

Project Contact



PROJECT CO-ORDINATION AND MANAGEMENT

David Cutler
Haydale Composite Solutions Ltd
Email: coordinator@hibarfilm.co.uk



PROJECT EXPLOITATION AND DISSEMINATION

Dr Bojan Boskovic
Cambridge Nanomaterials Technology – CNT Ltd.
Email info@hibarfilm.co.uk



HiBarFilm2 is an Innovate UK project, reference: **10015317**.
The contents of this flier are the sole responsibility of the parties and cannot be considered as reflecting the position of the Innovate UK
Innovate UK is part of UK Research and Innovation.


High barrier monomaterial flexible films for food contact applications

www.hibarfilm.co.uk

info@HiBarFilm.co.uk

HiBarFilm 2

High barrier monomaterial flexible films for food contact applications

The **HiBarFilm2 Project** is an Innovate UK funded project that started in March 2022 and is expected to run for 30 months. Haydale Composite Solutions Ltd is leading the consortium of eight companies - BASF, Bangor University, Cambridge Nanomaterials Technologies, Dunbia, Fre-Energy, Parkside Flexibles, and Wells Plastics - to develop the next generation of high barrier films for food packaging using functionalised nanomaterials ("HiBarFilm2 Consortium").

Project Description

The HiBarFilm2 Consortium will build on the success seen in our feasibility study project (HiBarFilm) and continue the development of high barrier monolayer films for food packaging applications. Multilayer flexible films, used commonly at high volumes in food and medical packaging, are one of the most challenging plastic products to recycle, these materials represent nearly a quarter of the consumer packaging, yet only 6% is currently recycled (WRAP). These thin films are typically between three to twelve layers of different plastics adhere together, often meaning they are not economical to recycled or if recycled, can affect the quality of waste streams due to the mix of materials, consequently these materials are commonly incinerated or sent to landfill. Multilayer flexible films are currently a necessity in the food industry. Food production is an energy and resource intensive industry, to which plastic packaging has the potential to achieve a net positive environment impact by reducing food waste and increasing shelf-life. The combination of these multiple polymer layers is what provides the barrier performance – increasing the shelf life of products by controlling the transmission rate of oxygen and water, it is also responsible of the packaging's physical and mechanical performance, such as puncture and tear resistance and heat sealability. There remains fine balance between the use of these often challenging to recycle, multi-layered single use plastics and an increase in food waste.

Project Objectives

HiBarFilm2 has an ambitious objective to achieve the same barrier performance using a mono-materials polyolefin film as the currently used multilayer barrier films. The consortium aims to accomplish this using plasma functionalised nanomaterials to increase barrier performance in two main areas of focus; firstly by mixing the nanomaterials directly into the polyolefin prior to filming, adding barrier properties to the film itself – both polyolefin films and compostable plastics will be used to also address the issue with contamination of films with food waste such as fats and blood; and secondly, by dispersing the nanomaterials into a barrier coating which can be applied to the polyolefin substrate. The advantage being the two solutions can be combined to increase the barrier performance further. By manufacturing mono-material flexible films the recyclability of these materials will increase, and value will be added nanomaterials.

Project Partners



Haydale Composite Solutions Ltd
www.haydale.com



BASF
www.basf.com/gb/en.html



Fre-Energy
www.fre-energy.co.uk



Bangor University
www.bc.bangor.ac.uk
www.bangor.ac.uk



Parkside Flexibles
www.parksideflex.com



Cambridge Nanomaterials Technologies Ltd.
www.cnt-ltd.co.uk



Wells Plastics
<https://wellsplastics.com>



Dunbia
<https://dunbia.com>