

POLY

COPPER

PEX

The application of either Chlorine, Chloramine or Chloride Dioxide (a combination of chlorine & ammonia) occurs daily in some amount everywhere in the United States by local water treatment plants seeking to create potable water. Based on changing local conditions, the **ACTUAL AMOUNTS** of Chlorine-based products used is flexible across American neighborhoods – and it has been that way for over a century. As a result, latent, irreversible damage has been done to the pipes in many homes.

POLY

Why it failed

Degradation due to contact with locally treated water

The polybutylene became brittle and eventually developed tiny fissures. These fissures connected together and eventually formed small cracks where the water slowly escaped.

- Developed in Europe which doesn't use chlorine to treat water like the U.S.
- HUGE Class Action suit won against the manufacturer
- No longer installed anywhere since 1995
- Still some out there depending on local water treatment methods

COPPER

Why it fails

Degradation due to contact with locally treated water

Oxidation inside the pipes caused a natural patina process. Chlorine strips away patina and causes pinhole leaks. By the time you have your first leak, your system is shot.

- Pinhole leaks are systematic
- Pinhole leaks often go long undetected
- Openings becomes larger
- Output volume of water increases until initially detected
- Repair is futile.
- Repiping is the only solution
- Copper remains widely-used for good reason, but fails depending on local water treatment methods

PEX

Why it fails

Degradation due to contact with locally treated water

PEX is part of the same polymer family as Polybutylene, and their track records are shockingly similar. Reformulations can't change that, and every major PEX manufacturer excludes failures caused by water chemistry from their warranty.

- Developed in Europe which doesn't use chlorine to treat water like the U.S.
- Many previous class-action lawsuits allege PEX system failures due to exposure to normal drinking water – 12 more are currently underway
- Although different PEX production methods (A, B, C) vary widely in chlorine resistance, it is difficult to figure out which, if any, PEX product is reliable
- No PEX is recommended for use where chlorine levels are greater than 5 parts per million (a miniscule amount that is LESS than what is actually USED)



A LOCAL CONCERN FOR GEORGIANS.

FAILING PIPES

POLY

COPPER

PEX

Installed
c. 1970's – Mid 1990's

Installed
c. 1980's – Today

Installed
c. 2000's – Today



FlowGuard Gold®
PLUMBING SYSTEMS

Why it WORKS!

NO DEGRADATION due to contact with locally treated water

American made, chlorine resistant FlowGuardGold® CPVC withstands chemical wear and will not corrode, pit, scale or degrade due to water conditions. It is resistant to even the most highly concentrated chlorine levels in excess of 3000 parts per million!

Proven reliability

- Over 50 billion feet of it has been installed to date
- Effectively used for potable water distribution in the U.S. for over 50 years
- Predates imitators who tried to "idiot proof" installation and cut corners for product and labor savings, but ultimately failed

Superior Performance

- Joints are the strongest part of system (stronger than pipe or fitting alone)
- No reduction in water flow through fitting (no insert)



PLUMBING
express

Making Problems Go Away™

www.plumbingexpress.com

404-236-6535 | info@plumbingexpress.net | 3050 Presidential Dr #202 | Atlanta, GA 30340

THREE FAILING PIPE SITUATIONS THAT REQUIRE REPIPING

POLY

Installed c. 1970's–Mid 1990's



Any house built between 1980 and 1998 should be checked for polybutylene piping.

Polybutylene is the chemical name of the plastic used to make infamous gray poly pipes. Gray poly pipes were widely used for a couple of decades in residential new construction in the US. Gray poly water pipes are no longer allowed to be used for residential plumbing applications due to their tendency to degrade over time through exposure to compounds present in municipal drinking water that are used for water treatment.

Over time polybutylene pipes deteriorate from the inside due to chemical reactions with compounds used to sanitize our drinking water. The poly becomes brittle and eventually develops tiny fissures. These fissures connect together and eventually form a small crack that water will slowly escape through. Exactly how long it takes a home with gray poly to fail is a difficult question to answer. The polybutylene systems that failed the quickest were due to defective fittings. The current wave of polybutylene failures occur due to chemical breakdown of the actual pipes itself and not the fittings. If you have a home with gray poly you should be prepared for leaks to develop at any time.

As is true with many aspects of the plumbing system, there is misinformation passed around. Probably the most common misnomer about gray poly is that polybutylene systems with copper fittings will not leak. It is true that gray poly systems with copper fittings have lasted longer because the fittings are less likely to fail. However, the gray poly pipe itself in a system with copper fittings is just as likely to leak as in a system with other fittings. The chemical deterioration of polybutylene is not slowed down by the type of fittings in the system.

Be on the lookout for signs of slow water seepage from pipes. Since these pipes can be hidden from view behind walls, above ceiling, or in a concrete slab, signs of a leak could include seeing a wet spot on a wall or floor or have a gradually increasing water bill. It is also possible there may be a noticeable a mildew smell in the home.

You should not attempt to repair the polybutylene pipe yourself. Repairs on polybutylene are typically made using push-type fittings. All repairs on polybutylene are unreliable and should be monitored for failure.

Some of the best realtors advise their clients to make major repairs in advance and list their home only when it is free of major defects and in a "clean" condition. These realtors know from experience that many qualified prospective buyers will avoid properties with major issues such as polybutylene plumbing unless major concessions are made. Replacing the polybutylene prior to listing takes away a major bargaining chip that buyers can leverage to reduce the sale price. Fixing major defects allows sellers to close more quickly and at a higher profit.

COPPER

Installed c. 1980's–Today



Thousands of homes across Greater Metro Atlanta experience a tell-tale sign of systematic copper failure: the pinhole leak that keeps getting worse.

The typical home we see calling Plumbing Express for a re-plumb is located in Roswell and Marietta Georgia, was built in the 80s or early 90s and has a copper piping system.

This type of leak occurs from a tiny hole developing after many years of corrosion on the inside of the pipe. Copper pinholes are slow leaks that can go undetected while they weep moisture into the insulation and wall cavity of the home. As the pinhole leak persists the opening becomes larger and the output volume of water increases. Eventually, the leak becomes apparent and plumbers are called in.

First-time leaks in a home are often viewed as an isolated occurrence. In fact, a single pinhole leak often signals widespread failure, rather than an isolated failure, in the home piping. After a leaking section of the pipe is repaired, additional leaks soon follow — they appear randomly throughout the home. More leaks continue to develop until the homeowner has the entire house repiped.

Copper piping has a well-earned reputation for quality. It is often viewed as the most problem-free piping material for indoor water distribution. A copper pipe is strong but lightweight. It is highly crack resistant and mostly corrosion free so it is unlikely to develop leaks or to affect the taste of your tap water. Copper is the most expensive piping from a material and installation cost standpoint. For this reason, many of the nicest homes were built with copper plumbing systems. **Unfortunately, the copper pipes in these very nice homes are victim to one of the few known enemies of copper pipe: chloramine.**

Chloramine eats away at copper from the inside out. It's a combination of chlorine & ammonia. The destructive effect of chloramine on copper is gradual. At the time chloramine was adopted for water treatment the population growth in Cobb County was putting a strain on water treatment capacity. Water treatment facilities needed an alternative sanitizing chemical to keep drinking water safe as it traveled over increasing distances to reach many new neighborhoods and homes. Cobb later abandoned the use of chloramine but the irreversible damage has been done to the pipes in many homes.

Unfortunately, the cost of band-aid repairs on a failing copper system will eventually be more than the cost of the repipe. Fortunately, a repipe will avoid property damage, insurance claims, and elevated insurance premiums that result in living with a failing pinhole copper system in the home.

PEX

Installed c. 2000's–Today



PEX failure is essentially the new polybutylene failure.

While copper is a relatively inert material it does not typically decay in the same manner as plastic pipes. Plastic piping such as PEX is formulated with molecules that are designed to bond with ionized and be consumed by compounds that would otherwise rapidly deteriorate the pipe.

Protective compounds in PEX slow the deterioration and extend the life of a PEX pipe. This protective compound amounts to a breakaway shield for the structural pipe to

significantly slow the chlorine chemical degradation of PEX. When these protective compounds are fully reacted and leached the structural pipe will begin to degrade and eventually fail.

There are a lot of similarities between PEX pipe failure and Polybutylene pipe failure. The reasons for the pipe failure are similar, insofar as exposure to chemicals in the water deteriorate the material. In the past, PEX pipe was commonly used to replace failing polybutylene. Polybutylene was installed in more than 10 Million homes between the 1970's and mid-1990's! Unfortunately, PEX piping was popular with new home construction for a long time. As polybutylene began to fail — which ultimately led to a massive class action lawsuit — cross-linked polyethylene (PEX) was a fast and cost-effective solution. Now, within the last few years, PEX manufactures are facing similar class action lawsuits.

PEX failure depends on how it's being used. When we say "PEX pipe failure", we are primarily talking about PEX being used INSIDE the walls. Specifically, when PEX pipe is used for the interior water distribution system. And when it is, it is often bent. Ironically, this intended installation benefit (its flexibility) became its own enemy since it fails even more when bent inside interior walls. Essentially, you have a "ticking time-bomb" inside your walls, because that PEX pipe is going to fail.

If PEX piping is being used for water supply lines to your toilet, then that's not the same ticking time-bomb scenario". In that instance, the pipe is not necessarily part of the interior water distribution system. In those cases, you'll be able to see when PEX line needs to be replaced. When PEX pipes ARE inside your walls, then you won't know it. You won't see it. There won't be much warning, before "the time-bomb" goes off.

PEX can cause catastrophic damage to your home and belongings. Every major PEX manufacturer excludes failures caused by water chemistry from their warranty. Therefore, we definitely think PEX pipes are bad for the interior water distribution system of your home.

Any homeowner with polybutylene, corroded copper or failing pex needs to know what they are up against. Your home's leaking problem is systemic, not isolated. Rest assured, no matter what failed pipe system you have, the replacement process is similar.

Thank you in advance for the opportunity to serve.