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Toyobo develops TOYOBO ESTER[®] GS, an eco-friendly packaging film

Toyobo Co. Ltd. has developed TOYOBO ESTER[®] GS, a packaging film made primarily of polyethylene terephthalate (PET) resin that is manufactured using an environmentally friendly, proprietary aluminum catalyst that does not require heavy metals. Samples of the TOYOBO ESTER[®] GS film began shipping in mid-January 2019, with full-scale production scheduled to begin around autumn this year.

PET resin, the main ingredient in TOYOBO ESTER[®] GS, is produced using the TOYOBO GS Catalyst[®], an aluminum catalyst developed by the company. Because the TOYOBO GS Catalyst[®] does not require heavy metals such as antimony that are used in conventional PET resin production, this PET resin is friendlier to the environment upon disposal. In addition, because of its superior thermal stability, the physical properties of this PET resin do not deteriorate when melted, making it suitable for recycling and reuse. PET resin made using the TOYOBO GS Catalyst[®] has been used in PET beverage bottles and backsheet films for solar batteries, but this is the first time a packaging film has been made with this technology.

Amid increasing concerns over environmental issues, Toyobo plans to use the TOYOBO GS Catalyst[®] in more of its film products to promote recycling and reduce the burden on the environment from PET film products.

■ TOYOBO ESTER[®] GS

An eco-friendly PET film for packaging made mainly of PET resin produced using the TOYOBO GS Catalyst[®]. Its functionality is equivalent to that of conventional PET films.

Shipment of samples: mid-January 2019

Start of mass production: around autumn 2019

Product line: 12 μm , 16 μm

Primary use: packaging for food and other products (medicine, sanitary products, industrial materials)



TOYOBO ESTER[®] GS

■ TOYOBO GS Catalyst[®]

The world's first aluminum catalyst that does not require heavy metals like antimony that are generally used in catalysts for polymerization reactions. This technology was independently developed by Toyobo in 2002.

Resin produced using the TOYOBO GS Catalyst[®] is friendlier to the environment and highly recyclable. Its main characteristics are as follows:

- 1) High transparency



PET resin produced using the TOYOBO GS Catalyst[®] (left, front)

2) Excellent thermal stability, resists physical deterioration when melted

3) Can be processed similarly to conventional PET resins

This technology has been used to make PET beverage bottles, Toyobo's SHINEBEAMS®, a backsheet film for solar batteries; and DuPont™ APEXA®, a line of biodegradable polymers Toyobo manufactures for DuPont. In 2017, Toyobo licensed polymerization technology and patents to Thailand's Indorama Ventures Public Company Ltd., the world's largest PET resin manufacturer.

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