



### ePIPE Durability - Life Extension For Your Buildings Pipes

We recently reviewed the performance of ePIPE coated potable water pipes that have been in service for 18+ years. The review included both an actual use review as well as a scientific approach called Electrochemical Impedance Spectroscopy, shortened to EIS Testing.

### Test of Time - ePIPE coating was designed and tested to last what is considered the lifetime of a plumbing system.

In 1999 and 2000, drinking water piping systems were restored using the ePIPE process at the Mayflower Park Hotel in Seattle and at the Biltmore Hotel in Los Angeles.

From the effects of age, the properties were suffering from both leaks and other plumbing related failures.

18 years after application of the ePIPE process, the ePIPE protected pipes remain performing. No more leaks.



### A Scientific Approach to Measuring Performance and Durability of a Coating

#### Electrochemical impedance spectroscopy – EIS Testing.

One of the more commonly cited ways to estimate the service life of an epoxy coating comes from a Water Research Foundation (WRF) report by Deb et al. (2006). Their analysis concluded that the most important single factor in establishing service life of a physical barrier, was to measure it using a method called electrochemical impedance spectroscopy (EIS). EIS uses measurements of the electrical resistance of a coating to estimate how well the coating acts as a barrier (McIntyre and Pham 1996). Deb et al. used EIS measurements of the historical pipe samples to estimate the length of time until the barrier degraded to the end of its useful life. Based on their results, they estimated that properly applied epoxy coatings could have service lives of 40 to 60 years. So how did ePIPE measure up?

#### ePIPE and EIS Testing

ePIPE, in-service, coated pipe sections were independently tested using EIS testing methods.

ePIPE coated pipe was exposed to nearly 4 million gallons of circulating hot water under pressurized conditions. **After the exposure period, which represented 27 years of use in an average US single family home, the coated pipe still exhibited EIS results in the upper range of Good to Excellent for corrosion protection.**



Industry experts also agree on a coatings durability - "It's our experience that if these coatings are installed properly, they last what's considered the lifetime of a plumbing system, which is 50 or 60 years.," Dr. Marc Edwards, Sept 27, 2017, Pittsburgh Post Gazette.

**18 years on, continued development to resin and application, resulting in a 2 hour return to service resin, multi-country approvals and over 40 US and international patents.**