

CASE STUDY

Tankless Water Heater – Chula Vista, California, USA

Introduction

Tankless (on-demand) water heaters have been growing in popularity over recent years. However, they do come with their own set of challenges and maintenance costs which can be exacerbated by hard water. Hard water mineral deposits can completely destroy a tankless water heater in a matter of months. They therefore require regular flushes with descaling chemicals to prevent mineral build up which will otherwise block the water lines and make the water heater inoperable.

Overview

The partner in a San Diego, California based plumbing company has seen an increase in the use of tankless water heaters in residential and commercial applications. Having installed a tankless water heater himself at his home six years ago he readily admits the irony that, as a plumber, he was then guilty of not following the maintenance schedule to regularly flush and descale his own system!

He lives in an area where the water hardness is approximately 280 ppm/16.3 gpg. After researching and seeing the results from using the Sidon Integro™ technology, he decided to install a system at his home in order to remove existing scale build up in his tankless water heater and throughout his cold water system and also to prevent any future build up.

Key Problems

The primary areas of concern as expressed by the owner were:

- Scale build up on plumbing fixtures in his residence
- Two tankless water heaters that had never been serviced since installation
- Preventing failure of the tankless water heaters

Our Solution

We advised the owner it would be preferable to install an Integro™ 2 v3 system on the main water line coming into the home. This water line fed directly to two tankless water heaters.

The older unit was a Rheem tankless heater which was installed about 6 years (2015) earlier and the other was a Navien MPE 210A tankless heater which was approximately 3 years old (2019). Neither tankless heater had ever been flushed or descaled since their installation.

This picture, taken at the time of installation, clearly shows a hardwater problem as seen in the visible build up of scale on the pipework caused by a small amount of water leakage over time.

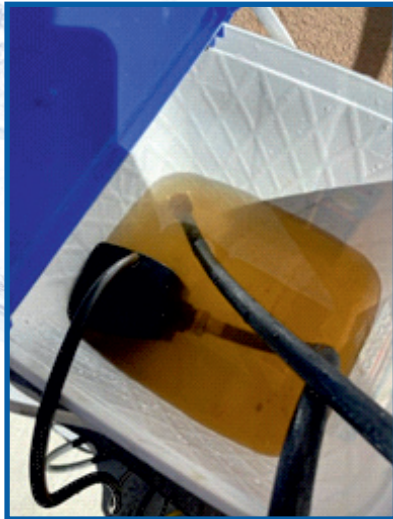
The Integro™ system was installed in March 2021.



The Results

In December 2021, nine months after the installation of the Integro™, the Rheem tankless water heater was flushed with the descaling chemical prescribed by the manufacturer. Since the tankless water heater had never been descaled or flushed since its installation over 6 years ago, he expected to see a large amount of hard water scale debris flushed out of the coils of the water heater. Both the initial chemical flush and the subsequent flush with water were clear and had almost no debris or residue. In his words, **“It is awesome!”**

First chemical flush shows **no scale debris**



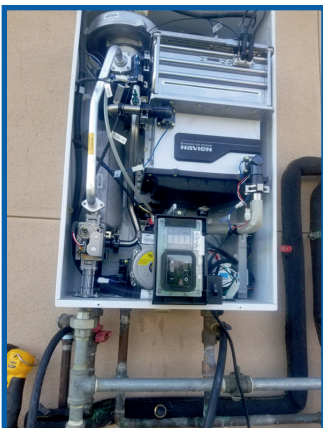
Following flush with water, again virtually **no scale debris**



On March 3, 2022, the owner decided to once again flush the Rheem tankless heater to see if it had remained clean since the initial flush in December 2021. There was absolutely no scale debris or discoloration of the chemical solution while the Rheem tankless heater was flushed for approximately one hour. The chemical solution being used remained clear throughout the flushing.



Also on March 3, 2022 the owner wanted to descale and flush his second tankless heater installed at his home, a Navien model MPE 210A. This Navien unit had been installed approximately 3 years ago and had also never been descaled and flushed. The chemical solution came out perfectly clear from the moment the chemicals started cycling through the tankless heater coils. No residual scale discoloration or debris of any kind was observed.



Environmental Benefits

Several environmental benefits were achieved through the installation and use of the Sidon Integro™ technology:

- Reduced energy consumption: 1 millimeter of scale can increase energy costs by approximately 6%
- Extended useful life of the tankless heaters and improved efficiency
- Reduction in the use of chemicals which are flushed into the community water system

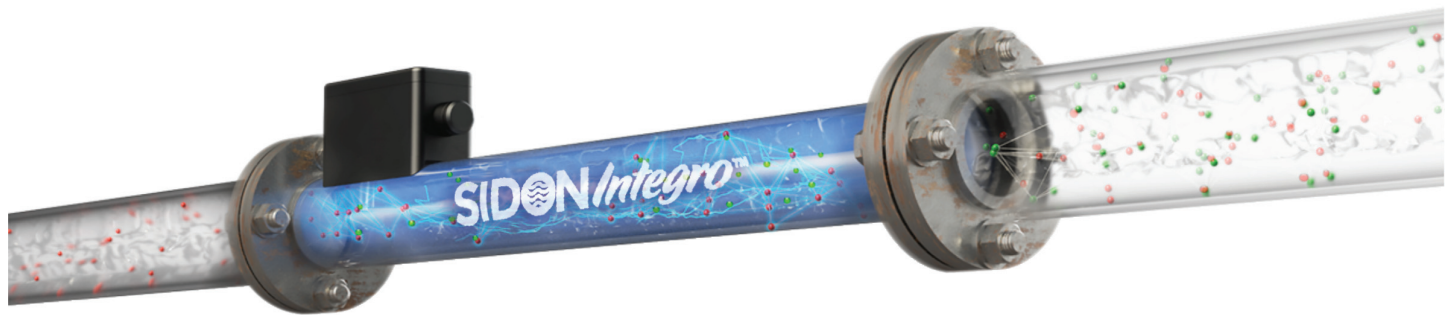
Summary

Since installation in March of 2021, the Sidon Integro™ has removed all existing scale which had accumulated within the heating coils of both the Rheem and Navien tankless water heaters and kept them free of scale build up. It is reasonable to ascertain that the life of the tankless water heaters will be extended and performance of the units improved.

What the Owners had to say

This is awesome! Since I had not flushed either of my tankless water heaters after they were installed, I was completely surprised when there was no evidence of scale debris when the units were flushed. We have very hard water here in this area and these tankless heaters surely were being compromised by scale forming inside the coils. I don't know what to say, but it is obvious to me that any scale which was inside my tankless water heaters was dissolved away over the past year and now they are clear. I believe the Sidon system has made my tankless heaters, basically maintenance free."

Rudy Aguilar, Partner in Upright Plumbing, Chula Vista, CA USA



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UL 61010-1
CSA - C22.2
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