

Acrylonitrile - ToxFAQs™

What is acrylonitrile?

Acrylonitrile is a colorless, liquid, man-made chemical with a sharp, onion- or garlic-like odor. It can be dissolved in water and evaporates quickly.



Acrylonitrile is used to make other chemicals such as plastics, synthetic rubber, and acrylic fibers. A mixture of acrylonitrile and carbon tetrachloride was used as a pesticide in the past; however, all pesticide uses have stopped.

What happens to acrylonitrile in the environment?

Acrylonitrile in the environment can be found in air, soil, and water near industrial sites where it is made. Acrylonitrile evaporates easily. In air, acrylonitrile breaks down quickly (about half will disappear within 1–12 hours) by reacting with other chemicals and sunlight. Acrylonitrile dissolves in water where it is broken down by bacteria or will evaporate to the air. In soil, some of it will be broken down by bacteria, but most of it will evaporate to the air or filter to groundwater.

How can I be exposed to acrylonitrile?

You may be exposed to acrylonitrile from using products that contain acrylonitrile, such as acrylic fiber clothing or carpeting or from food stored in containers made from acrylonitrile-based plastics. You may also be exposed to acrylonitrile in air if you live or work near a factory where acrylonitrile is made. Smoke from tobacco and marijuana may also be a source of exposure to acrylonitrile.

How can acrylonitrile affect my health?

Breathing high concentrations of acrylonitrile will cause nose and throat irritation, difficulty breathing, nausea, dizziness, weakness, headache, impaired judgment, and convulsions. These symptoms usually disappear when exposure is stopped. If spilled on the skin, acrylonitrile will burn the skin and produce redness and blisters.

The levels of acrylonitrile found in the environment are lower than levels known to cause adverse health effects.

Laboratory animal studies show effects from breathing acrylonitrile. These effects include irritation to the nasal cavity and lungs, changes in the breathing rate, fluid accumulation in the lungs, weakness, and paralysis. Stomach irritation has been observed in animals orally exposed to acrylonitrile. Decreased birth weight and birth defects have been observed in some laboratory animals exposed to high concentrations of acrylonitrile in air or drinking water. In people with hearing damage caused by noise, exposure to high doses of acrylonitrile can make hearing loss worse.

Acrylonitrile

Can acrylonitrile cause cancer?

The [U.S. Department of Health and Human Services \(DHHS\)](#) has determined that acrylonitrile is reasonably anticipated to be a human carcinogen.

The [U.S. Environmental Protection Agency \(EPA\)](#) has determined that acrylonitrile is a probable human carcinogen.

The [International Agency for Research on Cancer \(IARC\)](#) has determined that acrylonitrile is carcinogenic to humans.

Can I get a medical test to check for acrylonitrile?

Tests are available to measure levels of acrylonitrile or one of its breakdown products (metabolites) in blood and urine. These tests cannot predict whether you will have health problems from exposure to acrylonitrile. Doctor's offices do not routinely offer these tests. If you think you have been exposed to acrylonitrile, call your doctor, nurse, or poison control center.

How can I protect myself and my family from acrylonitrile?

Most people don't need to take any special steps to avoid acrylonitrile in their daily lives. Children should avoid playing in the dirt near hazardous waste sites to avoid coming in contact with acrylonitrile.

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 Acrylonitrile: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=447&tid=78>

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

Find & contact your ATSDR Regional Representative at <https://www.atsdr.cdc.gov/regional-offices/index.html>

