

This fact sheet answers the most frequently asked health questions (FAQs) about cresols. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to cresols occurs mainly from breathing air containing car exhaust, breathing air from homes heated with coal or wood, and smoking cigarettes. Cresols, when breathed at very high levels, may cause irritation of the nose and throat. These chemicals have been found in at least 314 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

What are cresols?

(Pronounced krē'-sōlz')

Cresols are a widely occurring natural and manufactured group of chemicals. In their pure form, they are colorless solids and may be liquids if they are mixtures. Cresols smell like medicine.

There are three forms of cresols that are only slightly different in their chemical structure: ortho-cresol (o-cresol), meta-cresol (m-cresol), and para-cresol (p-cresol). These forms occur separately or as a mixture. They are used to dissolve other chemicals, as disinfectants and deodorizers, and to make certain chemicals that kill insect pests.

Cresols are found in many foods and in wood and tobacco smoke, crude oil, coal tar, and in brown mixtures such as creosote and cresylic acids, which are wood preservatives. Small organisms in soil and water produce cresols when they break down materials in the environment.

What happens to cresols when they enter the environment?

- Cresols enter the environment from natural sources, car exhaust, combustion, manufacturing use, and waste sites.
- Cresols appear everywhere in our environment, but usually at low levels, because they quickly break down.

- In air, cresols quickly break down into other chemicals.
- Cresols do not evaporate quickly from water, but they can be removed by bacteria.
- Cresols may last longer in deep groundwater or water that does not have bacteria.
- In soil, half the total amount of cresols will break down in about a week.
- Cresols do not appear to accumulate in fish or meat.

How might I be exposed to cresols?

- Breathing contaminated air from car exhaust, coal or wood combustion, oil refineries, or cigarette smoke.
- Breathing workplace air or skin contact in the workplace.
- Eating foods, including ketchup, tomatoes, cheese, butter, and bacon, but generally the levels are not harmful.
- Drinking contaminated water near manufacturing sites, waste sites, or landfills.

How can cresols affect my health?

Most exposures to cresols are at very low levels that are not harmful. When cresols are breathed, ingested, or applied to the skin at very high levels, they can be very harmful. Effects observed in people include irritation and burning of

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skin, eyes, mouth, and throat; abdominal pain and vomiting; heart damage; anemia; liver and kidney damage; facial paralysis; coma; and death.

Breathing high levels of cresols for a short time results in irritation of the nose and throat. Aside from these effects, very little is known about the effects of breathing cresols, for example, at lower levels over longer times.

Ingesting high levels results in kidney problems, mouth and throat burns, abdominal pain, vomiting, and effects on the blood and nervous system.

Skin contact with high levels of cresols can burn the skin and damage the kidneys, liver, blood, brain, and lungs.

Short-term and long-term studies with animals have shown similar effects from exposure to cresols. No human or animal studies have shown harmful effects from cresols on the ability to have children.

It is not known what the effects are from long-term ingestion or skin contact with low levels of cresols.

How likely are cresols to cause cancer?

The Environmental Protection Agency (EPA) has determined that cresols are possible human carcinogens.

No studies are available in people on the carcinogenic effects of cresols. Animal studies show that cresols may increase the ability of some carcinogenic chemicals to cause tumors.

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

Tests are available that measure the amount of cresols in the urine. The tests must be performed within one day of

exposure since cresols break down quickly in the body.

Since cresols occur naturally in the body, results of tests for cresol exposure would have to be compared to results of tests taken from the same person both before and several days after the exposure. These tests are usually not available in your doctor's office.

Has the federal government made recommendations to protect human health?

The EPA requires that discharges or accidental spills of 1,000 pounds or more of cresols be reported.

The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 22 milligrams per cubic meter (22 mg/m³) for cresols in workplace air for an 8-hour workday, 40-hour workweek. OSHA advises avoiding eye and skin contact because this may be a route of significant exposure.

Glossary

Carcinogen: A substance that can cause cancer.

Ingesting: Taking food or drink into your body.

Long-term: Lasting one year or longer.

Milligram (mg): One thousandth of a gram.

Short-term: Lasting 14 days or less.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological profile for cresols: o-cresol, p-cresol, & m-cresol. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

