COMMON HEALTH QUESTIONS RELATED TO MONOCHLORAMINE

21) Can I shower in or use a humidifier with chloraminated water?

Chloraminated water that meets EPA standards is safe to use for showering.

- Showering with chloraminated water poses little risk because monochloramine does not easily enter the air.
- Trichloramine[1], a chemical related to monochloramine and often found in swimming pools, enters the air more easily and has been linked to breathing problems.
- Trichloramine may form more easily in swimming pools because of higher levels of chlorine as well as ammonia from bodily fluids that are often found in swimming pools.[2]

Chloraminated water that meets EPA standards is safe for use in humidifiers.

- The use of chloraminated water in humidifiers poses little risk because monochloramine does not easily enter the air.
- EPA is not aware of any studies that investigate the use of disinfected water in humidifiers.
- It is important to follow the manufacturer's instructions regarding proper maintenance and operation of your humidifier.

EPA considered a wide range of household uses in establishing regulatory limits for chloramines in water.

- EPA considered all available research in establishing regulatory limits for chloramines in water.[3]
- EPA considered historical data in establishing regulatory limits for chloramines in water. [3]
- EPA's regulatory standard for chloramines provides a wide margin of safety[4] to offset any uncertainties in risk assessments.

Additional Supporting Information:

1. Trichloramine formation does not usually occur under normal drinking water treatment conditions. However, if the pH is lowered below 4.4 or the chlorine to ammonia-nitrogen ratio becomes greater than 7.6:1, then trichloramine can form. Trichloramine formation can occur at a pH between 7 and 8 if the chloramine to ammonia-nitrogen ratio is increased to 15:1. Source: *Optimizing Chloramine Treatment*, 2nd Edition, AwwaRF, 2004.
2. Problems with trichloramine have been most-often associated with indoor swimming pools and are known to cause a strong chlorine-type odor. Trichloramine can be controlled in indoor swimming pools with proper pool maintenance and ventilation. For more information see: http://www.cdc.gov/healthyswimming/irritants.htm.
3. More information on EPA's standard setting process may be found at: http://www.epa.gov/OGWDW/standard/setting.html.
4. For additional information regarding how uncertainty factors (also known as safety factors) are applied to risk assessments to provide a wide margin of safety see: http://epa.gov/risk/dose-response.htm.