

Project title: Novel dewatering solutions for corrugated case medium manufacture

Main applicant: RISE Innventia AB

Technology developer: RISE Innventia AB

Industry partners: DS Smith PLC

Demonstration capital cost: £706,571

Funding awarded: £358,151

Project timeline: January 2019 – April 2020

Photo:



Project description:

This project aims to refine and demonstrate novel approaches to achieve enhanced dewatering in the production of Corrugated Case Medium (CCM), a material used as a liner in many cardboard products. Net CCM manufacture approximately equals 1.68million tonnes per year, and accounts for roughly 40 per cent of the 4.1million tonnes of paper and pulp produced in the UK every year. The project will measure contaminants in the water used to process the product and undertake trials to demonstrate an improvement in the efficiency of the dewatering process, which is an energy intensive process, through different approaches and techniques (from chemical addition to process optimisation).

Trials will be undertaken at an industrial scale pilot facility to refine the dewatering strategies. Following on from the pilot plant investigations, extensive industrial scale trials will be undertaken at the paper machine at the DS Smith's Kemsley site.

The aim of the demonstration is to improve the quality of process water by reducing the level of contaminants, allowing for more efficient dewatering, and leading to an improvement of dryness after the press stage in the paper machine. The project team has estimated that there would be 10 per cent savings in the paper process energy consumption compared to the existing operation.

This improvement in the process water quality and the enhancement of the dewatering process would lead to other potential energy savings opportunities around the paper making process.

Size of the target market: The target market is the UK CCM sector, which is the largest sub-sector of pulp and paper manufacturing by volume. The Kemsley Mill where the demonstration project will be established is the largest UK manufacturer of CCM sites, producing over 0.8million tonnes per year.

Barriers to market: A significant barrier to adoption is that this novel dewatering approach, whilst having been demonstrated at lab scale, has yet to be demonstrated at pilot scale and on an industrial sized paper machine. Additionally, the current industry culture focuses on incremental reductions in energy, but does not address the fundamental challenge that may lead to a step-change reduction in energy consumption. IEEA funding allows for pilot scale and de-risking industrial scale demonstration.

Initial TRL: TRL6

Targeted final TRL: TRL 8 - 9

Estimated energy and carbon savings: The project has estimated that there could be a 10 per cent reduction in direct energy consumption (for the site).

Why IEEA funding was important to this project:

“The technologies being proposed have already been proven by RISE Innventia at lab scale. Work is now needed to demonstrate that the anticipated energy savings can also be made under operational mill conditions. The availability of IEEA funding for this project is important as it facilitates that step up from controlled lab and semi-industrial pilot conditions to refine and prove the technology in a less predictable, real world production environment.”