

## CHLORAMINES-RELATED RESEARCH

### 18) What does EPA see as the disadvantages of using **monochloramine**?

***Water utilities work with local and state regulatory agencies to determine if monochloramine is appropriate for their utility.***

- The appropriateness of monochloramine use varies with water types and among water utilities.<sup>1</sup>
- The appropriateness of monochloramine use varies with the amount of organic matter in the source water, temperature, rainfall, distance from the treatment plant, and other factors.
- EPA guidance is available to help states and water utilities make informed decisions as to whether monochloramine use is appropriate.<sup>2</sup>

***Gaps in research on how monochloramine affects water should be filled.***

- There are few studies on how monochloramine affects human health.
- There are few studies on the disinfection byproducts that form when monochloramine reacts with natural organic matter in water.
- Compared to chlorine, water treated with monochloramine may contain higher concentrations of some unregulated disinfection byproducts.<sup>1</sup>

***Utilities using monochloramine should monitor water quality for problems<sup>3</sup> that may arise related to monochloramine use.***

- Utilities using monochloramine should monitor for lead and other regulated contaminants from metal corrosion that may be caused by monochloramine use.<sup>2</sup>
- Water utilities that add substances to control for metal corrosion must comply with all relevant regulations related to these substances.
- Water utilities using monochloramine should monitor and control for biofilm activity as well as nitrite and nitrate formation.<sup>3</sup>

*Additional Supporting Information:*

1. Use of monochloramine with source waters with high bromide, high iodide or high total organic matter may lead to bromo-, iodo-, and nitrosamine disinfection byproduct formation, which are unregulated disinfection byproducts. EPA scientists are currently studying the unregulated disinfection byproducts that form in water treated with monochloramine. See Question 7 for additional information about disinfection byproducts.

2. The addition of monochloramine can make water more corrosive, which may lead to pipe corrosion and increased levels of lead or other contaminants in the water. However, utilities can test water for corrosiveness and make changes to the water treatment process to address this problem. EPA requires that systems monitor lead and copper levels in the distribution system under the Lead and Copper Rule. Monitoring for other water quality issues are discussed in guidance manuals. Guidance manuals are available at: <http://www.epa.gov/safewater/disinfection/stage2/compliance.html>. Hard copies are available by ordering publications through EPA's Water Resource Center (phone: 202-566-1729). EPA's simultaneous compliance manual can be found at: [http://www.epa.gov/OGWDW/disinfection/stage2/pdfs/guide\\_st2\\_pws\\_simultaneous-compliance.pdf](http://www.epa.gov/OGWDW/disinfection/stage2/pdfs/guide_st2_pws_simultaneous-compliance.pdf).

3. See questions 2 and 27 for more information on contaminant release, biofilms, and nitrification. High levels of nitrates/nitrites can be especially harmful to infants; additional health effect information can be found at:

[http://www.epa.gov/ogwdw/contaminants/dw\\_contamfs/nitrates.html](http://www.epa.gov/ogwdw/contaminants/dw_contamfs/nitrates.html).