



## **Chloramine in Drinking Water**

### **What is Chloramine?**

Chloramine (monochloramine) is an odorless and tasteless disinfectant used to treat drinking water. It is formed by mixing chlorine with ammonia. Although it is a weaker disinfectant than chlorine, it is more stable and extends disinfectant benefits throughout a water utility's distribution system.

### **Why disinfect drinking water?**

All drinking water suppliers using surface water are required by the U.S. Environmental Protection Agency (EPA) to use disinfectants to eliminate disease-causing organisms in drinking water supplies. Disinfection of drinking water has benefited public health enormously by lowering the rates of infectious diseases (i.e. typhoid, hepatitis, and cholera) spread through untreated water. Utilities must also maintain a residual disinfectant throughout the drinking water distribution system to assure there is no bacterial growth once the water has left the treatment plant.

### **Is there historical precedent for the use of chloramine as a drinking water disinfectant?**

The EPA has no requirements that any system use chloramine for water treatment. However, it has been used by water systems (almost always as residual disinfectant, not as a primary disinfectant) for approximately 90 years, and its use is closely regulated. In Pennsylvania, 73 public water systems serving more than 4 million people currently receive water containing low concentrations of chloramine. The EPA estimates that nationally, approximately 60% of surface water utilities will ultimately use chloramine for secondary disinfection.

### **Is the use of chloramine as a drinking water disinfectant regulated to protect public health?**

The EPA has a regulatory standard and a health goal for disinfectants. The enforceable standard is the highest level of a disinfectant that is allowed in drinking water. The health goal is the level of a drinking water disinfectant, below which there is no known or expected risk to health. The EPA sets the standard as close to the health goal as feasible. In the case of chloramine, the standard and the health goal are the same (4.0 milligrams per liter (mg/L) or 4.0 parts per million (ppm) measured as chlorine as an annual average).

### **Will my health be harmed from drinking water disinfected with chloramine?**

Like chlorine, water containing high concentrations of chloramine can be toxic, especially to sensitive individuals. Some people who use water containing chloramine well in excess of 4.0 mg/L may experience irritation to their eyes and nose. Some people who drink water containing chloramine well in excess of 4.0 mg/L could experience stomach discomfort or anemia. However, chloramine is rapidly broken down by the digestive system and does not accumulate in the body. Chloraminated water that meets EPA's standard is safe to use for drinking, bathing, cleaning laundry, and other household activities.

Also, like chlorine, chloramine must be completely removed from water prior to use in kidney dialysis machines because if it enters the bloodstream it will harm the patient's health. Patients requiring dialysis can, however, drink chloraminated water since it is rapidly eliminated from the body.

**How can I be assured that proper equipment and proper procedures will be used by water facilities to produce safe drinking water?**

The state Department of Environmental Protection (DEP) reviews and approves the use of chloramine in public water systems. The DEP also reviews the suitability of all proposed equipment and its operational requirements. They do this to ensure that water treatment facilities reliably produce finished water that meets all current Pennsylvania standards for safe drinking water.

**What is the position of the Department of Health (DOH) on the use of chloramine in drinking water?**

The DOH has determined, based on the currently available research, that exposure to the levels of chloramine typically found in drinking water following appropriate treatment for disinfection, should not harm people's health and poses no apparent public health hazard.

**Where can I obtain additional information?**

[The Pennsylvania Department of Environmental Protection - Chloramine in Drinking Water - Information for Consumers](#)

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