

## **PPI RECOMMENDATION G**

### **Recommendation Against Using Epoxy Pipe Coatings Within Plumbing Distribution Systems Utilizing Plastic Components**

Issued June 2017

Revised April 2023

© 2023 The Plastics Pipe Institute, Inc.

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 ASTM Standard Practice for applying these coatings to plastic piping materials.

The Plastics Pipe Institute (PPI) has no position on whether these rehabilitation processes provide reliable long-term solutions for repair of metal pipes. However, PPI has concerns about applying such coatings to plumbing distribution systems that also include plastic plumbing components using materials CPVC, PEX, PEX-AL-PEX, PE-RT, PP-R, or PP-RCT.

One concern is that not all epoxy coatings are necessarily chemically compatible with all types of plastic plumbing distribution pipes and components.

A second concern is that the abrasive materials used in the cleaning of interior metal pipe surfaces may damage plastic pipes, fittings, or valves.

The third concern is that the epoxy coating will not permanently bond to the plastic components and may detach after being put in service, becoming suspended within the drinking water and possibly clogging aerators, or potentially causing health risks. Reasons for potential lack of adhesion to plastic pipes and components include the flexibility of plastic tubing, which can allow it to move, the low surface polarity and extremely smooth surfaces of plastic materials, making it difficult for any type of coating to adhere, and higher thermal expansion/contraction of plastic tubing as compared with metallic piping, resulting in changes in the longitudinal dimensions.

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