

Uponor AquaPEX® plumbing system disinfection guidelines

The building industry widely uses Uponor AquaPEX® crosslinked polyethylene pipe with ProPEX® lead-free (LF) brass and engineered polymer (EP) fittings for use in potable plumbing applications. These materials are manufactured, tested and listed to industry standards to ensure safe, durable and reliable service when properly designed and installed.

To support system health, Uponor offers the following guidelines for treatment and disinfection of an Uponor AquaPEX plumbing system.

Thermal disinfection

When using high water temperatures to disinfect a system, it is important to take steps to protect against scalding hazards.

According to ASHRAE Guideline 12-2000, raise the hot-water temperature to 160°F (71°C) and maintain that temperature while flushing the plumbing system. The Centers for Disease Control and Prevention (CDC) recommends a minimum flush time of five minutes; however, the optimal flush time can vary depending on the application, and additional flushing may be required. Ensure the desired temperature reaches all segments of the plumbing system's hot-water lines via flushing and/or recirculation. Do not exceed 80 psi operating pressure during the disinfection process and only perform this type of treatment on a monthly basis for a maximum time of 24 hours.

Chemical disinfection/shock disinfection

When introducing a chemical into a plumbing system for general commissioning/flushing of the system and/or to treat bacterial or other microbial growth, it is important to understand the potential stress that chemical may exert upon the system. Disinfection chemicals are strong oxidizing agents and have the potential to reduce the life of the piping system and components (i.e. metal, plastic, elastomer, etc.) if executed improperly. Only qualified personnel should perform the disinfection procedure to minimize the risk of damage to the plumbing system and components and protect against personal and property damage.

For chemical disinfection/shock disinfection, Uponor recommends the following guidelines:

- Do not allow system pressures to exceed 80 psi.
- Flush the system with potable water after the disinfection process.
- Refer to the following table for Uponor-approved disinfection chemicals.

Chemical	Symbol	Concentration of free chlorine	Duration	Maximum Temperature
Sodium hypochlorite	NaOCl	200mg/L (ppm)	3 hours	77°F (25°C)
		50mg/L (ppm)	24 hours	
Chlorine (liquid or gas)	Cl ₂	200mg/L (ppm)	3 hours	140°F (60°C)
		50mg/L (ppm)	24 hours	
		4mg/L (ppm)	72 hours	
Hydrogen peroxide	H ₂ O ₂	200mg/L (ppm)	3 hours	77°F (25°C)
		50mg/L (ppm)	24 hours	
Chloramines	NH ₂ Cl	200mg/L (ppm)	3 hours	140°F (60°C)
		50mg/L (ppm)	24 hours	
		4mg/L (ppm)	72 hours	

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Important:

- Uponor does **NOT** recommend long-term or continuous-dosing chemical treatments.
- Do not use chemical disinfection/shock treatment on a monthly basis. Limit chemical disinfection to four cycles over the life of the piping system.
- Do not use especially high oxidizing agents such as ozone, chlorine dioxide, etc.
- These guidelines are for disinfection treatment and do not supersede normal operating parameters.

These guidelines are set forth for informational purposes only, and it remains the responsibility of the facility manager, water management contractor and end-user to maintain system health and to ensure compatibility and effectiveness of the disinfection treatment with the entirety of the plumbing system. If other treatments or chemicals not included in this document are intended for use, contact Uponor Technical Services for compatibility prior to system exposure. If necessary, have the chemical manufacturer approve the suitability of the disinfectant for all components of the plumbing system and installation.

Note that these guidelines are subject to change. Please contact Uponor Technical Services at 888.594.7726 (U.S.) or 888.994.7726 (Canada) to confirm the latest guidelines.

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