

Arsenic trioxide (As₂O₃) Patient Information Sheet

This handout provides information and follow-up instructions for persons who have been exposed to arsenic trioxide.

What is arsenic trioxide?

Arsenic is a naturally occurring element. There are many arsenic compounds of commercial importance. One of the most toxic is arsenic trioxide, which is a tasteless and odorless white or transparent solid with low flammability. It is used in the manufacture of wood preservatives, as an insecticide and herbicide, in metallurgy, and in glass and ceramic manufacturing.

What immediate health effects can be caused by exposure to arsenic trioxide?

Breathing arsenic trioxide can cause nose and throat irritation, but generally, a person cannot inhale enough to severely harm internal organs. Skin or eye contact can cause irritation. Daily arsenic doses from typical U.S. diet and drinking water sources are <1 µg per kg body weight. Intentional or unintentional swallowing of arsenic trioxide at dose levels exceeding a few micrograms arsenic per kilogram body weight can cause severe vomiting, diarrhea, abdominal cramps, and shock, as well as seizures; coma; damage to the liver, kidneys, nerves, and bone marrow; and death.

Can arsenic trioxide poisoning be treated?

Washing arsenical residues from the skin or eyes usually reduces the irritant effect. If arsenic trioxide is swallowed, measures can be taken to remove it from the body. In severe cases, medicines called chelating agents are given to remove arsenic from the body and eliminate it in the urine. Severely affected individuals must be hospitalized. In some cases, permanent nerve damage can result even if chelation therapy is used.

Are any future health effects likely to occur?

Arsenic trioxide can cause adverse health effects in the liver, kidney, brain, nervous system, or bone marrow for months or years after a severe poisoning.

What tests can be done if a person is exposed to arsenic trioxide?

Blood and urine tests for arsenic can be performed. However, most arsenic is eliminated from the blood within a few hours and from urine within a few days following exposure. In cases of ingestion, arsenic might show up in the intestines or stomach on x-rays. Arsenic levels in hair or nails can be used to estimate past or long-term exposure, but results may be misleading due to adsorption to the external surfaces; this can often be overcome by washing the samples extensively.

Where can more information about arsenic trioxide be found?

More information about arsenic trioxide can be obtained from your regional poison control center; your state, county, or local health department; the Agency for Toxic Substances and Disease Registry (ATSDR); your doctor; or a clinic in your area that specializes in occupational and environmental health. If the exposure happened at work, you may wish to discuss it with your employer, the Occupational Safety and Health Administration (OSHA) or the National Institute for Occupational Safety and Health (NIOSH). Ask the person who gave you this form for help in locating these telephone numbers.

Follow-up Instructions

Keep this page and take it with you to your next appointment. Follow *only* the instructions checked below.

Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:

- abdominal pain, diarrhea, vomiting
- severe weakness
- rapid heart rate
- shortness of breath, coughing, or wheezing
- increased pain or discharge from injured eyes

No follow-up appointment is necessary unless you develop any of the symptoms listed above.

Call for an appointment with Dr. _____ in the practice of _____.

When you call for your appointment, please say that you were treated in the Emergency Department at _____ Hospital by _____ and were advised to be seen again in _____ days.

Return to the Emergency Department/_____ Clinic on (date) _____ at _____ AM/PM for a follow-up examination.

Do not perform vigorous physical activities for 1 to 2 days.

You may resume everyday activities including driving and operating machinery.

Do not return to work for ____ days.

You may return to work on a limited basis. See instructions below.

Avoid exposure to cigarette smoke for 72 hours; smoke may worsen the condition of your lungs.

Avoid drinking alcoholic beverages for at least 24 hours; alcohol may worsen injury to your stomach or have other effects.

Avoid taking the following medications: _____

You may continue taking the following medication(s) that your doctor(s) prescribed for you:

Other instructions: _____

- Provide the Emergency Department with the name and the number of your primary care physician so that the ED can send him or her a record of your emergency department visit.

- You or your physician can get more information on the chemical by contacting: _____ or _____, or by checking out the following Internet Web sites: _____; _____.

Signature of patient _____ Date _____

Signature of physician _____ Date _____