

RECOMMENDATION G

Recommendation Against Using Epoxy Pipe Coatings Within Plumbing Distribution Systems Including Plastic Components

Issued June 2017

In certain regions of North America, where aggressive water has been shown to cause corrosion of metal plumbing pipes such as copper or galvanized steel, rehabilitation processes have been developed whereby epoxy chemical coatings are applied to the interior of the existing plumbing pipes, thereby stopping leaks and protecting the pipes against further corrosion. The typical process involves draining the plumbing pipes, drying them with pressurized hot air, cleaning the internal surface of the piping system with an abrasive material that is blown through the piping with hot air, then blowing in the epoxy chemical coating under pressure to coat the inside of all pipes and fittings.

These practices are covered by ASTM F2831 “Standard Practice for Internal Non Structural Epoxy Barrier Coating Material Used In Rehabilitation of Metallic Pressurized Piping Systems”, which states that this practice is for “...metallic pipe or tube”. There is no corresponding Practice for applying these coatings to plastic piping materials.

PPI has no opinion on whether these rehabilitation processes provide reliable long-term solutions for repair of the metal pipes. However, PPI has concerns about apply such coatings to plumbing distribution systems that also include plastic plumbing components such as PEX, CPVC, PE-RT or PP-R/PP-RCT. The concerns are that not all epoxy coatings are compatible with the plastic plumbing distribution piping or components, and that the abrasive materials used in the cleaning of interior pipe surfaces may damage plastic pipes, fittings, or valves.

Such mixed-material plumbing systems can exist when a metallic plumbing system is partially repaired with plastic tubing only in certain segments to replace leaking metal pipes. If leaks continue to develop, the homeowner may be offered to have a commercial epoxy coating applied within the plumbing system. However, there may be no safe technique for the rehabilitation firm to install the epoxy coatings *only* into the metal portions of the system, without also applying the same preparation and application to plastic pipe, tubing, fittings and valves that may be installed throughout the system.

In addition, there is concern that the epoxy coating will not permanently bond to the plastic components, and may then become suspended within the drinking water, possibly clogging aerators or potentially causing health risks. Reasons for lack of adhesion include the flexibility of plastic tubing, which can allow it to move, as well as higher thermal contraction/expansion of plastic tubing as compared with metallic piping.

Therefore, it is the recommendation of the Plastics Pipe Institute that epoxy repair coatings not be applied to plumbing distribution systems which contain plastic pressure pipes, tubing, fittings or valves of materials such as CPVC, PE-RT, PEX, or PP-R/PP-RCT. All plastic components should be isolated from metal piping before the installation of such coatings.