Disinfection Byproducts at Transient Systems

NONCOMMUNITY PUBLIC WATER SUPPLY PROGRAM

What are Disinfection Byproducts?

Disinfection byproducts (DBPs) are a class of chemicals that are formed when chlorine reacts with certain organic chemicals. Several DBPs, including trihalomethanes (THMs), haloacetic acids (HAAs), and chloroform may increase the risk of chronic health effects such as cancer and liver damage and are regulated under the Safe Drinking Water Act (SDWA). These regulations apply to Public Water Systems where consumers drink the water on a regular basis including cities, schools, and large workplaces. Acute exposure to DBPs is not believed to cause significant health effects, so DBPs are not regulated at Transient Noncommunity Public Water Systems such as restaurants and campgrounds where the majority of the consumers only drink the water for short periods of time. However, there are still some regular consumers of water at Transient systems such as owners, managers, and employees who may be at increased risk of exposure to DBPs.

Treatment of Disinfection Byproducts

Because DBPs are formed through the reaction between chlorine and organic chemicals, minimizing the chlorine dose and the organic content of the water can reduce the amount of DBPs formed. However, due to the need to provide adequate chlorine residual for the disinfection of pathogenic organisms and the difficulty in removing organic content at small treatment plants, these strategies may not be feasible. It is often easiest to remove DBPs at specific taps using point of use (POU) filters. Certain devices such as carbon filters and reverse osmosis (RO) units may be certified through an NSF Standard that verifies its ability to remove DBPs. For DBP removal, POU carbon filters should be rated to NSF Standard 53 for the removal of THMs, and RO filters should be rated to NSF Standard 58 for the removal of THMs. These devices can be a cost-effective method of removing DBPs at taps used by owners, managers, and employees. It should be noted that POU treatment devices require maintenance such as frequent filter replacement. Improper upkeep of POU devices may increase the risk of exposure to pathogenic organisms that can grow on the surface of old and unmaintained filters.

For assistance in evaluating your risk of exposure to DBPs or in selecting a POU filter to remove DBPs, contact MDH.

Related Links

List of POU Filters Certified by NSF for THM Removal (https://info.nsf.org/Certified/DWTU/Listings.asp?ProductFunction=053%7CTrihalomethanes+%28TTHM%29+Reduction&ProductFunction=058%7CTrihalomethanes+%28TTHM%29+Reduction&ProductType=&submit2=Search)

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02/12/24

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