

Eating small amounts of arsenic found in common foods, like fish and shellfish. Children may eat small amounts of dust or dirt containing arsenic. These small amounts of arsenic are usually harmless.

Poisons once used in the home. These include rat poison, ant poison, weed killer and some medicine. These products once had arsenic in them. Since most of these uses have ended, exposure is unlikely.

Eye Contact if dust containing arsenic gets into your eyes. This is uncommon.

How does arsenic work and how can it affect my health?

If swallowed or breathed in, arsenic enters and damages the body quickly. Death can result from breathing, eating or drinking high levels of arsenic. If you breathe air containing arsenic dust, the dust can settle in your lungs, causing a sore throat or irritating your lungs. If your skin contacts soil or water containing arsenic, only a small, harmless amount will enter your body. Skin contact with arsenic may cause redness and swelling. Small corns or warts may appear on the palms of your hands, the soles of your feet, or on your torso. Being exposed to lower levels for a long time can cause the skin to change color. If arsenic enters the body, your liver changes some of it to a less harmful form that leaves in your urine.

Several studies have shown that eating arsenic increases the risk of skin cancer and cancer in the lungs, bladder, liver, kidney and prostate. Those who breathe arsenic have a higher risk of lung cancer. Arsenic harms children more than adults. Some evidence suggests that children who have long-term exposure to arsenic may have lower IQ scores. Animal studies show that if pregnant women breathe or eat large amounts of arsenic, they are injured and their unborn babies may die or be born with birth defects or at low birth weight.

24/7 Emergency Contact Number: 1-888-295-5156

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How is arsenic poisoning treated?

Medical personnel can limit the amount of arsenic absorbed by the body by treating the symptoms of arsenic poisoning.

What should I do if exposed to arsenic?

Arsenic damage occurs over time and affects many of the body's organs. Treatment can be difficult.

If you get arsenic in your eyes, flush eyes with water for 15 minutes. Get medical attention promptly. If you work with arsenic, do not wear contact lenses.

If arsenic gets on your skin, wash with soap and water right away. Get medical help quickly.

What factors limit use or exposure to arsenic?

If you use wood treated with arsenic for a home project, protect yourself and your family from sawdust. Woodworkers should use a mask, gloves and protective clothing. Never burn wood treated with arsenic in open fires, woodstoves, boilers or fireplaces. Do not compost arsenic-treated wood or use it as mulch.

If you live in an area with high arsenic levels in the water or soil, use other cleaner sources of water. Grow a thick lawn and ground coverings. Use air filters in your home. Prevent children from eating dirt or putting things in their mouth. Wash hands often. Store all cleaning products and bug killers out of children's reach.

If you work at a job where arsenic is used, your car or clothing could expose family members.

Is there a medical test to show whether I've been exposed to arsenic?

Tests can measure arsenic in your blood, urine, hair and fingernails. These tests determine if you were exposed to high levels of arsenic. They cannot determine how the arsenic will affect your health.

Technical information for arsenic

CAS Number: 7440-38-2

Chemical Formula: As

Carcinogenicity (EPA): A1-Carcinogen

MCL (Drinking Water): 0.01 mg/L (As of 1/23/06)

OSHA Standards (Air): 10 ug/m³, 8 hr Time-Weighted Avg. (TWA)

NIOSH Standards: NA

ACGIH (air): 0.01 mg/m³, 8 hr Time-Weighted Avg (TWA)

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. *Toxicological profile for Arsenic. (Draft for Public Comment)*. Atlanta, GA: U.S. Department of Health and Human Services.

<http://www.atsdr.cdc.gov/tfacts2.html> (accessed 9/25/09)

OSHA, 29CFR-1910.1018. Inorganic Arsenic

http://www.osha.gov/pls/oshaweb/owadis.show_document?p_table=STANDARDS&p_id=10023 (accessed 9/25/09)