

TECH OFFER

Sustainable Bioplastics Produced from Organic Waste



KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Circular Economy

Materials - Plastics & Elastomers

Waste Management & Recycling - Food & Agriculture

Waste Management

TECHNOLOGY READINESS LEVEL (TRL): TRL6

COUNTRY: BRAZIL

ID NUMBER: TO174825

OVERVIEW

Bioplastics have gained significant attention due to the environmental issues of fossil-based plastics and the realisation of limited petroleum resources. On the other side, industrial and agricultural organic wastes are produced in huge quantities worldwide, resulting in serious environmental and economic impacts.

To solve the above problems, the technology owner has developed a 100% natural biotechnological process to convert industrial and agricultural organic waste into bioplastics. Bioplastics are fully biodegradable and biocompatible, with no harm to humans and environment. These bioplastics are applicable to industrial plastic processes and potentially replace conventional plastics in short lifespan applications. The use of industrial and agricultural waste as cheaper sources not only makes the production process more economic but also helps in the management of organic waste, contributing to the goal of a circular economy.

This technology is available for IP licensing and R&D collaboration with industrial partners who are interested in the sustainable production of bioplastics using organic waste.

TECHNOLOGY FEATURES & SPECIFICATIONS

The bioplastics produced entirely from renewable resources can replace conventional fossil-based plastics in short lifespan applications.

The features of this technology are as follows:

- Produced from industrial and agricultural organic waste
- 100% biodegradable in a natural environment (in 6 to 12 months)
- Excellent biocompatibility with no harm to humans and environment
- Improved mechanical properties by in-house modifications
- Customised formulations to meet different requirements (BioPE, BioPET, etc.)
- Up to 5 years lifespan (depending on the circumstances)
- Adaptable to existing plastic processes without additional equipment

POTENTIAL APPLICATIONS

The bioplastics produced using this technology can potentially substitute almost all major plastics in single-use products and short lifespan applications. The potential applications are as follows:

- Rigid and flexible packaging: food containers, bottles, boxes, bags, films
- Disposable utensils: straws, chopsticks, cutlery
- Households: tableware, sanitary wares, sunglasses frames, stationary items
- Sports equipment: fishing tools, surfboards, helmets
- Medical applications: sutures, scaffolds, bone plates
- Other sectors: agricultural foils, device casings, machinery housings

UNIQUE VALUE PROPOSITION

The technology offers the following unique features:

- 100% biodegradability in a nature environment
- Conversion of organic waste into bioplastics for a circular economy
- Eco-friendly alternative to conventional fossil-based plastics
- Applicable to existing plastic processes and production lines
- Scalable and cost-efficient production with organic waste as feedstock

This technology is available for IP licensing and R&D collaboration with industrial partners who are interested in the sustainable production of bioplastics using organic waste.