

Raising the Bar in Plastic Food Packaging

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Haydale, the global advanced materials group, is pleased to announce that it has been awarded funding of £168,573 to develop high barrier monolayer films for food packaging by Innovate UK, the UK's innovation agency.

[Haydale Composite Solutions Ltd](#), will lead the consortium of nine companies – [BASF](#), [Bangor University](#), [Cambridge Nanomaterials Technologies](#), [Dunbia](#), [Fre-Energy](#), [Parkside Flexibles](#), [Recycling Technologies](#), and [Wells Plastics](#) – to develop the next generation of high barrier films for food packaging using functionalised nanomaterials (“HiBarFilm2 Project”). The HiBarFilm2 Project is due to start in March 2022 and is expected to run for 30 months. It follows the success of the HiBarFilm feasibility study where functionalised nanomaterials were shown to influence barrier performance in films.

While the currently used multilayer flexible films increase the shelf life of products, the biggest challenge faced to date is their recyclability. Often made up of between three and twelve layers of different plastics, they are difficult to recycle and affect the quality and value of the recycle streams. Consequently, they are commonly incinerated or end up in landfill.

The HiBarFilm2 Project will exploit the impermeable properties of pure graphene and other advanced materials using Haydale's patented HDPlas® functionalisation process to either increase the hydrophobicity of the materials to improve moisture repellence or improve the interaction between the nanomaterial and host resin to promote improved cohesion and barrier performance.

The funded project will focus on using HDPlas® functionalised barrier additives in two main areas: firstly, by mixing the additives directly into the plastic prior to filming, and secondly, by dispersing the additives into a barrier coating that can be applied to the plastic substrates.

Both polyolefin films and compostable plastics will be used with the two solutions being combined to increase the barrier performance further and not affect the recyclability. The application will also address the issue with contamination of films with food waste such as fats and blood by providing a compostable plastics solution.

The aim of the HiBarFilm2 project is to enable the redesign of multilayer flexible films into 100% recyclable and compostable mono-material solutions for the food industry.

Keith Broadbent, CEO at Haydale, commented; “Previous work as part of the HiBarFilm feasibility study demonstrated that Haydale’s plasma functionalised nanomaterials can be used to influence barrier performance in films. We are pleased to be leading the next stage project to further develop nanomaterial-enhanced coatings that will be a first in food contact applications, which could change the face of food packaging for the future and offer sustainable consumer solutions.”

Read the [original article](#) on Haydale Graphene Industries.