

YOUR WATER IS WORKING AGAINST YOUR PLUMBING EVERY SINGLE DAY



# Signs Your Home Has Aggressive Water Chemistry — And What It's Destroying

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<p><b>CHLORINE &amp; CHLORAMINE</b></p> <p>healthy → elastomer failure → pinhole leaks</p> <p><b>Cl<sub>2</sub> / NH<sub>2</sub>Cl</b> oxidizers strip protective layer</p> <p><b>EWG — ATLANTA, GA (2013–2024)</b> <b>21</b> contaminants detected 10 exceed EWG health guidelines TTHMs (chlorine byproducts): <b>88x</b> above EWG health guideline</p> <p><a href="http://ewg.org/tapwater">ewg.org/tapwater</a> — enter your ZIP code</p>	<p><b>LOW pH — SOFT WATER</b></p> <p>ATL -6.5</p> <p>ACIDIC 0 7 14 ALKALINE</p> <p>pipe wall acid pitting</p> <p>blue-green staining</p> <p><b>Atlanta: 21 ppm — USGS "very soft"</b> Soft + low pH = cuprosolvency: copper walls dissolve into your drinking water</p>	<p><b>MINERAL SCALE</b></p> <p>aerator</p> <p>water</p> <p>flow ↓ 40%+</p> <p>SCALE</p> <p>1/4" = 25-40% eff. loss (DOE/Battelle)</p> <p>water heater cross-section</p> <p><b>Battelle Institute / DOE Study:</b> 1/4" scale = 25–40% heater efficiency loss Electric element: 10–15 yr life → 3–5 yrs in hard water</p>	<p><b>VISIBLE SIGNS</b></p> <p>blue-green stains rust / iron stains white scale crust</p> <p>black mushy flapper metallic-tinted water pipe pitting &amp; leaks</p> <p>scale on faucet low hot water pressure rising energy bills</p> <p><b>EWG Georgia Statewide Database</b> 103 contaminants detected statewide 25% of GA well water: pH below 6.5 47% moderately corrosive (UGA Extension)</p>
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## CHLORINE & CHLORAMINE

### Copper Pipe Corrosion

Chlorine strips the protective oxide layer inside copper pipe, triggering cuprosolvency — the pipe wall itself dissolves into your water. The result is pinhole leaks behind walls, blue-green staining in sinks, and copper leaching into everything you drink.

### Gasket & Elastomer Destruction

Chloramine is chemically stable and persists deep into household plumbing. It attacks every rubber component it contacts — toilet flappers go black and mushy, faucet O-rings crack, fill valve seals fail. This is not normal wear; it is active chemical degradation at the molecular level.

### Lead Solder Leaching

Homes built before 1986 have lead-tin solder at every pipe joint. Chloramine prevents the protective scale from forming — sustaining galvanic corrosion indefinitely. Source: Virginia Tech / EPA, 2024.

EWG — ATLANTA, GA (2013–2024)

**21** contaminants detected. 10 exceed EWG health guidelines. Trihalomethanes — chlorine disinfection byproducts — detected at **88x** EWG's health guideline. Federal legal limits haven't been updated in 20 years. Check your ZIP: [ewg.org/tapwater](http://ewg.org/tapwater)

## LOW PH & SOFT WATER

**21 ppm**

Atlanta water hardness — USGS classifies this as "very soft" and inherently corrosive to metal pipe

**pH <6.5**

Alabama Cooperative Extension: water at or below this threshold is classified "highly corrosive"

**47%**

Of GA well water is moderately corrosive by Saturation Index — UGA Extension

**25%**

Of GA private well water has pH below 6.5 — the aggressive corrosion threshold

### The Soft Water Misconception

Soft water feels good on skin and leaves no spots — so homeowners assume it's harmless. For plumbing, the opposite is true. Soft, low-pH water is electrochemically hungry: low alkalinity and low dissolved solids mean it deposits nothing protective on pipe walls — it dissolves metal directly. Atlanta's water is classified aggressive under the Langelier Saturation Index.

- ✓ **Blue-green stains** in sinks — copper oxide from actively dissolving pipe walls
- ✓ **Metallic taste** in morning water — copper or lead sitting overnight in pipes
- ✓ **Black, mushy toilet flappers** replaced every 1–2 years — chloramine attack
- ✓ **Chronic faucet drips** returning after seat repair — O-rings chemically degraded

## MINERAL SCALE & HARD WATER

### Water Heater Destruction

The U.S. Department of Energy documents that 1/4 inch of mineral scale reduces water heater efficiency 25–40%. The Battelle Institute confirmed this in a 90-day DOE-commissioned study. Electric elements buried in scale overheat: a 10–15 year element lifespan shrinks to 3–5 years in hard water environments.

### Reduced Flow Throughout the Home

Scale builds inside every hot water line, aerator, showerhead, and appliance inlet. Research documents that deposits can reduce pipe hydraulic capacity by 40% or more — your home progressively loses hot water pressure in every outlet while the heater works harder against the restriction.

- ✓ **White crusty buildup** on faucets, showerheads, and around toilet fill valves
- ✓ **Hot water pressure dropping** while cold lines remain unaffected
- ✓ **Water heater taking longer to recover** — scale insulating the heating element
- ✓ **Appliances failing early** — dishwasher, washing machine, and tankless heater internal damage
- ✓ **Rising gas or electric bills** with no change in usage — scale forcing longer run cycles

### THE SOLUTION

An in-home water quality evaluation identifies which chemistry is attacking your system. **Ask your Dayco technician** for a water assessment during any service visit.