Fact Sheet

August 2015

WHAT YOU NEED TO KNOW ABOUT

1,4–Dioxane in Well Water

Main Points

⇒ **1,4-Dioxane is an industrial chemical that can also be found in consumer products.**

⇒ **1,4-Dioxane has been found in drinking water wells in Connecticut.**

⇒ **Connecticut has set a drinking water Action Level of 3 micrograms per liter (µg/L), and a bathing/showering Action Level of 50 µg/L.**

⇒ **If your well water has 1,4-dioxane at a level higher than the Action Level, there is the potential for increased health risks and you should contact the agencies listed on page 4.**

⇒ **Test for 1,4-dioxane if your well already contains 1,1,1-trichloroethane (TCA) or other chlorinated solvents.**

What is 1,4-Dioxane?

1,4-Dioxane is a common chemical solvent used in consumer products and in industry. It can be found in paint, cosmetics and toiletries. Its main industrial use is in degreasing solvents where it is present in combination with other chemicals, most commonly with 1,1,1-trichloroethane (TCA) and trichloroethylene (TCE).

[Note: 1,4-dioxane is not the same as "dioxin," which is a much different type of chemical.]

Ways to detect low levels of 1,4-dioxane in drinking water were not available until fairly recently.

What are its Toxic Effects?

At very high levels 1,4-dioxane can affect the nervous system causing loss of coordination, tiredness, dizziness and headache. These high levels can also cause liver and kidney damage. Such obvious effects are very unlikely if you are exposed to low levels of 1,4-dioxane in drinking water. High doses over long periods of time have caused liver and nasal cancer in several animal studies. 1,4-dioxane is unlikely to cause birth defects or effects on fertility, although there are only a few studies in this area.

What is the Safe Level of 1,4-Dioxane in Drinking Water?

There is no federal drinking water standard (Maximum Contaminant Level - MCL) for 1,4-dioxane. In October 2011, CT Department of Public Health (CT DPH) set a drinking water Action Level of 3 µg/L for 1,4-dioxane. If your well water has levels at or above 3 µg/L, you should not drink or cook with your well water and should contact the agencies listed on page 4. You can find contact information at the end of this fact sheet. Information about how to prevent exposure is provided below.

Can I Bathe and Shower in Water That Contains 1,4-Dioxane?

It depends on the concentration. Breathing 1,4-dioxane during showering/bathing is not a concern because 1,4-dioxane does not evaporate easily out of water. However, dermal (skin) exposures during bathing/showering can be a concern if levels of 1,4-dioxane are high. CT DPH has set an Action Level of 50 µg/L for bathing and showering to protect you from dermal exposures during showering/bathing. If your well water tests at or higher than 50 µg/L, you should contact the agencies listed on page 4.

Where has 1,4-Dioxane been Detected? At What Levels?

1,4-Dioxane has only been found in drinking water wells that also had chlorinated solvents such as 1,1,1-TCA and TCE. The levels found have been generally low, less than 50 µg/L. However, 1,4-dioxane is difficult to filter out of water and can actually be higher when a filter is used. This is because it can build up on the filter over time and then be released when the filter is full. This can lead to higher levels in the water leaving the filter (treated water). At times, 1,4-dioxane levels in treated water have been higher than the unfiltered water due to this problem (chemical build-up on the filter).

Should I Test my Water for 1,4-Dioxane ?

Most people do not need to test their well water for this chemical. You should only consider testing your well if:

• You already have 1,1,1-TCA or other chlorinated solvents (such as TCE) in your water.

• You live in an area where groundwater is contaminated with chlorinated solvents but your well has not been tested or had tested negative in the past. The contamination could have spread out and recently reached your well.

• Your well is near an industry known to have worked with metal parts and may have used these types of solvent degreasers. In this case you can contact CT DEEP or your local health department to find out if there is a concern in your area.

What Should I Do if 1,4-Dioxane is in my Water?

If 1,4-dioxane has been found in your well water, you should immediately inform your local health department and CT DEEP. These agencies track groundwater pollution and may investigate the source of your contamination. CT DEEP and CT DPH can give you information about what actions you can take to ensure that you have clean, safe drinking water (bottled water and/or a water filter system).

Bottled water is usually adequate when 1,4-dioxane is found at levels at or greater than 3 µg/L. If levels are at or greater than 50 µg/L, bottled water alone is not protective enough because of bathing/ showering exposures. A filter is also needed. In fact, many homes will likely need filters to treat for other chemicals that often occur with 1,4-dioxane.

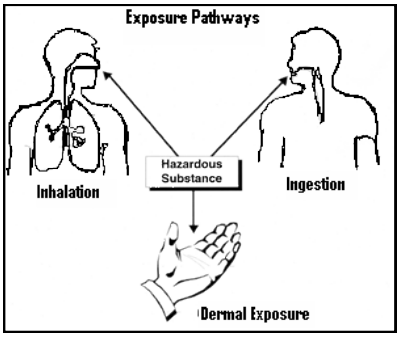
The table below will help you understand what treatment may be necessary for 1,4-dioxane:

1,4-Dioxane Concentration	Treatment Method
Less than 3 µg/L	None
At or greater than 3 but less than 50 µg/L	Bottled water
At or greater than 50 µg/L	Bottled water and enhanced carbon filter system, more frequent filter replacement, or another treatment method

Understanding Exposures to Chemicals

Any chemical that enters your body can be harmful if you take in too much. Whether your health will be affected by a chemical that gets into your body depends on several factors.

- How much of the chemical you take in.
- How long you are exposed to it.
- How it enters the body (for example, eating, drinking, breathing, or touching).
- Your age, general health and other individual traits.
- Other exposures you have to the same or similar chemicals.
- How toxic the chemical is.



Where Can I Get More Information?

Health and Treatment Questions:

CT Department of Public Health
Environmental Health Section

- **Health Questions: 860-509-7740**
- **Treatment Questions: 860-509-7296**

CT DPH Private Well Program

Report Contamination:

- CT Department of Energy & Environmental Protection (CT DEEP): **860-424-3705**
- Your Local Health Department

Water Testing Laboratories:

List of State Certified Labs

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