

CASE STUDY: ENDO ENTERPRISES LTD

THE BRIEF

Endo Enterprises Ltd (Endo) are a Warrington based SME who develop and market environmentally aware solutions for water treatment, infection control and energy efficiency. A privately owned company, Endo Enterprises' head office and distribution centre is based in a dual-purpose facility in the Gemini Business Park, Warrington.

Their business is primarily built on the experience and passion of their most important asset, their staff which include a senior management team of Industrial Chemists, Mechanical Engineers, and highly experienced business leaders.

Their product range has gained worldwide recognition and accreditation from many global organisations including the Environmental Protection Agency (EPA), Medicines and Healthcare Products Regulatory Agency (MHRA), Department for Environment, Food and Rural Affairs (DEFRA) and the World Health Organisation (WHO).

Endo have adopted a business approach that encapsulates the idea of corporate sustainability. This is not limited to creating a 'green strategy' but takes into consideration every dimension of how their business operates socially, culturally, and economically. They also aim to improve their company's prosperity and longevity through transparency and proper employee development.

THE APPROACH

EndoTherm and EndoCool are two heat transfer modifier fluid additive products, developed and manufactured by Endo, which are used for space heating.

The CW 4.0 Team at Liverpool John Moores University (LJMU) have collaborated with Endo Enterprises, to support in the testing and validation of data, which will enable the development of new markets for existing products and the development and validation of new products for growing markets, such as Heat Pump based systems.

The project has made use of the BRE test houses at LJMU to validate and therefore make deployable the building modelling tools being developed by Endo Enterprises.

LJMU has provided dedicated and controlled access to the 2010 Test House at their Byrom St Campus, to validate and therefore make deployable, the building modelling tools Endo Enterprises wishes to use to develop and validate current and future products. This has included the following support measures:

1. Supporting the building of the virtual twin of test house
2. Provide validation test data from the test house during a pre-installation period and post EndoTherm installation period.

THE BENEFITS

Endo has advised that this support and access to dedicated facilities by the C4.0 team, will increase the confidence in new simulation development tools. This will help them evidence the performance of current and future products for potential customers and regulatory bodies thereby supporting their efforts to gain acceptance in new markets such as domestic heating. The work may also be used to validate other future applications, such as Heat Pump based heating and cooling systems. The validation test data generated from the virtual/digital twin will be used as the basis to validate and develop new markets for current and future products.

Further support is planned to undertake some market analysis with the aim of mapping out alternative potential markets for heat transfer modifiers.

Finally, this CW4.0 project will enable further industrial links to LJMU academics, to develop collaborative opportunities and unlock expertise within the research environment, that can be used to develop future space heating-based technology, as well as the potential to reduce the Carbon Footprint of domestic and industrial premises.