



## HHIC launch a guide to water treatment

Building Regulations, British Standards and most boiler manufacturers' installation instructions give recommendations on the use of water treatment (WT) chemicals and other devices. These help to ensure that both the boiler and the heating system perform reliably and efficiently throughout their expected lifetime.

The Heating and Hot Water Industry Council (HHIC) has now issued a *brief* guide and a list of FAQ's on the different types of WT chemicals and devices.

The guide covers three main areas – **Cleaning, Protection and Maintenance.**

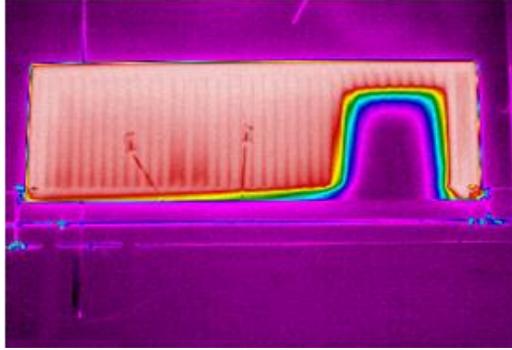
### **Cleaning**

A newly-installed central heating system may contain residual debris such as metal particles, solder residue etc. while an older system which has not been correctly protected with inhibitors may contain corrosion deposits in the form of accumulated "sludge" in pipes, radiators etc.



Accumulation of sludge is an indication of corrosion in the heating system and may also be accompanied by the accumulation of gases within the radiators – which may be mistaken for air when a radiator is bled.

Sludge can also affect the circulation of water in the primary circuit, affecting heat output and leading to a reduction in efficiency of the system as a whole. A common symptom is that radiators are cold at the bottom but hot at the top.



BS 7593 specifies a number of cleaning methods, but in outline these are as follows –

**1. A conventional clean and flush** - using gravity to empty and re-fill the system and adding WT chemicals as required.

**2. Mains pressure clean and flush** – This involves the connection of a mains pressure hose to the heating system and another hose from the system’s drain valve to a suitable foul drain. After using WT chemicals to suspend, disperse and remove accumulated material, individual radiators on the heating circuit are flushed using mains pressure water by opening/closing their isolation valves in turn, before flushing the whole system with all valves open. The system is then refilled, using inhibitor (see below) as required and returning all radiator valves to their previous settings.

**3. “Power-flushing”** – which uses a specially-designed pumping system to rapidly circulate water and treatment chemicals around the heating circuit.

The manufacturer of the power-flushing system will provide detailed instructions and may also specify the treatment procedures and chemicals to be used. These instructions must be followed.

*Note: Power flushing may not be suitable for some systems. More detailed guidance is available from power flushing equipment manufacturers.*

With all cleaning methods it is important to ensure that the cleaning agent and suspended debris are completely removed from the heating system as they may nullify the effect of any inhibitor subsequently used. Additionally, if the cleaner and suspended debris remain present in the system, the resultant mixture can lead to premature failure of system components (e.g. pumps). Loss of inhibitor effectiveness can also lead to gases being formed within the central heating circuit if corrosion re-occurs.

## **Protection**

Once the system has been cleaned, it is important to ensure that the corrosion does not re-occur. The system water content should therefore be treated with a chemical “inhibitor” to minimise corrosion. It is important to ensure that the inhibitor used is compatible with the metals and other materials present in the heating system – as specified in the supplier’s instructions.

Lack of water treatment, particularly in hard water areas, can also lead to formation of limescale in the boiler’s heat exchanger, which can lead to reduced efficiency and boiler noise.

## **Maintenance**

Once a system is cleaned and protected it is important to ensure that the concentration of inhibitor is checked and maintained. Inhibitors are designed to have an extended lifetime in the heating system; however most water treatment manufacturers recommend checking concentration at annual boiler service intervals and will offer a simple test kit to do this.

A major cause of corrosion is oxygen introduced when the system is “topped up” with fresh water. Water may occasionally be drained from the heating system for maintenance, or to allow removal of radiators whilst decorating. If the system is then re-filled without adding further inhibitor the concentration will be reduced. It is therefore important to ensure that inhibitor is always “topped up” after system drainage.

*Note: an unvented system should not require frequent “topping up” due to gradual loss of system pressure. If frequent topping up is required then the system is leaking and this should be rectified so that associated corrosion does not take place.*

It is also recommended that whenever WT products are used, a label is attached to the system to act as a record. The Benchmark Commissioning Checklist should also be used to record the inhibitor type and concentration used.

## **System filtration devices**

A number of different filtration devices are now on the market, in addition to the chemical water treatments described above. These can incorporate magnetic or “cyclone” arrangements to remove fine particles suspended in the water circulating around the system. These devices help to maintain system cleanliness and provide an additional level of protection.

## **Water softeners and central heating boilers**

Where a water softener is present in the dwelling, ensure that the heating system primary circuit is filled with mains water via the general bypass valve as required in BS 14743.

The full guide can be found at [www.centralheating.co.uk](http://www.centralheating.co.uk)

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[www.eua.org.uk](http://www.eua.org.uk)

[www.centralheating.co.uk](http://www.centralheating.co.uk)

**Notes for Editors:**

The Heating & Hotwater Industry Council (HHIC) is a member organisation committed to supporting and promoting the sustained growth of the UK domestic heating and hot water industry. HHIC represents the industry at all levels, networks across the industry, Government and beyond, facilitates a range of market development activities and research. It also provides technical expertise. HHIC is a division of the Energy and Utilities Alliance (EUA).