

PINHOLE LEAKS IN COPPER PIPES. ARE YOU AT RISK?

By Robert M. Turkewitz

You're in your home and notice a damp area on the edge of your living room carpet along the wall. You're not sure if one of the kids spilled a drink or if something is leaking. You put down a towel to dry it off and go about your business. The next week the area is still damp and it smells musty. You call in a handyman, who determines that the moisture is coming from the wall. He cuts out a piece of the dry wall and finds the culprit - a copper water pipe with a tiny water leak. The handyman fixes the leak, replaces the wet drywall, and repaints the wall. You pay the repair bill, which is slightly below the cost of your homeowners' deductible and you go about your business.

Three weeks later, you notice a wet spot on your dining room ceiling. Your handyman fixes the leak, again for around the cost of your homeowners' deductible. Two months later, you go into your crawl space to run a computer cable and notice moisture and mold on the joists and water dripping off of the insulation. You shine a flash light and see a foggy mist shooting out from one of the exposed copper pipes. You call in a plumber, who informs you that he has already fixed and replaced copper pipes in many homes in your neighborhood and that it will cost thousands of dollars to replace the pipes. You call your insurance carrier and they tell you they will pay for the damage but not the cost to replace the pipe, and that mold damage is excluded. They also tell you that you are high risk and that it could affect your premium and future renewal.

Sound like a nightmare?

Well, this scenario is occurring every day in areas throughout the country, including South Carolina and Maryland to name a few. Pin hole leaks are frequently a result of under deposit pitting corrosion that begins on the inside surface of the pipe. Copper pipe has been the plumbing material of choice for thousands of years. When used to transport potable water, copper pipe forms a patina that serves as a natural protective barrier on the inside surface. This barrier generally protects the pipe from further corrosion. If the barrier is broken, the pipe will normally heal itself by the reformation of the barrier. But, water that is corrosive in nature can dissolve the natural protective barrier, leaving the inside surface of the copper pipe open to attack from corrosion.

In order to be considered potable, water treated and supplied by a municipal water system should be non-corrosive and not leave deposits in domestic water pipes and fixtures in homes and businesses. The American Water Works Association (AWWA) has adopted "Quality Goals for Potable Water," which states in part:

The water should not be corrosive or incrusting to, or leave deposits on, water-conveying structures through which it passes, or in which it may be retained, including pipes, tanks, water heaters and plumbing fixtures. The water should be adequately protected by natural processes, or by treatment processes, which insure consistency of quality 1

The EPA Lead-Copper Rule includes requirements that the water purveyor monitor the corrosivity characteristics of the water, and specifically addresses a need to control corrosion of lead and copper in household plumbing.² In its guidance document "Lead and Copper Monitoring and Reporting Guidance for Public Water Systems," EPA recognizes that the source of contaminating lead and copper in water is corrosion:

Because lead and copper in drinking water is primarily due to the corrosion of distribution and household plumbing materials, tap water samples are collected at kitchen or bathroom taps or residences and other buildings.

There are a number of conditions that can cause the water to corrode and dissolve the protective barrier, such as water with a low pH (i.e., acidic water). Unfortunately, once the pitting corrosion process begins (normally under an encrustation), there is not much that can be done to prevent it from ultimately eating its way to the outside surface of the pipe. Pin hole leaks in copper pipe can cause vast damage to your home if undetected for a period of time. This happens due to the fact that household copper plumbing is ordinarily installed between walls, above ceilings and in crawl spaces, and is generally hidden from view. Further, pin-hole leaks tend to emit water in a fine mist that can go undetected for long periods of time. Many times, the leaks can continue weeks or months before being discovered by the appearance of

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1 The twin goals of potable and non-corrosive water are complimentary, not antagonistic.

2 The Safe Drinking Water Act of 1973 was promulgated by the EPA and amended 1986, and EPA's Lead-Copper Rule was promulgated in 1991.

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moisture on a ceiling, wall or carpeting. These leaks can cause widespread water damage to ceilings, walls, floors, insulation, furniture and personal property. Moreover, these leaks create conditions that are ideal for the formation of mold. The cost to remedy the problem can be tens of thousands of dollars.

While insurance companies may cover the cost to repair damage to walls and ceilings, they will rarely cover the cost to repair or replace the corroded copper plumbing. Once a claim is made, insurance companies frequently respond with a premium increase or non-renewal of homeowner's insurance. Sometimes the carrier will discourage claims from being submitted by warning the homeowner that a claim might result in non-renewal.

What can homeowners do to prevent or limit damage to their homes cause by pinhole leaks problems?

As with any plumbing water leak, homeowners should take necessary action to stop and repair the leak immediately. Where pin hole leaks have developed, homeowners should seek assistance from a licensed plumber to determine if a simple site repair is sufficient or if total replacement of their plumbing is necessary. A plumber can inspect the plumbing throughout the home to determine if other leaks have formed. With the use of certain instruments, such as borescopes, plumbers can inspect the inside surface of the copper pipe to determine if corrosion mounds have formed. Where the leak was not an isolated situation, homeowners should seek advice from the plumber

to determine if total replacement of the plumbing is necessary. Homeowners with copper plumbing who receive municipally treated water should check with their friends, neighbors, local homeowners' association and water treatment authority to find out if there have been other reports of pinhole leaks in copper plumbing. While it may not be unusual for a homeowner to experience an occasional plumbing leak, it is significant when many homeowners in the same area experience reoccurring leaks. Where copper pipe pin hole leaks are occurring in numerous homes receiving municipally treated water, this is consistent with a corrosive water problem. In this situation, homeowners should ask their local water authority how the water has been treated to minimize corrosion and request that an independent expert qualified in the area of water treatment and corrosion control be hired to determine the cause of the problem. This will require a review of the results of historic testing performed on the water in homes and throughout the distribution system, and inspection and analysis of the corrosion itself. If it is determined that the water was corrosive in nature, demand that action be taken to correct the problem. The copper industry has a trade organization that will frequently investigate complaints involving copper plumbing. We suggest contacting Robert L. Hall, Jr. of Copper Development Association Inc., Post Office Box 2715, Loganville, GA 30052, (678) 957-6692. Finally, if you experience a leak and you are on well water, have the water tested to determine if the water is corrosive. Once again, the Copper Development Association may be of

help.

Even if you have not had pin hole leaks, homeowners with copper pipe need to know if pin hole leaks have been a problem in their area. If so, homeowners with copper pipe should be vigilant for leaks and take common sense precautions, such as conducting regular inspections and turning off the main water line when leaving their homes for any extended period of time.

There may be a legal remedy available for property owners with copper pipe pin hole leaks. A class action lawsuit is currently pending on behalf of South Carolina residents who receive water treated by Santee Cooper. Griffith, et al. v. Ashland Chemical, et al., Civil Action No. 03-CP-18-28 (S.C. Court of Common Pleas, filed Jan. 7, 2003). That case generally alleges that the water was corrosive and not potable, and that Santee Cooper's corrosion control water treatment consultants (Ashland Chemical and Vulcan Chemical) negligently failed to exercise due care in rendering advice and providing services to the water authority. The law firm representing the property owners, Richardson, Patrick, Westbrook & Brickman, LLC., can be contacted at (888) 293-6883 or (843) 727-6681 (ask for paralegal, Gena Martin).



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