

TECH OFFER

Specialised Polyolefin Materials for New Application Development



KEY INFORMATION

TECHNOLOGY CATEGORY:

Chemicals - Additives

Chemicals - Organic

Chemicals - Polymers

Materials - Plastics & Elastomers

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

COUNTRY: **JAPAN**

ID NUMBER: **TO175208**

OVERVIEW

The technology on offer are three types of specialised polyolefin materials that can be utilized across various industries. These materials were developed to exhibit special properties such as excellent gas and moisture properties, good releasability and ability to impart a silicone-like water and oil repellence respectively. With these superior properties, the materials are suitable to be used in the development of different applications across various sectors.

The first material is a co-polymer that combines the performance of polyolefin resins with amorphous resins. It features excellent moisture resistance, chemical resistance, and non-adhesive properties, making it ideal for use in medical packaging materials, such as press-through package (PTP) sheets that demand high moisture protection. The second material is a transparent, lightweight polymer with superior heat resistance and release properties. Its resistance to heat, chemicals, and its excellent release characteristics makes it a good alternative to polytetrafluoroethylene (PTFE) for industrial and food-related products

requiring reliable release capabilities. The third material is an additive that enhances stain resistance, providing silicone-like water and oil repellency. As a non-fluorinated alternative to per- and polyfluoroalkyl substances (PFAS), it is suitable for applications requiring waterproof and oil-repellent surfaces.

The technology owner is seeking to collaborate with partners on the co-development of innovative applications using these specialised materials:

1. Microfluid chips
2. Medical tubes
3. Filament for new synthetic fabric

TECHNOLOGY FEATURES & SPECIFICATIONS

Main features of these specialised polyolefin materials are follows:

1. Excellent moisture-proof properties, resistance to chemicals and non-attachment characteristics. Possible to be sterilised by gamma-rays and autoclave.
2. Excellent heat resistance, release property and chemical resistance
3. Exhibits superior waterproof and oil-repellent properties. Also compatible with other polyolefins

POTENTIAL APPLICATIONS

Potential applications of these materials include:

- Micro fluid chips and medical packaging (plastics with gas and moisture barrier properties)
- Medical tubing as an alternative to PTFE (plastics with excellent releasability and chemical resistance properties)
- Filaments for new synthetic fabrics such as clothing and carpets (materials requiring waterproof and oil-repellent properties)

UNIQUE VALUE PROPOSITION

- Exhibits excellent properties against conventional thermoplastic materials e.g., gas and moisture barrier properties, good release capabilities, water and oil repellency
- Acts as safe and efficient alternatives to PTFE and PFAS (compounds that are harmful to humans and the environment)