

Technical Bulletin STB006

Chlorine Resistance of Stream33 Pipe

Product:Stream33 PEX-A Plumbing PipeDate:14 August 2023

Stream33 crosslinked polyethylene (PEX A) pipe has been tested in accordance with ASTM F2023: Standard Test Method for Evaluating the Oxidative Resistance of Crosslinked Polyethylene (PEX) Pipe, Tubing and Systems to Hot Chlorinated Water as required in ASTM F876. Stream33 pipe meets or exceeds the minimum extrapolated time to failure as certified by NSF and the Plastics Pipe Institute.

Based on this testing, when using Stream33 pipe for plumbing applications without continuous hot water recirculation, the following water quality conditions must be met:

- The pH of water is 7.0 or higher
- The concentration of free chlorine is 4.0 parts per million (ppm) or lower
- Water temperature is 140° F (60° C) or lower
- Water pressure is 80 PSIG (550 kPa) or lower
- Oxidative Reduction Potential (ORP) of 825 mV or lower

This recommendation applies to Stream33 pipes for cold water and intermittent hot water applications (25% @ 140° F, 75% @ 73° F) and for timed hot water recirculation systems for up to 12 hours per day (50% @ 140° F, 50% @ 73° F). The ASTM F876 standard includes designation codes for these applications which is included on the print line of Stream33 pipes. The ASTM designation for Stream33 PEX-A Plumbing Pipe is PEX 3306.

When using Stream33 pipes in continuous hot water recirculation applications the following water quality conditions must be met:

- The pH of water is 7.9 or higher
- The concentration of free chlorine is 2.4 parts per million (ppm) or lower
- Water temperature is 140° F (60° C) or lower
- Water pressure is 80 PSIG (550 kPa) or lower
- Oxidative Reduction Potential (ORP) of 750 mV or lower

If these conditions are not met, it is necessary to incorporate a time control so the system operates at a maximum 50% @ 140° F and 50% @ 73° F.

It should also be noted that in rare and isolated cases, other characteristics of the makeup of drinking water can impact the long-term performance of plumbing system components even when the water quality levels are within the permissible range set forth by the EPA *National Drinking Water Standards* and the *Guidelines for Canadian Drinking Water Quality* by Health Canada. The licensed installing contractor must have practical experience within the region of intended use. In addition, consultation with the local plumbing authority and local water authority regarding the performance of plumbing system components should occur before the selection and installation of systems within that specific geographic region. Therefore, the specific application should also be taken into consideration when designing and installing plumbing systems.

The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained therefrom. Before using, the user will determine suitability of the information for user's intended use and shall assume all risk and liability in connection therewith.