

Case Study

Knowledge Transfer Partnership: Brownell Ltd



Key Facts

- Brownell Ltd develops and manufactures products that prevent and protect against the effects of condensation, humidity and pressure.
- Knowledge Transfer Partnerships is a government scheme to encourage the transfer of expertise between Higher Educational Institutes and research organisations, businesses, charities and other organisations.
- Brownell sought to design and develop humidity control and moisture protection products for the electronic and electrical system sector.
- Howard Colquhoun, Professor of Materials Chemistry in the Department of Chemistry at the University of Reading, acted as the academic supervisor on the KTP, with cross-faculty interaction from Dr Wayne Hayes, Reader in Polymer Chemistry and Geoffrey Mitchell, Professor of Polymer Physics.
- The KTP resulted in the development of a new type of polymer based desiccant – Versatile Moisture Adsorbent Polymer (VMAP) – which can be moulded and machined into complex shapes and readily absorbs moisture, odours and organic volatiles.

The Partner

Brownell Ltd develops and manufactures products that prevent and protect against the effects of condensation, humidity and pressure. Products including desiccators, humidity indicators, pressure relief valves and a range of dry gas purge systems that prevent moisture and atmospheric related problems in electronic optic packaging containers and other commercial applications.

With over 40 years' experience Brownell are committed to the research and development of new technologies and design concepts. Brownell's wide range of equipment, including testing facilities, allows it to work together with customers to design bespoke solutions for their moisture control problems.

The Challenge

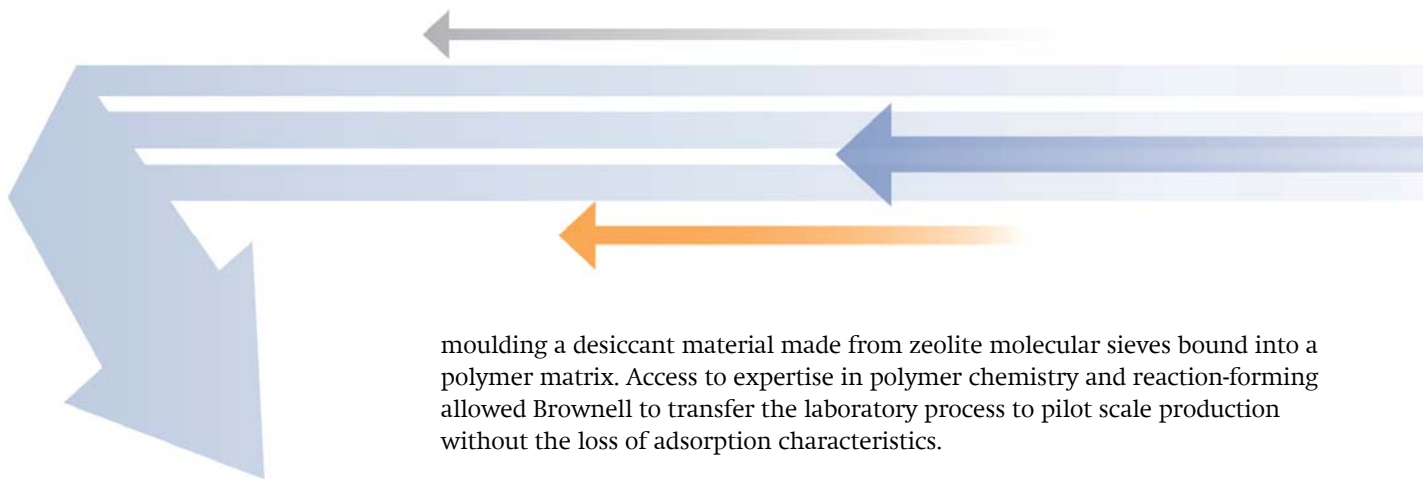
Brownell had identified a need to expand their product range and to enable it to exploit opportunities for humidity control and moisture protection of electronic and electrical systems. Brownell sought to develop a novel class of mouldable, polymer-based desiccant materials to complement its existing range of products.

The polymer desiccant market was dominated by a patented composite, three component system. Brownell wished to develop a new technology in which structural and functional (water transmissive) characteristics were combined in a single material. Although it had considerable in-house knowledge Brownell, a small industrial enterprise, required access to expertise in polymer science.

Solution

Knowledge Transfer Partnerships is a government scheme to encourage the transfer of expertise between Higher Educational Institutions and research organisations and businesses, charities and other organisations through employing an Associate to work on a strategic business challenge under the guidance of University experts. KTP is funded by the Technology Strategy Board along with other government funding organisations.

The University of Reading has research expertise in polymer and materials science and the application to a range of manufacturing sectors, drawing from across the disciplines of Chemistry and Physics. Together with Brownell, Professor Colquhoun and colleagues devised a work programme to develop a new technology. The Associate developed a laboratory process for reaction



moulding a desiccant material made from zeolite molecular sieves bound into a polymer matrix. Access to expertise in polymer chemistry and reaction-forming allowed Brownell to transfer the laboratory process to pilot scale production without the loss of adsorption characteristics.

Benefits to the Partner

The collaboration has resulted in new polymer-based desiccant technology, offering a practical, cost effective solution to moisture control in many industrial applications.

GB patent applications have been filed and considerable interest in the new technology has been received; a projected 10-20% increase in sales turnover is expected when products are launched.

The project has expanded Brownell's knowledge and expertise in polymer science and has provided Brownell with the potential to exploit new markets and business opportunities through new technology.



'The results of this project have produced a novel product with new global business opportunities, offering significant growth prospects for our company.'

Martin Partridge
Managing Director, Brownell Ltd

Benefits to the University

Academics involved in the KTP have benefited from invaluable industrial experience and gained new knowledge of polymer-zeolite composites and their development.

New inter-faculty collaborations were established between departments of the University.

Further collaborations exist between the University and Brownell. Currently (2010) a project, funded by The "Knowledge Transfer Challenge" Award, aims to take the mouldable desiccant material (the outcome of the KTP) to market.

Benefits to the Associate

As a result of the success of the KTP project the Associate has developed his technical knowledge, enhanced project management and leadership skills and gained Chartered Manager status.

University of Reading

The University of Reading is a world-class research-intensive university covering a broad spectrum of disciplines across the Life and Physical Sciences, Arts and Humanities, Social Sciences and Henley Business School. Areas of particular strength include: Climate Systems Science, Preventative and Therapeutic Health Sciences, Sustainable Construction and Environments and Computational Science and Informatics.

The University works with businesses providing support for research and development, as well as access to expertise and equipment to solve business challenges. To find out how you can access the leading minds at the University of Reading please contact our Knowledge Transfer Centre.