



A scientific study from one of the world's top research universities indicates chlorination may be creating previously unknown, highly toxic by-products in tap water (Photo iStock; Credit PixelsEffect)

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## **New American study says chlorine being used to disinfect drinking water could be causing a toxic and carcinogenic chemical cocktail endangering human health**

Stockholm, Sweden, November 16, 2020 – Households across the USA and other countries where tap water is heavily chlorinated may be drinking a potential health-threatening toxic and carcinogenic cocktail of chemicals sparked by chlorine use, according to recent research. A study from one of America's top research universities underscores the lack of research into the

unintended health consequences of chlorine interacting with other chemicals finding their way into tap water, says [Bluewater](#), a world leader in water purification technologies.

Researchers at Johns Hopkins and the University of California, Berkeley, as well as in Switzerland, said their [study](#), recently published in the science journal *Environmental Science & Technology*, indicates mixing drinking water with chlorine, one of the world's most widely used methods of disinfecting water, creates previously unidentified by-products that could be 'toxic and carcinogenic'.

"Chlorination has undoubtedly saved the lives of millions of people around the world from diseases such as typhoid and cholera. Yet worryingly little is known about the health consequences sparked by the chemical cocktail created when chlorine mixes with other chemical compounds found in drinking water," said Bluewater PR and Communications Director Dave Noble.

He noted how the scientists behind the Johns Hopkins study concluded that the discovery of previously unknown, highly toxic by-products raises the question of how much chlorination is necessary.

The lab-based study involved chlorinating water using the same methods used commercially for drinking water. The team added amino acid, let the water incubate for one day, and then used mass spectrometry to detect and analyze the chemicals in the water.

Their experiment found the compounds 2-butene-1,4-dial (BDA) and chloro-2-butene-1,4-dial (or BDA with chlorine attached). BDA is a very toxic compound and a known carcinogen that scientists had not earlier detected in chlorinated water.

The paper's lead author Carsten Prasse, assistant professor of Environmental Health and Engineering at The Johns Hopkins University, said current analytical chemistry methods "are unable to detect and identify all of these by-products, some which may be harmful and can cause long-term health consequences." He noted one reason regulators and utilities are not monitoring these compounds is that they don't have the tools to find them.

Mr. Prasse called for the development of new analytical techniques that allow ‘us to evaluate the formation of toxic disinfection by-products when chlorine or other disinfectants are being used’. He said more research was needed into chlorination alternatives such as ozone, UV treatment, or simple filtration.

In a [2019 White Paper](#), Bluewater and the Lisbon-based Mirpuri Foundation concluded that plastics pollution posed the #1 threat to human kind because of the way it contributes to the release of so-called Endocrine Disrupting Chemicals, or EDC’s, into the natural environment. EDC’s block the way hormones function naturally, triggering abnormal development and illnesses ranging from stunted fertility and male/female sex malformations to obesity, diabetes, cancer and heart attacks.

Bluewater second-generation point-of-use reverse osmosis water purifiers designed for homes, commercial operations and public distribution provide a here-and-now solution for consumers concerned about their tap water quality. Bluewater’s compact under-sink reverse osmosis purifiers remove up to 99.7% of waterborne impurities from municipal, well, or brackish water, including contaminants such as microplastics, bacteria and viruses, heavy metals like lead, and pharmaceutical and chemical residues.

“We want to give people peace of mind that the water coming from their taps is both cleaner and healthier to drink and wash with thanks to our water purifier technology,” said Dave Noble.

### **Notes for editors**

Read more about the Johns Hopkins and the University of California, Berkeley, study here: <https://hub.jhu.edu/2020/01/29/toxic-chlorinated-water-649-em1-art1-rel-science/>

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residential, business and public use that harness the company's patented reverse osmosis technology to remove virtually all pollutants from tap water, including lead, bacteria, pesticides, medical residues, chlorine, microplastics, and lime-scale. [www.bluewatergroup.com](http://www.bluewatergroup.com)

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