



Developing a new polymer to support new applications

The Challenge

TechnipFMC approached Northumbria University to help develop next generation polymers to be used in challenging subsea environments. Subsea umbilical hoses provide critical connections between surface platforms or vessels and an oil or gas field. Umbilicals operate in demanding conditions and must perform to exacting standards. Therefore, the solution had to be operational in varying and extreme temperatures and pressures; outside the current operational constraints and surpass the existing product specification.

Solution

Through the KTP, Chinyere Okolo, MSc Subsea Engineering and Management, was appointed as the KTP Associate, working with the R&D team at TechnipFMC. Chinyere was supported by academic experts from Northumbria University. A new polymer was developed with improved performance, through a structured investigative and analytical process involving the selection of candidate materials and nano-fillers. The team observed overall improvements to mechanical properties. Work also included identifying the technical implications of using newly developed materials on existing manufacturing infrastructure. Economic analysis showed there was viability for potential investment and little or no impact was observed in integrating suppliers into the current supply chain.

Impact

The impact of this KTP was supporting TechnipFMC to develop a new, high performance product. Manufacturing, supply chain and market requirements were evaluated and addressed in preparation for commercial development. Positively, the TechnipFMC R&D team now have a more in-depth knowledge of nanomaterials and access to a 'knowledge bank' produced during the KTP which can feed into future product developments. The academic team at Northumbria University have an improved understanding of polymer manufacture providing clear evidence that knowledge was indeed transferred.

Knowledge gained by TechnipFMC through this KTP has enabled the business to develop a number of other research programmes. These are examining the wider impact of nanomaterials in the company's other products. This project has also helped to increase TechnipFMC's understanding of the benefits of the KTP model and working with universities to develop ground-breaking new technologies.

Organisation Overview

TechnipFMC

TechnipFMC is a global leader in subsea, onshore, offshore, and surface technologies. With 37,000 staff and a presence in 48 countries around the world, the company's vision is to enhance the performance of the world's energy industry.

www.technipfmc.com



TechnipFMC

'The KTP has enabled the business to develop a cutting edge technology and knowhow with a very strong academic partner. The technologies developed and knowledge capital gained shows great promise and through further research, as part of a PhD partnership with the university, will provide clear technological differentiation against several global competitors.'

Dr Alan Dobson, Senior Manager R&D and Technology, TechnipFMC.



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