

HOW TO REDUCE FUEL WASTAGE IN HEATING SYSTEMS



What causes fuel wastage?

Soft and hard limescale on radiator walls can drastically reduce their ability to heat rooms efficiently. The problem often revolves around the boiler heat exchanger where the temperature is hottest, but deposits in radiators and pipework also lessen the effectiveness of the whole system. It is therefore important to consider the whole central heating system when checking and establishing why its efficiency has dropped.

There are two main forms of deposits found in heating systems:

1. In hard water areas, limescale forms mainly on the hottest surfaces. Low water content and tubular boilers are particularly prone. High skin (is this a technical term?) temperatures can attract lime even from relatively soft waters, but these are unlikely to cause limescale problems. However, temperature is not the only factor that can promote limescale deposition. The design of components or choice of material and surface finish can all increase or decrease the probability of scaling. As modern

condensing boilers have far narrower flow channels in the heat exchanger than older cast iron boilers, less deposition is required to cause noticeably detrimental effects to system performance. Limescale deposition that affects system performance can begin from waters containing as little as 100ppm of hardness.

2. Black iron oxide sludge is produced continuously in all untreated installations, even in the near absence of air or dissolved oxygen, mainly due to electrolytic corrosion. If there are higher levels of dissolved oxygen (perhaps because of an aeration fault) it compounds the problem. Iron oxide is five times heavier than water and settles in areas of reduced flow such as radiators.

As well as wasting fuel, these deposits cause other problems such as boiler noise and component failure, notably relating to circulator pumps and boiler heat exchangers.

What should be done?



Part L of the Building Regulations for England and Wales 2006 states that new all wet central heating systems should be pre-commission cleaned and treated with a central heating inhibitor. The correct method for inhibiting a central heating system is explained in a British Standard Code of Practice BS 7593.

If the cleanliness of a central heating system is maintained from the start, its life span can be extended as well as design efficiency optimised. However, if the efficiency of an existing system has been reduced due to a lack of cleaning or insufficient inhibition protection, remedial action should be taken.

Fernox Cleaner F3 and **Fernox Powerflushing Cleaner F5** are both designed to recondition systems and are particularly effective if the system is contaminated with black iron oxide sludge. **Fernox DS40 System Cleaner** should be used if limescale deposition is evident. However, it is important to note that cleaning or descaling will

never fully restore the heating system to its original condition. After cleaning, the system should be protected against further corrosion or scaling by using **Fernox Protector F1** or **Fernox Protector MB-1**, or in systems where a system filter has been installed, **Fernox Filter Fluid+ Protector** can be used.



FERNOX RECOMMENDS: Fernox Cleaner F3; Fernox Powerflushing Cleaner F5; Fernox DS40 System Cleaner; Fernox Protector MB-1; Fernox Protector F1; Fernox Filter Fluid+ Protector.