NoScale® Q&A

Who manufactures NoScale® media?

The research, development, and manufacture of the NoScale® conditioner systems was initiated by Ceramic Filters Company, Inc. in 2004 as a means of creating a salt free alternative to traditional water softening equipment in the United States and around the globe. CFCI has been a leading supplier and manufacturer of specialty filtration systems in North America since 1989, offering a wide variety of treatment options for clients desiring non-wasteful, environmentally friendly water solutions.

With assembly plants in Michigan and Pennsylvania; and facilities in Europe to supply the rest of the world, CFCI has positioned itself to supply NoScale® conditioner systems globally.

Why did CFCI develop this state-of-the art catalytic media for scale control?

Our environmental safe NoScale® media was initially developed by Watch Water Germany to serve as an alternative to commercial softeners used for scale control. Because commercial softeners discharge sodium into waste water supplies during the regeneration process, many European companies were faced with expensive discharge government permits and subsequently needed a cost effective alternative. Another reason for the development of the NoScale® media was to address the heightened concern by European health and research agencies that through the usage of residential softeners in second and third world countries, calcium and magnesium were being removed from home water supplies and causing serious health problems due to the lack of these vital minerals and the excess of sodium in the drinking water. The NoScale® media systems developed by CFCI addresses both of these concerns and is a major break through in the anti-scaling water treatment market for both commercial and residential applications and has proven to be a successful alternative to commercial and residential softeners.

Why is the NoScale® media years ahead of the competition?

The NoScale® media is manufactured in a clean room environment under NSF regulations and has a precise automated and controlled manufacturing cycle which goes through multiple automated manufacturing processes. CFCI provides the only advanced perfectly round and sized catalytic media on the market today. The NoScale® media guarantees the largest surface area with highest conversion capacity in the market. While other manufactures are providing older technologies, CFCI has advanced to the forefront with their ongoing commitment to this advanced technology.

How does NoScale® media prevent scale?

The media prevents the formation of scale that forms on heating elements and on the pipes and hardware of plumbing systems. The media does this by accelerating the transformation of the calcium and magnesium minerals into harmless "Nano" particles. When the inlet water goes into the water conditioner tank, the up flow pulls the water through the fluidized NoScale® media which then acts as a catalyst and pulls the hardness minerals of calcium and magnesium out of the solution and then transforms these minerals into inactive Nano crystal particles. Because the hardness minerals have been transformed into Nano particles, these Nanoscopic particles make their way through plumbing systems without attaching on to pipes, fixtures, valves, or heating elements. Several years of testing has showed that the calcium and magnesium bonds cannot attach to any kind of surface resulting in 99% scale prevention.

How does the NoScale® process work?

The media is specially designed and manufactured to prevent harmful scale build up. Our anti-scale media is unique because the surface of the media is specially manufactured to be hard and similar to a ball bearing which protects the media from shearing off and results in a better operational product with a much longer life expectancy. As the inlet water flows into the water conditioner tank, the up flow pulls the water which then passes through the NoScale® media. When contact between the media and water has been made, the NoScale® acts as a catalyst and converts the hard minerals into active nano-crystal particles. These nano crystallized particles break off and flow freely through the system without attaching onto pipes and other hardware components. A secondary benefit is that the NoScale® media process has a descaling effect on the existing scale already present in pipes, hardware, and equipment. A third benefit is that the media also prevents corrosion by adding a 30 micron protective layer to the surface of the pipes and hardware. The overall process of NoScale® is virtually maintenance free and does not require backwashing, salt, or electricity.

What is the main difference between water-softening unit and NoScale®?

The "classical" water-softening unit operates on the basis of ion exchange; exchanging calcium and magnesium ions in water with an equivalent amount of sodium (Salt). When a water softener is used, the result is not only soft water, but also increased sodium content in the water supply. This added sodium content has raised health concern by many government officials. Additionally, these softening units require water for backwashing and common Brine water "salt water" for regeneration. For example, in order to regenerate 100 liters of softening resin, up to 25 kg of salt per regeneration cycle is required. This means an added costly expense of salt is incurred for each and every regeneration cycle.

Why are NoScale® conditioners up-flow configured? Why is it not down-flow?

The NoScale® conditioner is not a traditional down flow filter system. It does not trap the hardness nor does it exchange anything for the hardness like a traditional water softener. The media works as a catalytic media by causing crystallization of ions on the surface of the media while the water is in continual up flow. The inlet water flow in the water conditioning system is always in UPWARD motion from the bottom up in the filter housing. The media in the NoScale® system always stays in a fluidized state when the water is flowing. The media is in constant motion and the flows are from the bottom to the top. It is for this reason the media cannot filter out particles in the water. All the hardness that enters the conditioner system is pulled out of solution and forms crystals on the surface as they pass by the media. They attach to the media for a short time until they grow to Nano size and break free from the media and pass along with the water flow. The crystals can not attach to any surfaces thus preventing any scale build up

Can I replace a traditional water softener system with a NoScale® water conditioner and what difference in performance should I see between the two systems?

Yes, you can remove a traditional softener and replace with a NoScale® conditioner system. There will be a difference with the new system in that the customer will not feel the slippery feeling that he had with the traditional softener. This is because the hardness was not removed but was crystallized. The customer will have all the other great advantages like up to 30% less detergent usage and cleaner laundry. The additional advantage is that he will not have sodium in his service water. IMPORTANT! The customer may experience a salty taste or slight odor in the water for a short period of time, AFTER REMOVING THE OLD SOFTENER. This happens because the new NoScale® water conditioner will clean the pipes that may have a sodium and/or calcium build up and residue in the pipes in the house from the old softener. However, this lasts only for a short time until the pipes are clean. The customer can be assured that the will never again have a sodium or calcium build up in the pipes, water heater, and appliances.

Will I feel and different when I shower? **Your water from a NoScale® system will feel like silk and will have noticeable improvements in the feel of your hair and skin.**

Will I see any change in the laundry? **Your laundry will come out cleaner and feel softer; Clothing will last longer.**

Do micro-organisms accumulate in the catalyst unit and must the material regularly be disinfected?

No. Because the material does not demonstrate filtration effects, the media is always suspended up flow in the water when in service and microorganisms are repressed. Disinfecting the media granulate in most cases is not required.

Is a central control valve necessary or does the system function without backwashing?

Because the NoScale® granulate is continually in up flow fluidization, no particles are held up in the media and no backwashing process is required. You might say the media is always in backwash during service because it is always suspended in the water in a fluidized state. A central control valve is therefore not used in a NoScale® water conditioning system. There is no need for backwash. The system uses a simple up flow in and out head.

Can the NoScale® conditioner system treat hardness up to 100 grains hard?

The system can treat up to 100 grains hard water. All conditioner system calculations are made based on a hardness of 25 Grains or less. The reason for this is that 95%+ OF ALL INSTALLATIONS FALL INTO THIS CATEGORY WORLD WIDE. The NoScale® system has been used on waters with hard water up to 100 grains hard. CFCI can provide calculations for over 25 grains hard if needed. Please contact an AquaCera support team member for applications of this nature.

Why does the NoScale® media not need to be backwashed? What keeps the media bed from getting fouled?

It is important to point out that we have no filtration effect with our media. Remember we are in a continuous up flow backwash situation and therefore we do not filter out anything from the water; so we have no accumulation of anything in the suspended bed of NoScale® media. The media works as a catalyst only and does not filter out particles.

What happens at night time when there is no water flow?

The filter bed is not suspended when there is no water flow. The filter bed will rest. For top performance it is recommended that the filter media rests 4-8 hours per day. This is never a problem in a residential installation. In commercial applications please contact CFCI or your AquaCera dealer for proper design criteria.

What if the bed gets contaminated with bacteria?

This should not be a problem. The continuous back wash is the best action to keep the media clean. The media nevertheless can be treated with chlorine up to a maximum of 2-3 ppm for short periods to kill bacteria and to remove organic matter.

What is the maximum operating temperature of the NoScale® media?

The media will tolerate 50° C (122° F) Please consider that all the other equipment is much more limited regarding the water temperature.

What is the minimum operating temperature of the NoScale® media?

The media can tolerate to 38° F. Please consider that all the other equipment is much more limited regarding the water temperature. (Please keep from freezing the media)

What is the pH range of the media? What is the low and high pH range?

It works in the range of 6 to 9 pH, but we also found that it works at pH 5.5 as well. What you can always do is stay in the range of the pH range allowed for drinking water by the local municipal water treatment in your market area and you will never have a problem.

What is the life time of the media?

Over the last 7 years, thousands of systems have been installed around the world in real life situations. These systems have been tested with the same performance as day one when installed over the last six years; so, conservatively we estimate a minimum of 5 years but feel confident the media will last 10 years or longer.

Can I destroy the media or can it get fouled? What special precautions should I take?

The same precautions you would take with softening resin. Hydrogen sulfide and oil in the water will foul the media. You do not want to have chlorine over 3 ppm. The media is strong and should have at least 5 plus years of life time with normal usage. We always recommend a whole house carbon pre filter in front of the conditioner.

How do I keep the media from washing out of the unit when I start it up for the first time and put it into service?

We always recommend that you soak the media for 15 minutes before start up. You also should run water through the filter tank and media before installing in the piping system. This will assure that any possible fines from shipping in the tank and media will be washed out of the tank before hook up. This assures that the media is saturated with water and will not accumulate at the top of the housing when filled with water. You also have an upper basket that will keep the media from going into the service pipes in the home.

Can I use a flow restrictor after the water conditioning system to assure I am getting the proper flows and do not go over the maximum recommended flow rate?

Yes, this is a good idea. Be sure to size the flow restrictor to the proper tank and maximum recommended water flow. You want enough water flow for the proper sized system but you do not want too much water flow that would go over the max flow rate.

Do I need to clean the media?

The media does not need to be cleaned before installation in the filter. Remember, we do recommend that you soak the media with water for 15 minutes before installation. However it is important that you run the water through the system before installation for 5 minutes to be sure you have cleaned out any dust that may be on the filter media or tank surface. You can then put the filter into service

How can I test the Media?

For a home owner the best and most convincing results are using two sauce pans. You put two sauce pans on a heater. One pan is filled with untreated water and the other pan with water treated by the NoScale® water conditioner. As the water boils down the untreated water will build a hard scum on the side of the sauce pan. The sauce pan with treated water will have no hardness scum on the side and you will see a circulation of hardness crystals on the bottom of the pan just before the water is boiled out. They are easily wiped out just as the water is boiled out of the pan. The other method will be to observe heating equipment and appliances already covered with scale. After installing your water conditioning system in a few days you can observe that the white scale starts to disappear and then no new scale appears. Our customers have observed their coffee machines and appliances start to clean up from years of scale build up. They immediately can use less soap and get a better wash. Their hair feels cleaner and feels softer.

Will the NoScale® media replace Polyphosphates in controlling scale build up?

Yes, the media is a much better choice than traditional Polyphosphates. Polyphosphates only temporarily coat the hardness and keep it from coming out of solution and are used up quite quickly and continually need to be replaced at a high operating cost. You are also releasing Polyphosphates into the service water line to the home. NoScale® media will not be used up, does not release any chemicals to the service line, and has a normal lifetime of about 5 years.

If the water hardness is tested after the system is installed will the hardness level be different?

The water tested after the NoScale® System will have similar hardness levels. In the short term, it may even test slightly harder due to the existing scale being removed from the plumbing (This is usually seen more on

the hot water side due to more hardness build up on the inside of the hot water heater and pipes). After the existing scale is removed the hardness will go back to normal hardness levels.

Will I experience any spotting after installing a NoScale® conditioner?

Depending on the amount and type of scale deposits present in the plumbing of your home you may see the following for approximately one to six weeks after the installation of the system. These effects will be temporary and will steadily stop once the appliances and plumbing have been de-scaled. The water going through the conditioner can initially increase the hardness in the water due to de-scaling of the plumbing system.. You may see calcium particles in the aerators, shower heads, bath tub, dishwasher and other areas with high flow rates. The high flow rates can accelerate the descaling effect. These conditions are temporary and only last during the de-scaling period. The hot water heater can also have excessive scale build up and may need to be cleaned out by opening the bottom drain valve on the hot water heater. Be sure to turn off the electrical or heat source! Flush out the loosened scale by attaching a hose to the drain valve. You may need to do this for several weeks until the plumbing and hot water heater has been de-scaled. The good news is that a clean hot water heater uses much less electricity or gas to keep the water hot. You can also speed up the descaling process by turning on all the hot water valves in the house once or twice a week until all the plumbing is de-scaled and the water runs clear.

What should I expect after installing a NoScale® conditioner from my dishwasher?

Dishwashers use water from the hot water side of plumbing and the water is extremely hot water and also extremely hot in the drying cycles when cleaning and drying the dishes. You may find unusual initial spotting because of the de-scaling taking place. You also may have existing excessive scale build up in the inside of the dishwasher. The best way to eliminate the excising scale in the dishwasher is to put a cup of white vinegar in the upper basket during the washing cycle. You can also use citric acid instead of the white vinegar. This will help dissolve the existing scale in the washer arms and inside surface of the dishwasher. You may need to do this until all of the scale in the plumbing is dissolved. When you have water going through the conditioner other than being used in the dishwasher cleaning cycle you can have the calcium crystals break down back into solution if you are using harsh dishwashing detergents that have low ph, high chlorine, and phosphates. Harsh detergents can breakdown the crystals and then can cause spotting on the dishes. It will be important to reduce soap usage as much as 50%. Be sure to use Eco friendly dishwashing detergents. You may have to try several all natural dishwashing detergents to find the one that works best for you. Seventh Generation dishwashing powder which you can find at Target and Lemi Shine which is available at Wall Mart are examples of detergents that work well with our media in the dishwasher.

How fast is the conversion of calcium and magnesium out of solution in the NoScale® system?

The NoScale® systems are designed to have contact times as fast as 2 seconds. The catalytic reaction is immediate and the Nano particles are formed immediately on the surface of the media. They then break off as Nano particles and go to service. The systems are design to convert 100% of the temporary hardness of calcium and magnesium based on flow rates and equipment design.

Has the media been tested for health effects?

The media has been tested and meets NSF 61 standard. This is an independent test standard for health effects that was performed by an independent lab WQA, "Water Quality Association".

How serious is it having too much chlorine in the water? How will too much chlorine affect the media?

Having too much chlorine in the water will have a serious effect on all Medias with a resin base. Even the best medias like NoScale® can be negatively affected by the presence of high levels of chlorine in the water. Because all media manufacturers do not have any control over the concentration of chlorine in the water, media with a resin base is never covered under any warranty. Excessive levels of CHLORINE IN THE WATER SHOULD ALWAYS BE A SERIOUS CONCERN. Under normal conditions, good quality resin based medias like NoScale, Purolite, Dow, and Bayer show no significant loss of performance at typical chlorine concentrations of 1-3 ppm. However, at elevated levels, chlorine can have a substantial negative effect on the structural integrity of the resin material in the media.

High levels of chlorine sometimes occur when the water supplier has an extensive break in the water main, after a significant flooding event or when higher levels of bacteria are measured in the water source. The chlorine level can be low for several years, but do to unforeseen circumstances, the chlorine level is increased and the media in the water conditioner can degrade. The best examples were the hurricanes in Florida and Louisiana. Many traditional ion exchange water softeners with a resin media had to be replaced when local authorities super chlorinated to levels over 3ppm because of bacteria concerns in the water supplies. The only way to GUARANTEE to protect your conditioner system is to always have a whole house carbon filter installed as part of a municipal system. A carbon filter removes any excessive chlorine levels in the municipal water supplies before the water enters the NoScale® conditioner.