

## UNDERSTANDING AND DEALING WITH CORROSION IN CENTRAL HEATING SYSTEMS

*This advice guide is part of a series of free guides produced by the Association of Plumbing & Heating Contractors Ltd. which provide consumers with essential basic information on a range of plumbing and heating matters including installations, repairs and maintenance.*

Understanding and preventing corrosion in a central heating system will ensure that the system is operating at its most efficient and will prevent serious damage to the equipment in the system or the property itself, arising from leaks.

### **What is meant by corrosion in a central heating system?**

From the time of installation and commissioning a central heating system will, potentially, start to corrode. This is because water in the system will start to react with the steel in the radiators. To reduce the rate of corrosion, a plumber will flush out a newly installed system to remove any debris or substances likely to increase the rate or risk of corrosion.

The most common symptom of corrosion within a central heating system is sludge, a black, mud like, deposit resulting from the reaction between the water in your system and the steel in the radiators.

The sludge can build up over a period of time in an untreated central heating system, and cause:

- Damage to the boiler.
- Damage to radiators by causing pin holing and leaks.
- Damage to the pump.
- Damage to the thermostatic radiator valves.
- Blocked pipework.
- Blocked and damaged hot water heat exchanger on a combination boiler.

If a system has been well designed and installed by a professional plumber and flushed out correctly as part of the commissioning process, the water in the system will stay clean providing a corrosion inhibitor was added after the flush and no maintenance or leaks have been carried out on the system.

If the system has been drained for any maintenance or repair and a corrosion inhibitor was not added when refilling the system, the system is again liable for problems with corrosion.

### **How to protect your central heating**

The best way to protect your heating system is to use a chemical treatment, and/or a physical filtration system using a magnetic filter.

## 1. Chemical treatment

This works by interfering with the process that forms magnetite in the first place by stabilising the water, but it's not a complete cure and only slows down the magnetite formation. The chemicals must be added to central heating circuits on a regular basis and the chemicals do break down over time, so regular treatment is recommended.



## 2. The magnetic filter



This works by using the magnetic properties of the iron oxide to 'capture' the crystals as they form. The filter is placed in the central heating system and water is allowed to flow through the filter constantly, any crystals in the water are slowly collected by the filter.

### In summary

APHC recommends that the system is regularly checked to ensure the correct level of corrosion inhibitor is used within the central heating system. This will prolong the life of the system and its components. An APHC registered plumbing and heating engineer will be able to check the level of system corrosion inhibitor active in a system and recommend topping up or further work to reduce corrosion, if required.

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