



Technology Transfer Opportunity

Methods for Producing Polyhydroxyalkanoate (PHA)

OPPORTUNITY:

Methods for producing polyhydroxyalkanoate (PHA).

Description of Technology:

A new platform technology has been developed for recycling petrochemical plastic waste material with the production of valuable PHA polymers that have a broad range of applications and which are completely biodegradable. This platform technology makes use of unique bacteria that have been isolated from soil.

A range of different petrochemical plastic waste materials has been tested to date including:

- A plastic produced on a multi-million scale worldwide and best known for its use in plastic bottles and
- Mixed plastic typical of domestic plastic.

Value Proposition:

Petrochemical plastics are an integral part of modern life. Their lightweight nature combined with strength, barrier properties and resistance to degradation make them ideal candidates for packaging amongst many other uses. Their use in packaging results in a short time period between production and waste generation.

Current plastic recycling technologies generate a material that is inferior and more expensive than the virgin plastic, resulting in a small market for the recycled product and poor uptake of these technologies. However, increasing environmental pressures require new solutions for plastic waste management.

PHA is an emerging polymer which has potential uses in both biomedical and packaging applications. Currently PHA products are produced by microorganisms

from a variety of carbon sources but the price of the carbon substrate restricts the market competitiveness as compared to standard petrochemical polymers. This new technology has the potential to significantly reduce costs associated with the production of PHA.

Therefore this new technology platform has clear commercial and environmental advantages in that there is potential to:

- Prevent significant amounts of waste to going to landfill
- Produce a cost-effective, valuable biodegradable product (PHA) that has potential in packaging and medicine.

Market:

Waste Recycling, Environmental, New Materials, Energy.

Inventors:

Dr Kevin O'Connor, UCD School of Biomolecular and Biomedical Science.

Status:

Patent application at PCT stage, US national patent application

Opportunity Sought:

Available for collaborative opportunities.

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