# 1,4 – Dioxane Fact Sheet

**What is 1,4 - Dioxane?**

1,4-Dioxane is a synthetic chemical that is used in many products including paint strippers, dyes, greases, varnishes and waxes. This contaminant is also found as an impurity in antifreeze and aircraft de-icing fluids and in some consumer products (deodorants, shampoos and cosmetics).

Traces of 1,4-dioxane may be present in some food supplements, food containing residues from packaging adhesives or on food crops treated with pesticides that contain 1,4-dioxane as a solvent or inert ingredient.

**How are people exposed to 1,4-Dioxane?**

People can come into contact with 1,4-Dioxane through the use of cosmetics, shampoos, detergents and other consumer products with the compound in them. 1,4-Dioxane was commonly used as a stabilizer for chlorinated solvents, particularly 1,1,1-trichloroethane (TCA). Where such solvents have polluted a groundwater aquifer or a surface water supply, the public can be exposed to 1,4-Dioxane through the water they consume or through bathing and showering. 1,4-Dioxane is transported in groundwater from a source of contamination more quickly than other solvents, so it may be present when other solvents are not.

**Is there a Maximum Contaminant Level (MCL)?**

There is currently no chemical-specific Federal or New York State drinking water standard for 1,4-Dioxane; however it is regulated as an Unspecified Organic Contaminant by the New York State Department of Health (NYSDOH) at a maximum contaminant level (standard) of 50 parts per billion (ppb).

The Plainview Water District has sampled all of its drinking water wells under the UCMR-3 program. Detections of 1,4-Dioxane has ranged from 0.18 ppb to 5.8 ppb with the average of 1.9 ppb for all 12 wells sampled. These results are well below the NYSDOH standard, so there are no special actions our District customers need to take.

According to the EPA Integrated Risk Information System, the risk assessment for development of cancer could increase by one out of one million, assuming consumption of 2 liters of water per day each and every day for a lifetime (70 years) at a concentration of 0.35 ppb of 1,4-Dioxane in the water.

**What is the Plainview Water District doing about 1,4-Dioxane?**

In 2018, the Plainview Water District submitted a joint proposal with a nearby water district taking the lead at exploring advanced treatment techniques for the removal of 1,4-Dioxane. Although the District reports far lower levels of 1,4-dioxane this contaminant has been found in many Long Island groundwater wells.

Our proposal to the New York State Center for Clean Water Technologies (CCWT), Stony brook, NY is a grant based pilot program designed to study treatment method options for our District to remove 1,4-dioxane. This program is an essential process to study treatment technologies that will benefit the Plainview Water District and surrounding water districts in the Plainview area.

**Will the EPA be setting a drinking water standard for 1,4-Dioxane?**

A federal drinking water standard for 1,4-Dioxane has not yet been established. However, New York State recently formed an advisory panel of experts to begin the discussion into urging the Environmental Protection Agency (EPA) to set a maximum contaminant level (MCL) for 1,4-Dioxane. Should the federal government fail to set a standard for this contaminant, New York State will consider setting a New York State MCL for 1,4-Dioxane.

On an EPA level, if there is scientifically compelling evidence that shows a large number of U.S. drinking water systems have high amounts of 1,4-Dioxane, it is possible that they may decide to regulate 1,4-Dioxane in the future. Before regulating a contaminant, EPA considers projected adverse health effects from the contaminant, the extent of occurrence of the contaminant in drinking water, and whether regulation of the contaminant would present a meaningful opportunity for reducing risks to health.

**Is there 1,4-Dioxane present in bottled water?**

Bottled water quality can vary. Bottled water in the United States is regulated by the U.S. Food and Drug Administration (FDA) and is required to meet standards set by the FDA. When the EPA sets a new standard for a contaminant in tap water, the FDA must establish a new standard for the same contaminant in bottled water or find that the new standard is not applicable to bottled water. There are also individual state standards established for bottled water. In most cases, however, you must contact the bottled water manufacturer for information about dioxane levels in the water. The US FDA does not regulate the use of 1,4-dioxane or its by-products in consumer products, so it’s important that consumers are aware of what products they are using.

**Can I buy a home treatment device to remove 1,4-Dioxane?**

The Plainview Water District continuously samples its water in the distribution system and currently the water from your tap is well below the EPA standard for unspecified organic contaminants. There is no further action that our customers need to take. Treatment technologies such as advanced oxidation processes are not economically viable or reliable enough to be considered for residential use. The District advises our consumers to be cautious of home filter suppliers that claim to remove 1,4-Dioxane, as very little technology has been certified for this contaminant, and testing is not able to be performed in the home. Without access to testing you may be purchasing treatment that may not be doing what was expected.

**Found In:**

Products that create suds (such as shampoo, liquid soap, bubble bath), hair relaxers, others

**What To Look for on the Label:**

Sodium laureth sulfate, PEG compounds, chemicals that include the clauses xynol, ceteareth and oleth.

**Where can I find more information regarding 1,4-Dioxane?**

* New York State actions related to Standards for 1,4-Dioxane: <https://www.governor.ny.gov/news/governor-cuomo-calls-epa-set-clear-and-enforceable-drinking-water-standard-1-4-dioxane>
* EPA Fact Sheet on 1,4-Dioxane:

<https://www.epa.gov/sites/production/files/2014-03/documents/ffrro_factsheet_contaminant_14-dioxane_january2014_final.pdf>

* Information related to the Advanced Oxidation Process (AOP):

<http://www.waterworld.com/articles/wwi/print/volume-19/issue-7/features/advanced-oxidation-process-reduces-14-dioxane-to-3-ppb-in-groundwater.html>

* AWWA Advanced Oxidation Handbook

<https://www.awwa.org/portals/0/files/publications/documents/advancedoxidationlookinside.pdf>

For further information on 1,4-Dioxane and our drinking water supply, feel free to contact the Plainview Water District at (516) 931-6469 or visit our website at www.plainviewwater.org

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