



TESTED AND CERTIFIED

NSF / ANSI 61 & 42

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Pelican Water Technologies NaturSoft Systems are WQA Certified to NSF Standard 61 for material safety and NSF 42 for structural integrity.

About the Water Quality Association (WQA)

The Water Quality Association (WQA) is a not-for-profit international trade association representing the residential, commercial, industrial, and small community water treatment industry. WQA maintains a close dialogue with other organizations representing different aspects of the water industry in order to best serve consumers, government officials, and industry members. WQA is a resource and information source, a voice for the industry, an educator for professionals, a laboratory for product testing, and a communicator to the public.

About the WQA Gold Seal Certification Program

The Water Quality Association's Gold Seal Certification Program is dedicated to providing public health and safety services throughout the USA and globally, while maintaining expert service, superior reputation, and fair pricing. The Gold Seal Program offers certification of all products and chemicals that contact drinking water.



THIRD PARTY
PERFORMANCE TESTED
To DVGW W 512 Standard

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Pelican Water Technologies NaturSoft Systems are third-party tested through a DVGW certified lab to DVGW W 512 standards for the prevention of scale buildup.

About the DVGW

The DVGW is an organization that establishes standards and test protocols. It also approves or certifies laboratories to then conduct testing according to those standards and protocols. The same can be said for NSF in the US.

The DVGW is located in Bonn, Germany. It has its own laboratory by the name of TZW located in Karlsruhe, Germany. Beyond that, the DVGW has certified some twenty plus privately owned laboratories throughout central Europe who are authorized to conduct certification testing. The same holds true for NSF. It has its own laboratory and those certified by NSF like WQA, UL and Pace Laboratories to name a few.

The DVGW also issues test marks or certifications (i.e. the WQA equivalent of a "Gold Seal") like the "W510" standard. Their internal code for the W510 certification is "9191 - Kalkschutzanlage" (scale protection device). In order to obtain the W510 certification seal or certification mark, the applicant has to pass a total of three test protocols: Efficacy (W512), material safety and structural integrity. We have fulfilled the W512 requirements and have also fulfilled the material safety and structural integrity requirements with our WQA certification.

Relating it to the US equivalent, for example a NSF 42 certification for a carbon filter has three components to it: 1) Structural Integrity NSF/ANSI 42-2007a, 2) Material Safety NSF/ANSI 61-2007a Toxicological Extraction, and 3) NSF/ANSI 42-2007a Aesthetic Effects.

About the DVGW W 512 Standard

The DVGW W 512 standard is the most stringent of its type in the world. In order to be subjected to the most rigorous test standard possible, sparing no expense, we have commissioned to have our equipment performance not tested in the US, but tested by a DVGW certified laboratory in the home country of the standard itself, Germany. The test aims to simulate real life conditions over an exceptionally long period of time using some extremely challenging natural well water.

Third Party Certification and What it means

True in both Europe and the US, a certification is a pass/fail proposition. The certification states that the applicant has passed and fulfilled the requirements of the standard. Individual test results are not published in either jurisdiction. Our test certificate (Pruefzeugnis) states that the Pelican NaturSoft System has been tested and fulfilled the requirements of the W512. Furthermore, it also states that the W512 in a certificate of efficacy only and is not a certification seal or mark issued by the DVGW (i.e. it makes the distinction between a certificate and a certification): "This proof of effectiveness alone as documented with this test certificate is not sufficient to obtain a DVGW Test Mark".

That is standard verbiage that is required to appear on any W512 certificate. In summary, Pelican NaturSoft Systems hold a WQA Certification to NSF 61 for material safety and 42 for structural integrity as well as a certificate of efficacy based on the DVGW W512 protocol since there currently is no corresponding US standard.

Note: Just ¼" of scale build-up can increase heating costs by 40% or more. Observe the scale build up on the untreated side after only 3 days of operation.

Superior Performance Results

Pelican Water Technologies proudly introduces NaturSoft media the next generation in hardness control. Years in development and tested in the U.S. under harsh real life conditions the NaturSoft media exceeded all expectations and delivered amazing results. NaturSoft media is produced exclusively in the United States by Pelican Water Technologies.

The new era of technology has made many advances in water treatment possible in residential as well as commercial applications. NaturSoft has proven to be very effective in both applications even at high temperatures and hardness levels. The NaturSoft System represents the superior alternative with respect to dealing with the symptoms of water hardness without resorting to ion exchange (salt or potassium) based systems. The commercial grade media is now available for residential consumers. What you will read in this story is an example of commercial water treatment using NaturSoft media. This represents an extreme case far beyond any residential demand or application. The boiler/heat exchanger is just a larger version of a residential hot water heater.

Boiler System:

This stainless steel heat exchanger is part of a boiler system in an industrial application. The energy source for the heat exchanger is a steam generator whose steam heats the interior of the stainless steel tubing of the heat exchanger to 338 Fahrenheit resulting in an exterior surface temperature of 266 degrees Fahrenheit. The source water has a temperature of 52 degrees Fahrenheit. It travels through the heat exchanger pipe and is heated to 185 degrees Fahrenheit in seconds. The heated water then is supplied to a 13,000 gallon hot water storage tank that in turn supplies all the hot water requirements for the entire factory.

The History:

The boiler system was newly installed in August of 2002 with raw water treatment consisting of traditional water softeners (Duplex Fleck 2900 24"X72"). The system was operated in this configuration for the first 18 months.

Numerous Softener failures / service problems combined with the substantial operating cost (salt usage approaching \$45,000 worth per annum) and industrial discharge issues caused the owner to look for alternatives.

The first attempt was to try and get by without pre-treating the raw water at all; this proved to be disastrous. After only two and a half months the heat exchanger had scaled up to the point where the hot water supply to the plant had been reduced to a trickle. Pulling the heat exchanger for inspection and cleaning proved to be no easy task. The unit had scaled up so completely that it required the use of chains attached to hydraulic presses to force the coil out of its housing. The scale so completely surrounded the core that it visibly consisted of a big lump of limestone in the cylindrical shape of the heat exchanger housing rather than looking at the stainless steel core. It took two days of careful cleaning with phosphoric acid to restore the heat exchanger to a normal operating condition.

Finally in the spring of 2004, a system using the NaturSoft media was installed (Single tank, in/out in up flow operation. Ever since then, this boiler system has been in continuous service protected by no other water treatment but NaturSoft. Hot water usage in the plant averages 80,000 gallons per day, 6 days a

week, and 50 weeks per year. The water treated has a calcium hardness of 446 ppm (26 grains per gallon) and small traces amounts of iron. For the entire service life to date, there have been no variations or drop in the performance / efficiency of the boiler system.

At the time of these photographs, the boiler had already heated in excess of 80 million gallons of water in its service life. More importantly, the photographs show the heat exchanger after one year of uninterrupted service having heated in excess of 24 million gallons of water since the last annual inspection! This spring (2007) the annual inspections of the boiler were suspended indefinitely. Since the previous two inspections had not yielded any need for cleaning and the system was operating within specifications the owner chose not to bother going forward.

No service problem or failure resulting in down time for the plant, no capacity constraints and zero operating costs....

The photographs:

The pictures show the heat exchanger with the insulation removed and the core / heating coil freshly pulled. As one can plainly see, there are absolutely no scale deposits on the element or the heat exchanger pipe. On the bottom of the pipe's interior, there is a small amount of a silt-like deposit of the calcium carbonate crystals produced by the NaturSoft media. The stainless steel surfaces of the heating coil have a slightly dull look which is due to a few micro micron thick haze of "soft scale" during the process. This deposit is easily wiped off with a cloth or flushed away with a pressure washer – without the need for chemicals of any kind. It is the only evidence of hardness minerals that could be found after one full year of operation.



Hot water pipe (left)/ heat exchanger core and stainless steel guide to control internal flow (right)



Heat exchanger and core (left) / Heat exchange core (right)



Heat exchange core (left) / inside of the heat exchanger housing (right)