

Acrolein - ToxFAQs™

What is acrolein?

Acrolein is colorless or yellow liquid with a strong disagreeable odor. Small amounts of acrolein can be formed from burning tobacco, wood, plastics, gasoline, and paraffin wax. Cooking fats and oils at high temperatures can also release acrolein.

Acrolein is used to make other chemicals such as acrylic acid. It is also used to kill unwanted algae, weeds, bacteria, and mollusks in water.



What happens to acrolein in the environment?

Acrolein can get into the environment from automobile exhaust, smoke from a fire or a cigarette, or manufacturing facilities that make or use this chemical. It will also get into water systems when used to control weeds, algae, bacteria, or mollusks growing in the water.

In the air, acrolein breaks down fairly rapidly (about half will disappear within 1 day) by reacting with other chemicals and sunlight. Acrolein evaporates quickly from soil and water. In surface water, half of acrolein will disappear in 1–3 days. It is not likely to travel through the soil to groundwater. Acrolein does not build up in plants or animals.

How can I be exposed to acrolein?

You may be exposed to acrolein if you breathe in smoke from cigarettes, e-cigarettes, or marijuana, or are in an area where people are smoking and breathe in their exhaled smoke. Breathing in automobile exhaust or smoke from burning wood or oils heated to very high temperature may expose you to acrolein. Acrolein may be released into the air by some building materials. Eating certain foods or beverages or drinking contaminated water may expose you to acrolein. You can also be exposed if you enter water soon after it was treated with products that contain acrolein. If you work in a facility that used acrolein, you may be exposed.

How can acrolein affect my health?

Breathing air that contains acrolein may cause eye irritation and watering. Also, it may cause irritation of the nose and throat and a decreased breathing rate; these effects usually disappear after exposure stops.

Studies in animals show that breathing in acrolein for a short amount of time irritated the nose and throat and decreased breathing rate. Breathing in acrolein also reduced the animal's ability to fight infections. Exposing animals to air that contained acrolein caused some animals to blink or close their eyes. When acrolein was eaten, the lining of the stomach became irritated and inflamed and caused some animals to throw up.

Acrolein can be found in cigarette smoke and car exhaust. Breathing in acrolein can cause your nose and throat to become irritated.

Acrolein

Can acrolein cause cancer?

The ability of acrolein to cause cancer in people has not been well studied.

Tumors in the nose were seen in rats and mice that breathed in acrolein for a long period of time.

The [U.S. Department of Health and Human Services \(DHHS\)](#) has not classified acrolein as to its carcinogenicity (ability to cause cancer).

The [U.S. Environmental Protection Agency \(EPA\)](#) has concluded that there is not enough information available to determine if acrolein is carcinogenic.

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

Can I get a medical test to check for acrolein?

There are tests to measure the breakdown products of acrolein in urine. However, there are several other chemicals that also have the same breakdown products, so these tests are not specific for acrolein exposure. These tests cannot predict whether you will have health problems from the exposure.

How can I protect myself and my family from acrolein?

Avoid smoking tobacco, e-cigarettes, and marijuana and keep children away from smoke generated from these products. Do not allow people to smoke in your home and avoid going to places where smoking indoors is allowed (bars, restaurants). Avoid breathing in smoke from fires and exhaust from diesel or gasoline vehicles. When cooking with oil or fats, do not heat to high temperatures. Keep children away from waterways that are treated with acrolein products to control weeds, algae, and bacterial growth.

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 Acrolein: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=557&tid=102>

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

