BASIC INFORMATION ABOUT CHLORAMINES

2) How long has monochloramine been used as a drinking water disinfectant? How is monochloramine typically used? How many people/water utilities use monochloramine?

Monochloramine has been used as a drinking water disinfectant for more than 90 years.[1]

- Monochloramine has been shown to be an effective disinfectant based on decades of use in the U.S., Canada, and Great Britain.
- Monochloramine is typically used along with chlorine as part of the drinking water treatment process.
- Monochloramine helps protect people from waterborne diseases.[2]

Monochloramine is most often used to maintain water quality in the pipes.[3]

- Monochloramine provides long-lasting protection of water quality.
- Monochloramine is effective as a disinfectant because it does not dissipate quickly
- Monochloramine helps lower levels of potentially harmful regulated disinfection byproducts compared to chlorine.

More than one in five Americans use drinking water treated with monochloramine.

- Monochloramine use has increased in recent years due in part to new drinking water regulations developed to limit certain disinfection byproducts.
- New drinking water regulations limit the concentration of potentially harmful disinfection byproducts that may occur in drinking water.[4]
- Several large cities such as Denver and Philadelphia have been using monochloramine as part of their treatment process for decades.

Additional Supporting Information:

1. For more information on the history of drinking water disinfection visit: http://www.epa.gov/safewater/consumer/pdf/hist.pdf.
2. For more information on waterborne disease visit: http://www.cdc.gov/ncidod/diseases/list_waterborne.htm.
3. Drinking water is typically treated before it is passed through the pipes, however, water is not sterile and can contain low levels of microorganisms that survive through treatment and distribution. Microbes can grow on pipe surfaces forming a thin biofilm layer. These microbes, while typically not harmful, can contribute to various problems, including (1) the release of coliform bacteria into the water, (2) increased disinfectant demand, (3) aesthetic water quality problems (e.g., unpleasant taste or odor), and (4) pipe corrosion or nitrification reactions and the resulting release of contaminants such as nitrite, nitrate, and lead into the water. See question 27 for more information on contaminant release, biofilms, and nitrification. In some cases, biofilms have been known to harbor pathogens that cause disease, especially in severely immunocompromised persons. See *Drinking Water Distribution Systems – Assessing and Reducing Risks*—chapters 6 and 7, http://www.nap.edu/catalog.php?record_id=11728#toc
Also see EPA's Biofilm White Paper: http://epa.gov/SAFEWATER/disinfection/tcr/pdfs/whitepaper_tcr_biofilms.pdf.
4. See the Stage 1 and Stage 2 Disinfection Byproduct Rules for more information on new drinking water regulations (http://www.epa.gov/safewater/disinfection/index.html).