

## Results of competition:

### Sustainable high-value chemical manufacture through industrial biotechnology 2 - CRD

**Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.**

**Total available funding for this competition was £1.25m from Biotechnology and Biological Sciences Research Council, Innovation Norway and the Technology Strategy Board.**

Participant organisation names	Project title	Proposed project costs	Proposed project grant
<b>Chemoxy International Limited (lead)</b> Becker Industrial Coatings Limited Biocatalysts Limited CPI University of Northumbria	Green Synthesis of Dibasic Acids using Biocatalysis 2	£707,295	£410,400
<b>Project description - provided by applicants</b>			
<p>This project is designed to manufacture a useful class of organic chemicals, used in paint formulations, starting with a waste by-product from the chemical industry and transforming it to the desired material by use of biocatalysis. The current chemical route employs caustic soda and sulphuric acid, and as well as producing the desired product, also co-produces a large amount of waste. The biocatalytic route is very materials-efficient and also much more energy-efficient.</p> <p>The project brings together the University of Northumbria, an acknowledged centre of excellence in Biotransformations; Biocatalysts Ltd, a well-established manufacturer of biocatalysts for industrial use; CPI, a UK based technology innovation centre and part of the High Value Manufacturing Catapult providing open access facilities for the development and scale-up of biotechnology based processes; Beckers, a multinational Paint Manufacturer, who specialise in Coil Coatings and Chemoxy International Ltd, a medium sized UK chemical company who currently manufactures a range of eco-friendly solvents for use in surface coatings applications.</p>			

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<b>Green Biologics Limited (lead)</b> Borregaard AS Limited Lucite International Limited	Integrated process technology for renewable chemical production	£1,006,926	£298,634
<b>Project description - provided by applicants</b>			
<p>The key challenge in this project is to demonstrate a fermentation process to produce biobutanol that can compete on price and quality with the incumbent petrochemical equivalent. Not only do we want to compete economically, we also want to demonstrate technology that can be deployed in the EU and North America using cellulosic feedstocks that are readily available (sustainable) and do not impact on food supply.</p> <p>The resulting biobutanol will have significant environmental and resource benefits. We aim to do this by integrating advanced, proven and innovative process technology to convert cellulosic feedstocks to sugar and then fermenting the sugar to biobutanol using technology developed by Borregaard and Green Biologics Ltd., respectively. Lucite will validate biobutanol for a chemical applications. The deliverables include a demonstration at pilot scale of the technical feasibility, modelling to determine the economic feasibility at commercial scale and full product life cycle assessment of primary energy savings and greenhouse gas emissions reductions.</p>			

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<b>Solvert Ltd (lead)</b> SITA UK Limited Centre for Process Innovation Limited	Project Willow - Production and application testing of n-butyl esters using waste as a feedstock	£999,139	£713,295
<b>Project description - provided by applicants</b>			
<p>Biomass found in the waste supply chain is one of the UK's largest indigenous unexploited sources of raw material upon which new industries and technologies can be developed. This project takes waste biomass from a UK waste transfer station and, through a combination of physical, thermal, biological and chemical processes, transforms it into high value chemicals that we rely on everyday e.g. plastics, paints, clothing.</p> <p>The data generated in this project will form the basis of the first commercial facility, planned in the UK for 2016. This project brings together leading blue chip companies from the waste and chemicals sectors and forms a unique supply chain that could put the UK at the front of the race to establish commercial scale high value renewable chemical production.</p>			