

WATER SYSTEMS, DISINFECTION BYPRODUCTS, AND THE USE OF MONOCHLORAMINE

10) Why are water utilities switching to **monochloramine**?

New EPA regulations require water utilities to control levels of regulated disinfection byproducts.¹

- Water utilities are required to comply with EPA's revised regulations.
- Water utilities are assessing if they need to make changes to comply with revised EPA regulations.²
- To meet the new regulations, a subset of utilities has decided to change their secondary disinfectant from chlorine to monochloramine.

Water treated with **monochloramine** contains reduced levels of regulated disinfection byproducts compared to water treated with chlorine.¹

- Monochloramine produces lower concentrations of regulated disinfection byproducts because it is less reactive than chlorine with natural organic matter.³
- The formation of disinfection byproducts is influenced by source water type and the type of disinfection used.
- Formation can vary daily with the amount of natural organic material in the water, temperature, rainfall, and distance from the treatment plant or other factors influencing water chemistry.⁴

Water utilities switching from chlorine to monochloramine report fewer consumer concerns about their water.

- Water utilities switching from chlorine to monochloramine report fewer consumer concerns about the taste of water.⁵
- Water utilities switching from chlorine to monochloramine report fewer consumer concerns about odor.⁵
- Consumers may still notice a chlorine smell when utilities use monochloramine.⁵

Additional Supporting Information:

1. See Stage 2 Disinfection Byproducts Rule (71 FR 388, January 4, 2006) for more information on disinfection byproducts and discussion of epidemiological data on chlorinated water exposure and cancer, <http://www.epa.gov/fedrgstr/EPA-WATER/2006/January/Day-04/w03.pdf>.

2. See question 11 for additional ways utilities could comply with EPA's revised regulations.

3. *Natural Organic Matter*: Complex organic compounds that are formed from decomposing plant, animal and microbial material in soil and water. They can react with disinfectants to form disinfection by products. Total organic carbon (TOC) is often measured as an indicator of natural organic matter.

4. Water chemistry describes the chemical properties of water such as pH, hardness, and alkalinity. Changes in water chemistry can cause subsequent changes to the physical (e.g., taste and odor) and biological (e.g., biofilm formation and nitrification) properties of water.

5. Certain home drinking water treatment systems and filters can reduce or eliminate chlorine taste and odor. See question 29 for more specific information about these devices.