

2,3,7,8-TCDF (TETRACHLORODIBENZOFURAN)

What is 2,3,7,8-TCDF (Tetrachlorodibenzofuran)?

2,3,7,8-TCDF, also called tetrachlorodibenzofuran, is a very harmful chemical. It is one of the 135 different types of chlorinated dibenzofurans.

Where can 2,3,7,8-TCDF be found and how is it used?

There is no known use for these chemicals. They are not purposely made by industry, except for research. Most 2,3,7,8-TCDF is created as by-products of processes such as producing other chemicals or bleaching paper.

How can people be exposed to 2,3,7,8-TCDF?

You could be exposed to 2,3,7,8-TCDF through:

- **Breathing** air containing 2,3,7,8-TCDF, such as near a waste site or near a site whose process produces 2,3,7,8-TCDF, such as a chemical plant or a pulp mill.
- **Eating** food containing 2,3,7,8-TCDF.
- **Drinking** water or other liquids containing 2,3,7,8-TCDF. This could occur from drinking liquids that have 2,3,7,8-TCDF in them from contact with their containers. Milk cartons are one example.
- **Touching** soil containing 2,3,7,8-TCDF, such as at a waste site or by touching chemicals that produce 2,3,7,8-TCDF.
- **Eye contact** from soil containing 2,3,7,8-TCDF drifting into the eyes.

How does 2,3,7,8-TCDF work and how can it affect my health?

There is very little information on the human health effects of 2,3,7,8-TCDF. Most available information comes from animal studies. Animals acutely exposed suffer severe weight loss, irritated eyelids, and a loss of eyelashes and fingernails. Exposure can impact the way enzymes work in the body, and it can affect the endocrine system. There is also a risk of developing diabetes. TCDF may cause birth defects such as cleft palate.

How is 2,3,7,8-TCDF poisoning treated?

There is no treatment just for 2,3,7,8-TCDF poisoning. A doctor will suggest treatment based on the symptoms.

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What should I do if exposed to 2,3,7,8-TCDF?

- **If you touch 2,3,7,8-TCDF**, clean the area with mineral oil right away to remove as much of the compound as possible. Clean for at least 10 minutes. Get medical help.
- **If you get 2,3,7,8-TCDF in your eyes**, flush immediately with large amounts of water. Get medical help right away.
- **If you breathe 2,3,7,8-TCDF**, move to fresh air. Get medical help right away. If an exposed person stops breathing, perform mouth-to-mouth resuscitation.
- **If you swallow 2,3,7,8-TCDF**, get medical help right away.

What factors limit use or exposure to 2,3,7,8-TCDF?

Most exposure to 2,3,7,8-TCDF is by eating food containing it. TCDF builds up in fats of food items. Eating a low-fat diet limits exposure. Also avoid waste sites.

Is there a medical test to show whether I've been exposed to 2,3,7,8-TCDF?

Medical tests can determine the chemical in blood, body fat and breast milk but cannot pinpoint the length of time of exposure, or the amount of the chemical.

Technical information for 2,3,7,8-TCDF

CAS Number: 51207-31-9

Chemical Formula: C₁₂H₄Cl₄O

Carcinogenicity (EPA): EPA has not classified 2,3,7,8-TCDF for carcinogenicity.

MCL (Drinking Water): There is no MCL for 2,3,7,8-TCDF.

OSHA Standards: There are no OSHA standards for 2,3,7,8-TCDF.

NIOSH Standards: There are no NIOSH standards for 2,3,7,8-TCDF.

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2022. Toxicological profile for chlorodibenzofurans (CDFs). Atlanta, GA: U.S. Department of Health and Human Services.

<https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=938&tid=194>

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. Guide to Occupational Exposure Values. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services.

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