

TECH OFFER

Biodegradable Adhesive



KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Circular Economy

Chemicals - Polymers

Chemicals - Bio-based

Materials - Plastics & Elastomers

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**

COUNTRY: **SOUTH KOREA**

ID NUMBER: **TO174951**

OVERVIEW

Biodegradable adhesives are a class of adhesives derived from natural materials such as plant-based polymers or proteins, and they do not contain any synthetic plastics or other harmful chemicals. They are more environmentally friendly, as they do not release harmful pollutants into the environment when they break down. They are also often compostable, which means that they can be disposed of in a way that is beneficial to the environment.

This technology is a patented environmentally friendly, biodegradable adhesive that overcomes the limitations of fossil-fuel based adhesives. Made from a natural polymer and other natural materials, this bio-adhesive can exhibit 100% biodegradability within 30 days, does not contaminate the environment and can be separated by water. The adhesive can be applied onto a variety of substrates including paper, leather, foams, and wood to name a few.

The technology owner is interested in joint R&D projects with companies who require a biodegradable and sustainable adhesive solution.

TECHNOLOGY FEATURES & SPECIFICATIONS

This biodegradable adhesive technology is based on 100% natural polymers and ingredients. Some features of the adhesive are as follows:

- Exhibits biodegradation in 30 days (99% decomposition rate)
- Comprises of 90% bio-based carbon content
- Can be easily separated from the substrate by water
- Non-toxic and safe for the environment
- Good operating temperature range (-4°C to 80°C)

The adhesive technology is certified by DIN-CERTCO and received 'non-toxic' results in a plant ecological toxicity test. In addition, the fresh bio-ratio of plant compost is higher than the healthy production of plant seeds and seedlings.

POTENTIAL APPLICATIONS

Potential applications of this biodegradable adhesive include (but not limited to):

- Packaging
- Construction
- Interior furniture
- Commercial products

This technology has been validated on various substrates including wood, paper pulp, styrofoam, cotton, leather, and ceramics.

UNIQUE VALUE PROPOSITION

- Non-toxic and made from 100% natural materials
- Does not release harmful pollutants when broken down – adhesive has been certified to show no negative impact on the environment ecosystem (soil, fish, water fleas, algae)
- Uses water to separate from the substrate

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