

The persistent problem of 1,4-dioxane in water

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Of the many chemicals that can pollute the world's water supplies, 1,4-dioxane is one of the most persistent. Listed as a likely carcinogen by the U.S. Environmental Protection Agency (EPA), 1,4-dioxane is largely unregulated and difficult to remove from water. A new article in *Chemical & Engineering News*, the weekly newsmagazine of the American Chemical Society, explores the challenges of combatting this contaminant.

1,4-Dioxane is a synthetic reagent used in pharmaceutical purification and to create filter membranes, but it has fallen out of widespread use in recent decades, writes Senior Correspondent Cheryl Hogue. The compound degrades very quickly in the atmosphere. In contrast, 1,4-dioxane dissolves completely in water and does not evaporate, meaning it can't be removed using traditional groundwater treatment systems. Advanced oxidation processes can do the trick, but they are expensive and energy intensive, making them out of reach for many [water utilities](#).

Communities that use wells for public drinking water are especially prone to 1,4-dioxane contamination, which can be attributed to previously unregulated industrial disposal practices that led to the chemical leaching into aquifers. Because it is an unintentional byproduct of surfactants used in detergents and shampoos that are washed down the drain, 1,4-dioxane also is a component of sewage. Like most drinking water providers, conventional sewage treatment plants cannot remove the compound from wastewater. In the U.S., a lack of federal regulation

means that some state and [local governments](#) are now working to regulate how much 1,4-dioxane is permissible in water. Because of the challenges of removing the compound from [water](#), advocates are calling for such efforts to prevent the [chemical](#) from being released into the environment in the first place.

More information: "1,4-Dioxane: Another Forever Chemical Plagues Drinking-Water Utilities," [cen.acs.org/environment/pollut ... ever-chemical/98/i43](https://cen.acs.org/environment/pollut...ever-chemical/98/i43)

Provided by American Chemical Society

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