

Cleaning and treating
your hydronic heating
system could save you
MONEY, ENERGY
and CO₂



Sentinel is the leading
and award winning
manufacturer of
products designed
to clean and protect
residential hydronic
heating systems



SENTINEL[®]

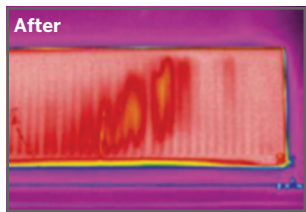
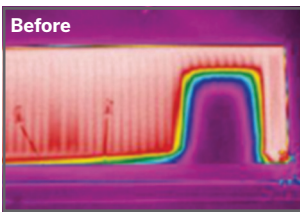
The facts

FACT

Many central heating systems have never been cleaned and therefore will be operating below their optimum efficiency level. Cleaning a dirty system can **improve effectiveness by typically 15%**¹, as shown by independent tests. Adding Sentinel to your system will help ensure it is running as effectively as possible.

FACT

Corrosion, scale and sludge in the system are the most common sources of problems that affect the energy efficiency and the effectiveness of the boiler and heating system. You may notice cold spots at the bottom of your radiators, a noisy pump or just that the system does not heat your house the way it used to.



It is not unusual for a radiator with several years service to have a significant level of debris present. This debris will prevent the radiator warming the room correctly. The two images above illustrate this. The radiator in the 'Before' image has a build-up of sludge which is clearly producing a large cold area on the radiator. The 'After' image was taken after the heating system had been cleaned with a Sentinel cleaning product.

FACT

Cleaning a dirty heating system could save you \$\$\$ every year.

¹ Based on independent research by Gastec@CRE – the largest heating research body.



Common system problems

Symptom:	Cause:
FAILED PUMPS Water flow stops and radiators become cold	<ul style="list-style-type: none">• Circulating sludge or other debris• Trapped air
RADIATOR FAILURE The formation of a 'pin-hole' and consequent leakage of water	<ul style="list-style-type: none">• Corrosion due to flux residues or other contaminants• Corrosion under settled sludge• Lack of inhibitor leading to corrosion
RADIATOR COLD SPOTS One or more radiators are cold at the bottom yet warm at the top	<ul style="list-style-type: none">• Build-up of iron oxide (magnetite) sludge
GASSING Cold areas at the tops of radiators needing constant bleeding of radiators	<ul style="list-style-type: none">• Formation of hydrogen gas, a product of corrosion
BOILER NOISE Starts as kettling, then develops into banging noises heard throughout the house	<ul style="list-style-type: none">• Build-up of limescale• Circulating debris deposited in the heat exchanger
INEFFICIENT BOILER Extended boiler running times to maintain room temperatures and hot water	<ul style="list-style-type: none">• Accumulation of scale deposits• Presence of corrosion debris• Build-up of sludge in radiators affecting circulation
LIMESCALE Build-up of limescale results in lost efficiency and possible component failure	<ul style="list-style-type: none">• Heated hard water leaves limescale deposit on the heat exchanger



What can be done?

STEP 1

To improve system efficiency you must first thoroughly clean the central heating system using the correct Sentinel cleaning product. Use Sentinel X400 System Restorer for older heating systems that have been installed for at least 6 months. Use Sentinel X300 New System Cleaner on new heating systems that have been operating for less than 6 months.

STEP 2

Once your system is clean and free from contaminants it is vitally important to protect it from further corrosion, sludge or limescale build up by adding an inhibitor. Sentinel X100 Inhibitor protects system metals from corrosion attack and scale build-up keeping the system healthy and flowing freely.

Cleaning then inhibiting protects and maintains your heating system

Powerflush for optimum efficiency

JetFlushing with a Sentinel JetFlush power-flushing unit will quickly remove deposits and sludge through its powerful flushing action. This can restore your central heating system to its optimum effectiveness and maximum energy efficiency.

A restored system not only means a warmer house, but a more energy efficient boiler, a more reliable operation and less long-term maintenance costs.



Is your system clean or dirty?

By performing a **quick and simple test using a Sentinel turbidity* tube** your heating specialist can easily find out if your system is clean or dirty.



Fill the turbidity tube with system water to **line A**. If necessary, gradually decant the water from the tube until the two circles in the base of the tube are visible from above. To determine how dirty your system is simply note the level from the side of the tube.

If circles are visible from here (line A) **the system is clean.**

If circles are visible within this area (between line A and C) **the system is dirty**

If circles are visible from here (line C or below) **the system is very dirty**

If your system is dirty it will need to be cleaned with either X300 or X400, and protected with X100.

* Turbidity is the cloudiness or haziness of a fluid caused by individual particles (suspended solids). The measurement of turbidity is a key test of water quality.



The Sentinel product line



X100 available in:

- 275ml Concentrate tubes
- Rapid-Dose Cans
- Quart bottles
- 1 and 5 gallon containers

Sentinel X100 Inhibitor with TripleTech™ Anti-Corrosion Technology is a unique formula which provides best in class protection on all central heating system metals including aluminium.



X200 available in:

- 275ml Concentrate tubes
- Rapid-Dose Cans
- Quart bottles
- 1 and 5 gallon containers

Sentinel X200 Noise Reducer is a unique, life-long system treatment for the elimination of boiler noise due to scale build-up. Safe to use in all types of indirect central heating systems.



X300 available in:

- Quart bottles
- 1 and 5 gallon containers

Sentinel X300 New System Cleaner is specifically designed for new hydronic heating systems. It flushes out harmful installation debris and excess flux, reducing corrosion potential and preparing the system for full protection treatment.



X400 available in:

- 275ml Concentrate tubes
- Rapid-Dose Cans
- Quart bottles
- 1 and 5 gallon containers

Sentinel X400 System Restorer is a unique formula which provides unrivalled and exceptional cleaning results of older central heating systems. An essential remedy against scale and sludge.



X500 available in:

- 1 and 5 gallon containers

Be prepared this winter; use **Sentinel X500 Inhibited Antifreeze** to protect against scale and corrosion in all types of indirect systems, including those containing aluminium components, while preventing freezing.



Dosing rate

X100, X200, X300 & X400: One Sentinel concentrate tube or quart is sufficient to treat up to 25 gallons of system water. Larger containers are available. For feeding into system please refer to Product Information / Product Fact Sheets on: www.sentinelprotects.com

X500: The dosage of Sentinel X500 will depend on the level of frost protection required; see Table 1 below. A dosage of 20% volume (i.e. 5 gallons of Sentinel X500 added to a system having a typical volume of 25 gallons) or more is needed to achieve the minimum concentration of corrosion and scale inhibitor.

volume % X500	20	25	30	35	40	45	50
Freezing Point (°F) ASTM D1177	21	17	12	5	-4	-11	-20

Table 1

Frequently asked questions

- Q:** Is Sentinel designed for steam systems?
A: No, Sentinel X-range products are specifically engineered for hot water boilers only.
- Q:** What kind of savings and system improvements can I expect?
A: Cleaning a dirty system can improve effectiveness by typically 15%.
- Q:** Will Sentinel products damage my pipe work?
A: No, provided the instructions on the packaging are followed correctly.
- Q:** Are Sentinel products safe for the environment?
A: Sentinel products are completely non-toxic and bio-degradeable.



Why use Sentinel?

- **Optimises new and old heating systems**
- **Saves money and energy consumption**
- **Prolongs life of residential systems**
- **Reduces call backs**
- **Unique TripleTech™ technology sets us apart from the rest**

TripleTech Anti Corrosion Technology in X100 Inhibitor is a unique formula which has 3 different kinds of heavy-duty specialist corrosion inhibitors for unrivalled performance in a multi-metal system



Heating specialist visit:

Date

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Company Name

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Telephone/Cell

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Email

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Sentinel Performance Solutions are recommended by leading manufacturers internationally.



For details of your nearest distributor call **1 (877) 567 2560**

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