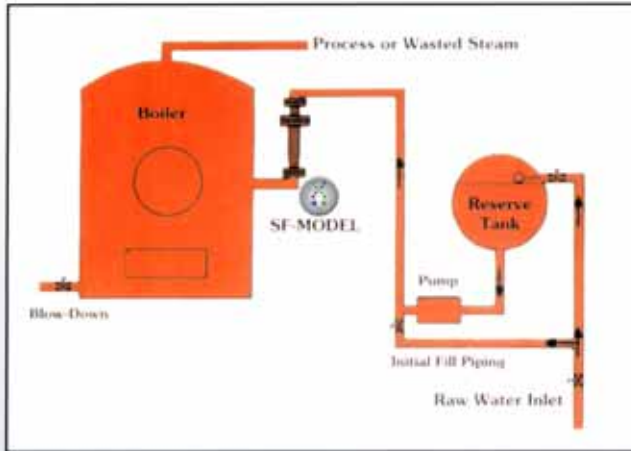
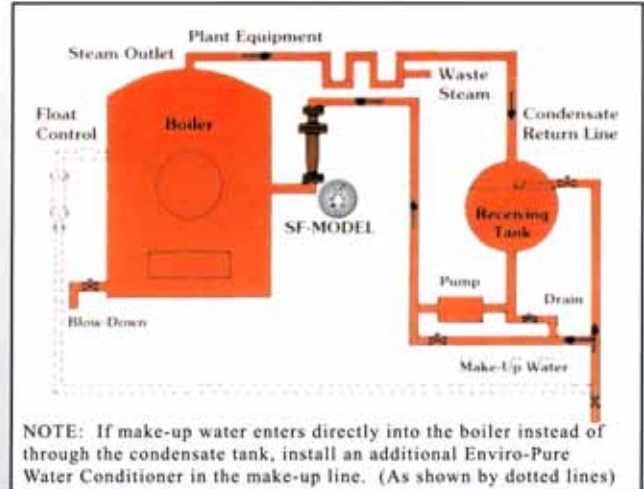


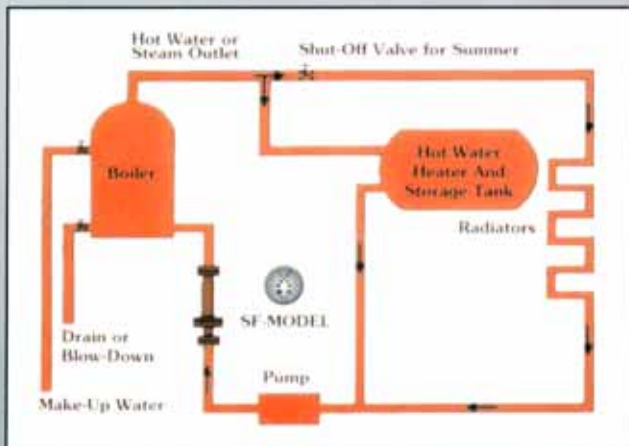
## Installations



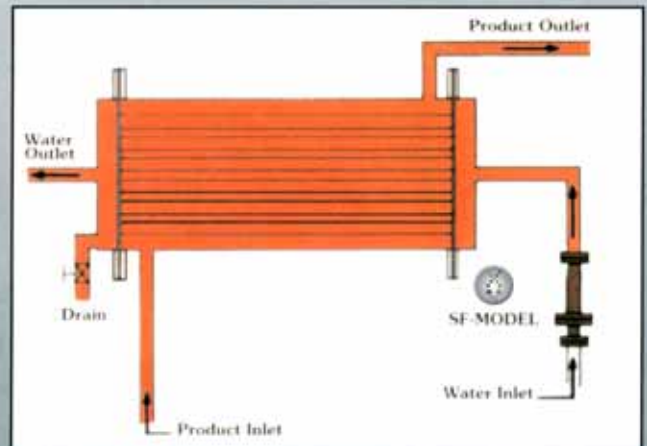
**Straight-Through Processing Steam Boiler**



**Recirculating or Condensate Return Processing Steam Boiler**



**Hot Water or Low Pressure Steam Heating Boiler**



**Heat Exchanger**

**No Hazardous Material Reporting**

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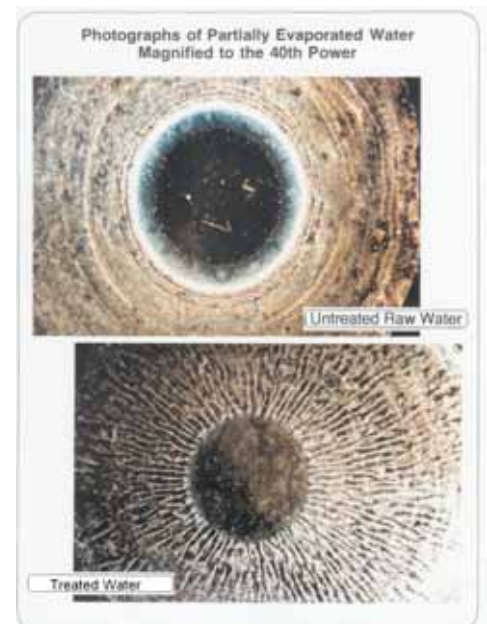
## Protect your boiler, heating system, or cooling system from lime scale and corrosion.

With the ever-increasing cost of fuel today, companies cannot afford to waste energy. A proper water treatment program can yield substantial savings in both time and money.

When water temperature changes, minerals precipitate in the form of hard, brittle scale that collects in piping and on heat transfer surfaces. This insulating scale build-up reduces efficiency of equipment, increases fuel requirements, and increases maintenance time and costs. According to the National Institute of Science and Technology Standards Div., just 1/16 inch of scale on a heat transfer surface requires 15% more energy and 1/2 inch of scale demands 70% more energy.

Maintaining scale-free surfaces assures optimum heat transfer coefficients, enabling the maximum benefits from using your equipment.

Enviro-Pure conditioned water controls the formation of scale and corrosion deposits without the use of hazardous and costly chemicals. Because no chemicals are used, discharged water is non-polluting and is not hazardous to the environment. By passing water through Enviro-Pure's alternating magnetic fields, the minerals are forced to stay suspended in the water so they cannot form a hard brittle scale. They are kept in a soft, amorphous powder form. This amorphous powder deposits a thin film of aragonite talc on the inside of pipes and the water side of condensers which prevents free oxygen in the water (one of the most common causes of corrosion) from attacking the metal surfaces. Excessive solids settle to the bottom of the system in a soft, purgable form which is easily removed through manual or automatic bleed-offs.



### NO SALTS OR ACIDS ARE USED.

Enviro-Pure produces units specifically designed for hot water or steam heating systems from less than 5 to more than 2,500 horsepower, and for cooling from fractional to more than 50,000 tons.

Countless manufacturing processes rely on water, often for thermal management. Enviro-Pure Water Treatment can lead to dramatic savings (maintenance, chemicals, water, waste transportation, and analytical costs) in the vast majority of these situations.

In all cases these benefits are realized:

- **PREVENTS SCALE FORMATION**
- **SOFTENS & LOOSENS EXISTING SCALE**
- **CONTROLS CORROSION**
- **REDUCES WHITE RUST**
- **MINIMIZES MAINTENANCE**
- **ELIMINATES THE NEED FOR CHEMICALS**
- **SAVES THE ENVIRONMENT**

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## Enviro-Pure™ Water Conditioners

### ADVANTAGES OF USING Enviro-Pure™ NON-CHEMICAL WATER TREATMENT PRODUCTS

There are four major concerns for all users of water for the purpose of thermal transfer:

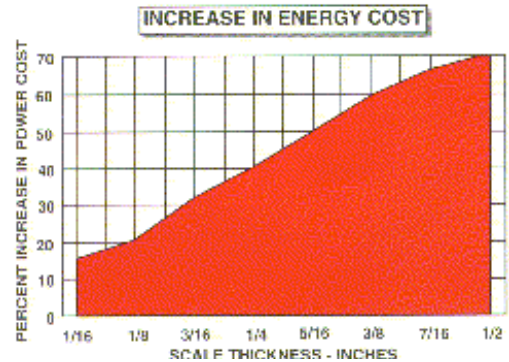
- COST EFFECTIVE WATER TREATMENT
- ENERGY SAVINGS
- WATER CONSERVATION
- POLLUTION PREVENTION



#### The Enviro-Pure™ Water Conditioner

meets all four criteria for effective water

treatment for control of lime/scale for thermal transfer efficiency. The effect of thermal transfer efficiency on energy costs is well documented and represented by the chart above. (data from the University of Illinois and NIST)



The Battelle Report titled "Non-Chemical Technologies for Scale and Hardness Control", sponsored by the Department of Energy and published in 1998, confirms that the elimination of chemicals is only part of the savings realized by the non-chemical process. An estimated calculation indicates a payback of less than one year and an adjusted

internal rate return greater than 50%. Non-chemical water treatment technologies were calculated and judged life-cycle cost-effective (at one or more Federal sites) in terms of installation cost, net present value, and energy savings.

#### Frequently overlooked (or ignored) costs associated with chemical water treatment (besides chemicals) are:

Freight for 55 gallon drums  
 Labor to unload from truck  
 Storage for 55 gallon drums  
 Labor to hook up new drum  
 Cost of disposal of empty drum  
 Chemical feed pumps: Repair parts  
 Chemical feed pumps: Labor  
 Chemical feed pumps: Electricity

Conductivity meter: Repair parts & labor  
 Solenoid valve: Repair parts & labor  
 Water Testing Kits  
 Water testing chemicals w/freight  
 Labor to test tower water  
 Labor to readjust chemical dosage  
 Heat transfer loss due to scale  
 Corrosion of equipment  
 Acidizing

Some industries are being charged by the hazardous waste hauling companies up to three times the acquisition cost of the chemicals to haul the hazardous material away as it is discharged after its use throughout the plant. When these costs are combined with the previously noted ancillary costs of chemical treatment, the life-cycle cost of chemical water treatment balloons to a staggering factor of seven (7) times the original acquisition cost of the treatment chemicals!!!

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It is also common practice to acidize steam boilers and chillers to remove excessive scale even though chemicals are being used to prevent this build-up from happening. Not only does this add to the pollution problem, but it also is dangerous material to handle and has the potential to damage the expensive equipment being acidized, not to mention the potential cost to human health, e.g. burns, loss of sight, respiratory ailments, and even death.

Blow down of the boilers and bleed-off for cooling towers can be reduced considerably after installing a properly sized and designed magnetic water conditioner. However, it may be helpful to maintain the same blow down as before until all the scale is removed if the boiler or chiller is badly scaled at the time of installation.

An interesting article appeared in March 1999 in the Maintenance Technology magazine. It points out, in very broad terms, how water treatment chemical sales people simply skirt the issue of price by avoiding it. A strong point is made about how much a customer "may be paying for 'unpriced services' such as testing, lab services, on-site monitoring, analytical equipment, reagents, supplies, and so forth."

**TYPICAL PRODUCT PAYBACK:**

Enviro-Pure™ believes that the time is right for industry to take a good hard look at these products because of the numerous benefits with *no ill side effects*. The Enviro-Pure™ Water Conditioner system has proven time and time again that it will pay for itself by the elimination of chemical costs alone. Payback is accelerated when all of the aforementioned costs are factored into the analysis!

EQUIPMENT	USE	* AVERAGE PAYBACK
Boiler	Process Steam	6 - 9 months
Boiler	Process hot water	8 - 12 months
Boiler	Steam heating	15 - 18 months
Boiler	Hot water heating	24 - 36 months
Cooling tower	Process	10 - 12 months
Cooling tower	Comfort air	** 1 - 2 seasons

\*This payback varies considerably due to the quality of the water, once-through or returned-as-condensate recirculating systems, as well as the effectiveness and cost of the previous chemical treatment.

\*\*Depends on months of year used.

Less tangible advantages of Enviro-Pure™ Water treatment technology include:

- True pollution prevention (up front -- not at the end of the pipe)
- Reduction of injury and cost -- (no hazardous chemicals or waste)
- Better corrosion control -- (outperforms other corrosion inhibitors)

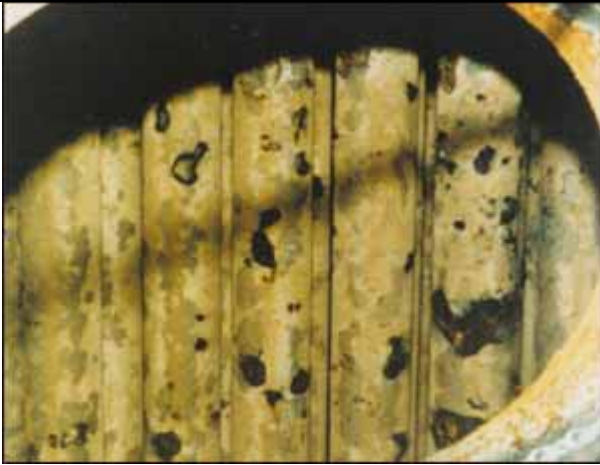
**The Enviro-Pure™ Water Conditioner technology will help industry meet the environmental requirements of EPA, DNR, and DOE and other state and federal regulatory agencies.**

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## Using Enviro-Pure™ Water Conditioner

### 500 Horsepower – Fire Tube – Steam Boiler



Before Enviro-Pure Treatment



1 Year After Enviro-Pure Treatment

## Using Enviro-Pure™ Water Conditioner Prevents and Removes Lime Scale and Corrosion

### Examples of Scale in Pipes

Copper



Black Iron



Galvanized



Steel



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A Division of Pure, Inc.

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## Enviro-Pure™ Maintenance-Free Conditioners - FAQ

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### 1. How does the **Enviro-Pure™ Maintenance-Free Conditioner** work?

The patented system, when installed in a water supply line, controls the formation of scale and corrosion deposits without the use of chemicals. Water passing through the alternating magnetic fields causes most minerals (iron excepted) to stay suspended in the water so they cannot form a hard, brittle scale. The entire process bonds calcium ions to each other rather than to your plumbing and plumbing fixtures

Water passes, under pressure, and with minimal turbulence, through alternating magnetic lines of force perpendicular to the water's flow direction. This causes a polarizing effect upon non-polar constituents in the water, and provides the energy of activation level necessary to cause the dissolved Calcium Carbonate (Calcite)  $\text{CaCO}_3$  within the water to recombine and form "aragonite" (an amorphous powdery form) when the solubility limit is reached. Unlike crystalline  $\text{CaCO}_3$ , aragonite can easily remain suspended in the water stream rather than attaching to system walls as "scale".

The presence of aragonite in the water provides an additional benefit in terms of corrosion protection. A thin film of the soft aragonite, which normally forms as a result of long term magnetic treatment, actually prevents free oxygen within the water from attacking the metallic components through which the water travels, thus preventing corrosion.

### 2. How is your product different from traditional water softeners?

Most water hardness treatment systems use ion exchange with salt as a regenerate which can have adverse effects on our health and the environment. While ion exchange systems substitute salt (sodium) for calcium, the **Enviro-Pure™ Maintenance-Free Conditioner** transforms dissolved calcium to crystallized calcium. Calcium in its crystallized state is rendered harmless and free from its hard properties and scaling effects.

### 3. What is your product used for?

The **Enviro-Pure™ Maintenance-Free Conditioner** has several uses. It is primarily used for commercial applications where scale prevention is required, such as; water heater pretreatment, reverse osmosis pretreatment, etc. It is also used for residential applications where Enviro-Pure™ water is desired for both taste and functional use.

### 4. What is special about the **Enviro-Pure™ Maintenance-Free Conditioner**?

The **Enviro-Pure™ Maintenance-Free Conditioner** has been in use since 1964 and holds over 20 patents. It is the most widely used, recognized and reliable maintenance-free system available today. In addition, recent local bans on soft water equipment or wastewater discharge permits are not applicable to this system.

### 5. What is so important about not using chemicals or sodium in treating the water?

1. You are not spending money on them.
2. You are not ingesting them in part or in whole.
3. You are not adding to the pollution of the water supplies.

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## Enviro-Pure™ Maintenance-Free Conditioners - FAQ – cont'd

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### **6. If the Enviro-Pure™ Maintenance-Free Conditioner does not use chemicals or sodium, what does it use?**

Just water! The Enviro-Pure™ Maintenance-Free Conditioner alters the state of the water through a multi-stage magnetic process; it does not add anything to it.

### **7. Will the water test soft after the system is installed?**

NO. Remember that the calcium is still present in the water but in an altered state. A test for hardness in reality is a test for the presence of minerals Calcium and Magnesium, which have naturally hard properties. The Enviro-Pure™ Maintenance-Free Conditioner renders these harmless.

### **8. Won't the calcium crystals revert back to their dissolved state in my water heater?**

The calcium crystals will remain suspended for approx. 24 to 72 hours. Normal water usage indicates that a typical residential installation will turn the hot water over in a correctly sized water heater at least once per day. This means that the suspended calcium crystals will be washed down the drain before they have the chance to revert back to a dissolved state. At times when the water does sit for example if you are away on vacation, as soon as water is drawn through the unit the water is conditioned and any water that has been converted back to hard will quickly wash through. This prevents any scale from building up over time.

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