



Drinking Water Facts:

1,2,3-Trichloropropane

Updated December 2018

General Information

1,2,3-Trichloropropane (TCP) is a man-made chemical commonly used as an industrial solvent (for oil, fats, waxes, and resins), a degreasing agent, a paint and varnish remover, and to manufacture other chemicals.

Additionally, 1,2,3-TCP was an impurity in dichloropropane- and dichloropropene- containing soil fumigants used as pesticides and nematocides until the late 1980's. Some of these soil fumigants, which contained a small amount of 1,2,3-TCP, were used in growing citrus fruits, pineapples, soy beans, tomatoes and potatoes.

1,2,3-TCP is stable in the environment and has been detected in public water systems, private wells, and in ground water in New Jersey and other states.

Occurrence of 1,2,3-TCP in drinking water

Large public water systems in the U.S. and a subset of smaller water systems were required to test for 1,2,3-TCP as part of the U.S. Environmental Protection Agency's Unregulated Contaminant Monitoring Rule (UCMR) program in 2013-2015. In New Jersey, 2 of the 174 (1.2%) water systems that tested as part of the UCMR program detected 1,2,3-TCP greater than 0.03 µg/L. 1,2,3-TCP was also detected in several additional NJ public water systems prior to the 2013-2015 UCMR monitoring – these water systems have taken measures to stop exposures.

1,2,3-TCP in public drinking water

Did You Know?

NJ Safe Drinking Water Act (SDWA) rules at N.J.A.C. 7:10 establish a maximum contaminant level (MCL) of 0.03 µg/L [parts per billion (ppb)] for 1,2,3-trichloropropane.

Public Water continued...

The amendments to the NJ SDWA adopted in September 2018 require public water systems to monitor for 1,2,3-TCP. Groundwater systems serving a population of 10,000 or less and public nontransient noncommunity water system must begin monitoring the first quarter of 2019. All public community water systems using surface water source(s) and all public community water systems serving a population greater than 10,000 will begin monitoring within the first quarter of 2020. If 1,2,3-TCP is detected at or above 0.01 µg/L, water systems must continue quarterly monitoring.

The health-based MCL is 0.0013 µg/L. However, current laboratory techniques for measuring concentrations in drinking water cannot detect levels that low. Therefore, the NJ MCL of 0.03 µg/L is based on levels that can be detected by current laboratory techniques. As laboratory techniques improve, the MCL may be lowered. There is currently no Federal drinking water standard for 1,2,3-TCP.

Unit Conversation

0.03	=	30
µg/L		ng/L
ppb		ppt
parts per billion		parts per trillion

Each of the water systems that tested for 1,2,3-TCP through the UCMR has reported its results in the annual Consumer Confidence Report (CCR) from your water provider. The CCR may be available online or you can reach out to your water provider. Future testing results will also be reported in the CCR.

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1,2,3-TCP in private well drinking water

Did You Know?

NJ Department of Environmental Protection has adopted amendments to the Private Well Testing Act (PwTA) rules at N.J.A.C. 7:9E to require testing of private wells at real estate transfer, every 5 years if a rental, and in newly constructed wells for 1,2,3-trichloropropane. These rules become effective March 2019.

The PwTA only requires testing for 1,2,3-TCP at real estate transfers and every five years in rental homes. Therefore, if you are concerned that your current well water may be contaminated with 1,2,3-TCP, you should have your water tested by a certified laboratory. A list of laboratories certified for 1,2,3-TCP testing can be found on the NJDEP DataMiner website. (See Resources below for more information.)

Granulated activated carbon (GAC) systems that are NSF International certified for the removal of compounds related to 1,2,3-TCP are available, and studies have shown GAC systems can successfully reduce 1,2,3-TCP in private wells.

Health Effects of 1,2,3-TCP

1,2,3-TCP caused liver and kidney damage, blood disorders and stomach irritation in mouse and rat studies. There are no health studies involving humans.

1,2,3-TCP is a strong carcinogen and caused tumors in multiple organs in a 2-year chronic study of rats and mice ingesting the chemical. The NJDEP and the USEPA have classified 1,2,3-TCP as “likely to be carcinogenic to humans.” Infants and young children may be more susceptible to this effect than older individuals.

After absorption into the body, 1,2,3-TCP is metabolized to reactive intermediates that are mutagenic, genotoxic, and carcinogenic.

- **Carcinogen:** a substance capable of causing cancer.
- **Genotoxin:** a substance that has a destructive effect on a cell's genetic material.
- **Mutagen:** a substance that causes mutations which can lead to birth defects, miscarriages, or cancer.

Exposure to 1,2,3-TCP

- If 1,2,3-TCP is present in your drinking water, you can reduce your exposure by using an alternative drinking water source such as bottled water.
- There are no blood tests to determine whether you have been exposed to 1,2,3-TCP.
- Exposure to 1,2,3-TCP does not mean you will develop health effects. If you do develop an adverse health outcome, there is no way to determine if it was caused by your exposure.
- Speak with your doctor about your health concerns.

Resources

- **NJ Department of Environmental Protection (NJDEP):**
 - For information on NJ Private Well Testing Act, visit: <https://www.nj.gov/dep/dsr/pwta/>
 - For more information on NJ Safe Drinking Water Act, visit: https://www.state.nj.us/dep/watersupply/g_reg.html
 - For more information on certified laboratories, visit: <https://www13.state.nj.us/DataMiner> Search by Category for ‘Certified Laboratories’, Scroll for ‘Laboratories Certified by Parameter’, Search for ‘Trichloropropane (1,2,3-)’
- **United States Environmental Protection Agency (USEPA)**
 - For more information on 1,2,3-TCP, visit: https://www.epa.gov/sites/production/files/2017-10/documents/ffrofactsheet_contaminants_tcp_9-15-17_508.pdf
 - For information on the Unregulated Contaminant Monitoring Rule, visit: http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/upload/UCMR3_Data-Summary_June2015_508.pdf
- **Other Resources:**
 - For information on NSF home water filters, visit: <http://www.nsf.org/consumer-resources/water-quality/drinking-water/>