INGEO™ EXTEND

An exceptional solution offering unprecedented manufacturing efficiency and faster biodegradability of BOPLA films

Ingeo™ Extend is NatureWorks' newest platform of advanced PLA polymers, enabling biaxial film manufacturers to:

- **Achieve up to 7x transverse direction stretch**
- **Utilize high efficiency equipment typically used for BOPP to manufacture BOPLA**
- **Accelerate compostability—up to 8x faster than standard PLA**

Designed for enhanced productivity and faster biodegradation, Ingeo Extend supports scalable, sustainable film solutions for a wide range of applications.

ingeo™
by NatureWorks

INTRODUCING INGEO™ 4950D

The first grade in this platform, is a new PLA polymer by NatureWorks that increases the production efficiency of BOPLA films and lowers their production costs. It also allows for a stretch ratio of up to 7x in the transverse direction (TD) and can be used as an adjunct with other Ingeo PLA grades to more economically produce films on production equipment normally suited for the manufacturing of BOPP.

Oriented film producers and brand owners alike can utilize Ingeo Extend 4950D to reduce BOPLA production costs. In addition, biaxial films made with Ingeo Extend 4950D break down at a faster rate relative to unmodified Ingeo PLA, depending on the amount incorporated in the PLA blend. Sealing performance is also improved, especially in coextruded film structures where Ingeo Extend 4950D is added in the sealing layers up to 15%. New BOPLA films made with Ingeo Extend 4950D have high heat resistance up to 130 - 140C, excellent clarity, and good mechanical properties, including low shrinkage.

The Ingeo Extend platform technology expands the ability to create cost-effective, high performance compostable packaging perfect for items that carry food residue and are difficult to recycle and to achieve recyclability at scale, such as condiment packets, snack and candy packaging, salad bags, and lidding for creamer containers, coffee pods, sauce dippers, and more.

And, by using Ingeo PLA instead of fossil-based plastics, companies can reduce the carbon footprint of packaging by an average of 73%. Compostable packaging also enables food waste diversion, helping to reduce methane emissions from landfills and produce nutrient-rich compost that supports healthy soils and carbon sequestration.

TYPICAL MATERIAL PROPERTIES		
Physical Property	Ingeo Resin	ASTM Method
Specific Gravity, g/cc	1.24	D792
Glass Transition Temperature, °C	45-48	D3418
Relative Viscosity	2.6 - 2.85	NatureWorks Method

NATUREWORKS AND BRÜCKNER FURTHER IMPROVE BOPLA

Anticipating legislative trends, NatureWorks and Brückner have joined forces to expand the applications of BOPLA films using NatureWorks' new Ingeo™ PLA grades. Through extensive trials on Brückner's KARO® 5.0 laboratory stretching frame and pilot line, the collaboration successfully improved BOPLA film production efficiency—removing key obstacles in biax film processing. The partnership marks a major step in innovative, high-performance sustainable materials.

Brückner Maschinenbau News–
New drive for biomaterials processing.

NatureWorks' headquarters and advanced biopolymers research and development facility is located in Plymouth, MN. The full portfolio of Ingeo™ biopolymers are manufactured at a 150,000 MT/yr production facility in Blair, NE with a new 75,000 MT/yr fully integrated manufacturing complex under construction in Thailand, expected to be completed in 2026.

NatureWorks is jointly owned by PTT Global Chemical and Cargill.

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