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PURCHASE ORDERS

# EndoTherm™

AN ENERGY SAVING ADDITIVE  
FOR CENTRAL HEATING SYSTEMS



# EndoTherm™

WITH ENERGY PRICES RISING ALL THE TIME,  
WE CAN HELP REDUCE YOUR HEATING COSTS

**EndoTherm™ is a truly exceptional, cost effective  
and innovative product.**

Easy to install and supplied in ready to use solution, EndoTherm™  
can save you money today.

Over the past 5 years EndoTherm™ has been rigorously tested  
and the documented data proves, that EndoTherm™ works!



# EndoTherm™ Background

A REAL ENERGY SAVING SOLUTION

**When people think about saving energy costs, they are generally referring to finding a reduced tariff or improving insulation and draft proofing to reduce energy loss.**

EndoTherm™ can provide real energy savings in a way that is accessible to everyone.

## HOW HEATING SYSTEMS WORK

Water, in a conventional central heating system, is heated by passing it through a boiler. Water passes through the boiler tubes, where the water in immediate contact with the tubes boils. This nucleate boiling creates large irregular bubbles at the metal water interface and these bubbles carry heat into the main water flow. Very soon however, the size of these bubbles causes them to coalesce, which blocks heat transfer into the bulk water.

EndoTherm™ simply changes the way water boils at the metal water interface. When a heating system is treated with EndoTherm™, the myriad of small bubbles formed at the nucleation sites on the boiler metal surfaces, pulls the heat away from the boiler faster than in untreated water. This has been proven in live test environments such as hospitals, schools, domestic housing and laboratories, resulting in documented 10% - 15% energy savings.



## BENEFITS TO A CENTRAL HEATING SYSTEM

- Less energy used to heat your radiators to the required level, saving you money every month.
- Improved maintenance of your system.
- No corrosive effects to your system.
- Very cost effective.
- Easy to install with rapid results.
- Eco friendly, natural ingredients.



# EndoTherm™ Case Studies

## EAST AYRSHIRE COMMUNITY HOSPITAL (EACH)

### Hospital fuel conservation trial, 2011.

East Ayrshire Community Hospital is a 64 bed hospital with a large day centre. It is heated by a low pressure hot water system, which circulates water through radiators and through the calorifiers, providing domestic hot water throughout the hospital.

Working with BAMFM, the onsite facilities management company for East Ayrshire Community Hospital, EndoTherm™ has been trialled in the hospital heating system to establish whether real energy savings could be achieved.

Using the boiler size (kW) and the specifications of the heating system, the water capacity within the system was calculated and EndoTherm™ was injected into the system at the recommended dosage.

The EACH energy manager has confirmed a 10-11% reduction in energy, measured against comparable months in previous years.

EndoTherm™ has now been present in the system for over 6 months and the energy improvements have been sustained.

East Ayrshire Community Hospital continues to report a 10-11% energy reduction each month, compared with their targeted usage.

*The complete EACH Report is available on request.*

For more information on how you and your customers can start benefiting from this innovative product please contact the EndoTherm™ team on **0845 680 3629** or email **[enquiries@endoenterprises.com](mailto:enquiries@endoenterprises.com)**



## ENDOTHERM INDEPENDENT PRODUCT ASSESSMENT REPORT, JANUARY 2012 CARSHALTON POWER ASSESSMENT & TRAINING CENTRE, CARSHALTON COLLEGE

EndoTherm™ was first submitted for testing in April 2010 and was added at optimum concentration to one of the Carshalton Heating systems. We have monitored the gas flow and thermostat settings and have recorded savings in gas consumption. Our control thermostat has had to be set back because the building was too warm.

Encouraged by the results obtained the College decided to keep EndoTherm in the Boiler system. The product has been in the system now for the best part of 21 months. An inspection of the heating system showed that it was in excellent condition. There was no deterioration whatsoever in the Buderus Boiler aluminium heat exchanger or in the copper pipework of the system.

The inspection of the aluminium boiler inlet and outlet pipes indicated absolutely no deterioration in the aluminium. There was no indication of general wastage or pitting of the metal. Similarly there was no deterioration of the copper pipework which carries the hot LPHW to the Heating system and returns it to the boiler.

This is a very clean heating system.

*The complete Carshalton Product Assessment Report is available on request.*

# EndoTherm™ Laboratory Tests

## TEST 1

A standard water bath heated by an immerse coil and circulated using a single stirrer, was filled with 10 litres of tap water and set to achieve a bulk water temperature of 80°C. The temperature of the water was measured in the centre of the bath at a depth of 1 inch.

The temperature of the water was plotted against time. The experiment was repeated using water to which an optimum amount of EndoTherm™ was added. The temperature recorded by the digital thermometer was plotted against time and the graphs are presented in **Figure 2** (right).

The water containing EndoTherm™ reached the control temperature of 80°C in 0.85 of the time it took for water without any treatment to reach the control temperature. **This realised an energy saving of 15%.**

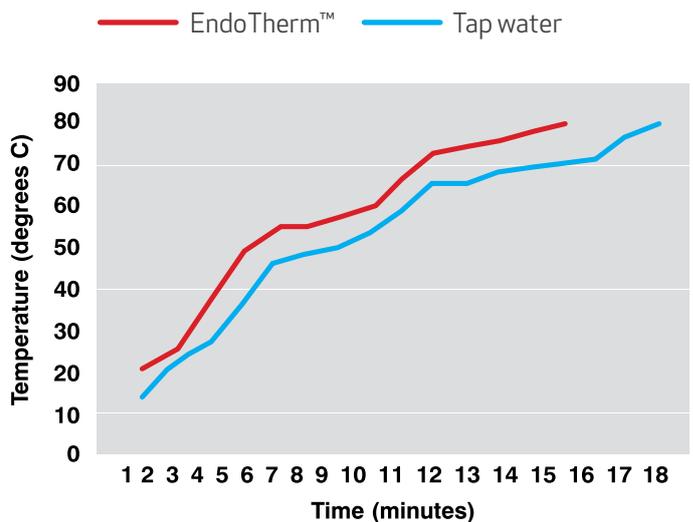
## TEST 2

100ml of tap water was heated under standard laboratory conditions in a shallow Pyrex dish. Temperatures were measured, using a calibrated digital thermometer, maintained in the centre of the water volume and then plotted against time to reach 100°C.

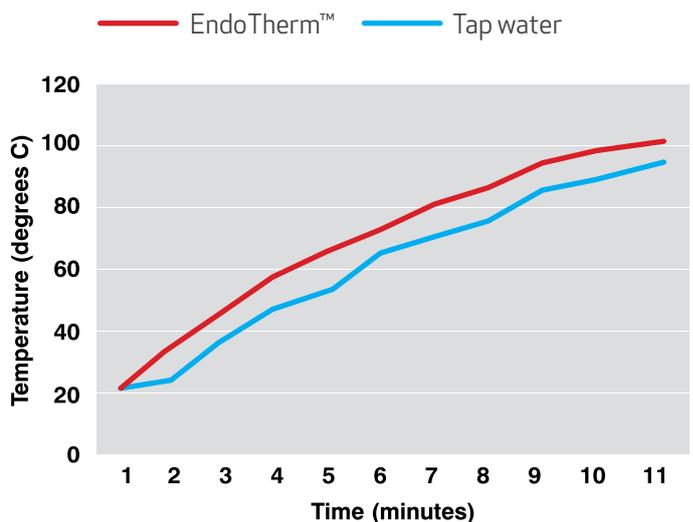
The experiment was repeated using water to which EndoTherm™ had been added.

It can be seen that water containing EndoTherm™ (blue line) boils before the ordinary water (red line) reaches 90°C.

**Figure 1 Laboratory water bath experiment.**



**Figure 2 The effect of EndoTherm™ on boiling water.**



# EndoTherm™ Testimonials

## CONVENTIONAL DOMESTIC FLAT

I am a standard home domestic user. In early 2009 we had our boiler replaced, along with our loft re-insulated. The new boiler is very efficient and has resulted in noticeable savings in fuel costs over the last two years.

In November of 2010 we decided to try the EndoTherm™ additive in our heating system.

The results are as follows:

- Before EndoTherm™ was added to the system, the standard temperature setting for the boiler during winter months was 24-25 degrees, maintaining an average temperature of 22 degrees in the property.
- Since adding EndoTherm™ to the heating system we have had to reduce the overall boiler setting during the winter months to 22 degrees to maintain 22 degrees overall.
- Observation when either standing near or touching the radiators, is that they are physically hotter with the additive in the system.
- Our fuel costs for the heating of our property have reduced significantly and we have experienced an overall saving of over 14%.

## CONVENTIONAL DOMESTIC HOUSE

At home, I have had EndoTherm™ in the heating system over the past winter 2010/2011 period. My boiler is a Buderus 500 28C, feeding 9 radiators. The use of EndoTherm™ has resulted in a considerable saving which has been reflected in our winter period gas bill.

Although the house has been warmer we have regularly had the thermostat set down by 2/3 degrees. Our actual bill over the period was less than for the same period last year 2009/2010.

I have recommended EndoTherm™ to all of my friends and family.

*"Overall we are very impressed with the results we have achieved by using the additive EndoTherm™ in our heating system and would not hesitate in recommending this product to others!"*



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