



**SIMPLE TECHNOLOGY PREVENTS SCALE, SAVES WATER & ENERGY**

## Focus on Scale Prevention

### PIPE WITH CATALYTIC INSERT REDUCES CALCITE BUILDUP

Hard water is a challenge for many facilities. In plumbing, it leaves calcite deposits that restrict water flow by occluding pipes. In water heaters, calcite coats heating elements, causing them to overheat and eventually to fail. Standard approaches to calcite mitigation rely on chemicals, which must be replenished frequently, or on ultra-fine-membrane filtering, which uses large amounts of water and energy. GSA's Proving Ground (GPG) tested a simple catalytic insert that alters the chemistry of hard water to prevent calcite buildup. Rodney Green, the chief building engineer at the Frank Moss Courthouse in Salt Lake City, Utah, where the assessment took place, was initially skeptical that such a simple device could solve their calcite problem. "We have really hard water," he explained. "Before the catalytic insert, we were replacing heating elements in our electric hot water heater every month. But in the nearly five years we've been using this technology, the only maintenance we've had to do is clean out the bottom of the tank once a year." Rodney would like to see the technology deployed in other locations but acknowledges the challenge of convincing people to give up something they're accustomed to and that they know works. "I'm a big believer in this technology," Rodney concludes, "and I know it works for us but I would like to see other applications tested."

**Based on the success of this evaluation, GPG is testing the technology in a Fort Worth, Texas cooling tower. Meanwhile, GPG recommends considering catalyst-based scale prevention for any heating system with calcification issues.**

**Prevents calcite buildup by transforming calcium and carbon into flushable aragonite crystals. No moving parts or added chemicals.**

---

*"The initial costs for this system are comparable to a salt-based system but it has no ongoing maintenance or chemical costs. In my mind, it's a no-brainer."*

– Rodney Green, Chief Building Engineer, Frank E. Moss Courthouse, Salt Lake City, UT, Rocky Mountain Region (R-8)

## Catalyst-Based Scale Prevention for Domestic Hot Water Systems

- Calcite buildup dramatically reduced
- Minimal operations and maintenance. No electricity, moving parts or added chemicals
- < 2-year payback when compared to chemical systems

### RESOURCES

#### Learn More About Catalyst-Based Scale Prevention for Domestic Hot Water Systems

[GPG Findings 019 & Report by Oakridge National Laboratory »](#)

[Webinar Recording, 09.14.17 »](#)

[Webinar Presentation Slides »](#)

For more information about GSA's Proving Ground program and the technologies it evaluates: contact Michael Hobson [michael.hobson@gsa.gov](mailto:michael.hobson@gsa.gov) or go to [www.gsa.gov/gpg](http://www.gsa.gov/gpg)



Emerging Building Technologies' two programs, GSA Proving Ground (GPG) and Pilot to Portfolio (P2P), enable GSA to make sound investment decisions in next-generation building technologies based on their real-world performance. [www.gsa.gov/gpg](http://www.gsa.gov/gpg)