Biobased and Compostable Films for Flexible Packaging

The Future of Bioplastics

25th June, 2026

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Northern Technologies International Corp. (NTIC)

1970
FOUNDED
55+ years operating

NTI
NASDAQ
250 global employees

$175M+
GLOBAL REVENUE
Low debt balance sheet

65
COUNTRIES SERVED
15 JVs • 11 subsidiaries

NatureTec®

A division of NTIC — global biopolymer specialists with deep expertise in reactive extrusion of compostable polyesters.

R&D and QC

Labs in USA, India, China — HQ in Circle Pines, MN

Compounding

China 3,500 mta • India scaling to 4,070 mta • USA 1,500 mta planned 2026

Conversion

Global film extrusion, coating, thermoforming & injection mold partners

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Natur-Tec® Bioplastic Solutions

Natur-Tec ® Biopolymer Compounds

- Certified Compostable
- Biobased – Made from plants
- Engineered for high performance

Natur-Bag® Zero Waste Solutions

- Liners/ Shopper bags
- Gloves

Natur-Tec® Packaging Solutions

- Sealant, barrier and convertor grade films
- Oriented films
- Barrier Laminates for food packaging

Circule® Apparel Packaging Solutions

- Garment flat pack dust covers
- Garment hangers and clips

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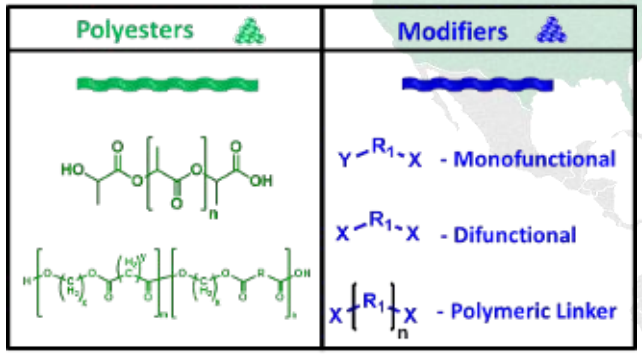
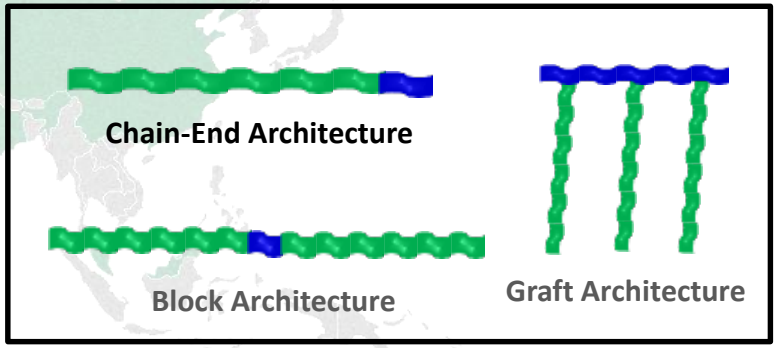
Natur-Tec's Value Proposition

Natur-Tec is materials agnostic having strong partnerships with global material suppliers





Expertise in Tunable Compostable Polyester Properties *via* REX

Precision Building of Block Copolymer Architecture

Reactive Extrusion as Core Strength

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Natur-Tec® Biopolymer Compound Portfolio

Global partnerships with material suppliers, manufacturing sub-contractors, and brands

Natur-Tec® 7000 Series | Film Extrusion

- Bags
- Blown Film Sheeting
- BiAx Oriented Film
- Frozen Packaging Film

Natur-Tec® 3000 Series | Injection Molding

- Cutlery
- Horticulture Pots, Clips

Natur-Tec® 5000 Series | Thermoforming / Profile

- Straws, Lids, Zipper
- cPLA Lids

Natur-Tec 2000® Series | Coated Paper

- Extrusion Coating Resins, Coated Paper
- Solution Coated Paper

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Global Market & System Drivers

Waste & infrastructure strain

Landfill saturation and low recovery rates for flexible, food-soiled packaging push organics diversion – Composting

Persistent plastics

Microplastics contaminate soils, oceans, and food chains.

EPR & market pressure

Producer-responsibility costs plus corporate 2025–2030 recyclable/compostable pledges.

Food application pull

Curbside organics liners, food-contaminated packs

KEY TAKEAWAY Compostability is a targeted, complementary recovery pathway — strongest for food-contaminated packaging

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Natur-Tec Film Converting Capabilities

- Rolls on 3” or 6” cores
- **Thickness:** Upto 100 µm
- **Width:** up to 1200 mm
- CF Sheeting, Tube, Single sheeting
- **Color: C**lear and Green
- Treated for excellent printability or adhesion in lamination (dyne level >40)
- Dynamic COF ~ 0.25-0.34

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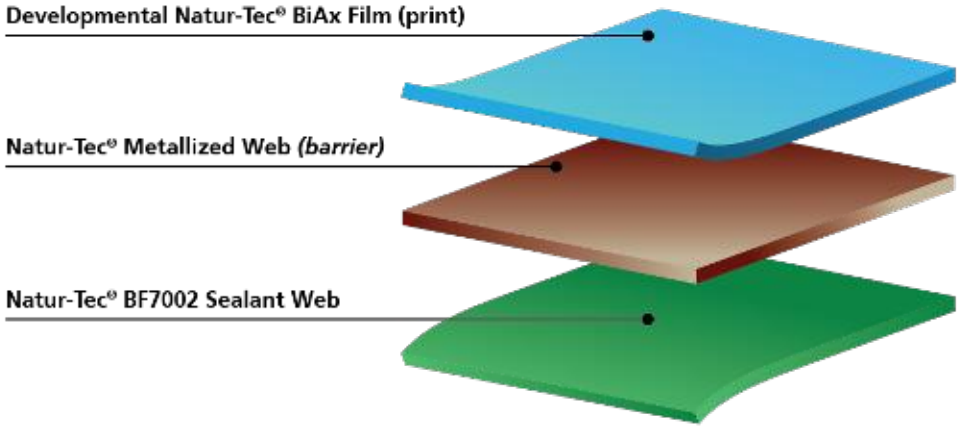
Natur-Tec BF700Z Films For Packaging

- **BF700Z family of Films**
  - BF7002 Films for Lamination
  - BF7003 Clear convertor grade films
  - IXF7008 Metallization Barrier Film
  - BF7006 Compostable Milk Packaging Film
  - XF7300 & XF7301 Improved sealant webs
- **XF7017** Frozen food packaging film
- **XF7013** Biaxially oriented films in development

- Food Contact approved
- Certified compostable by **BPI and TUV** for industrial compost environments



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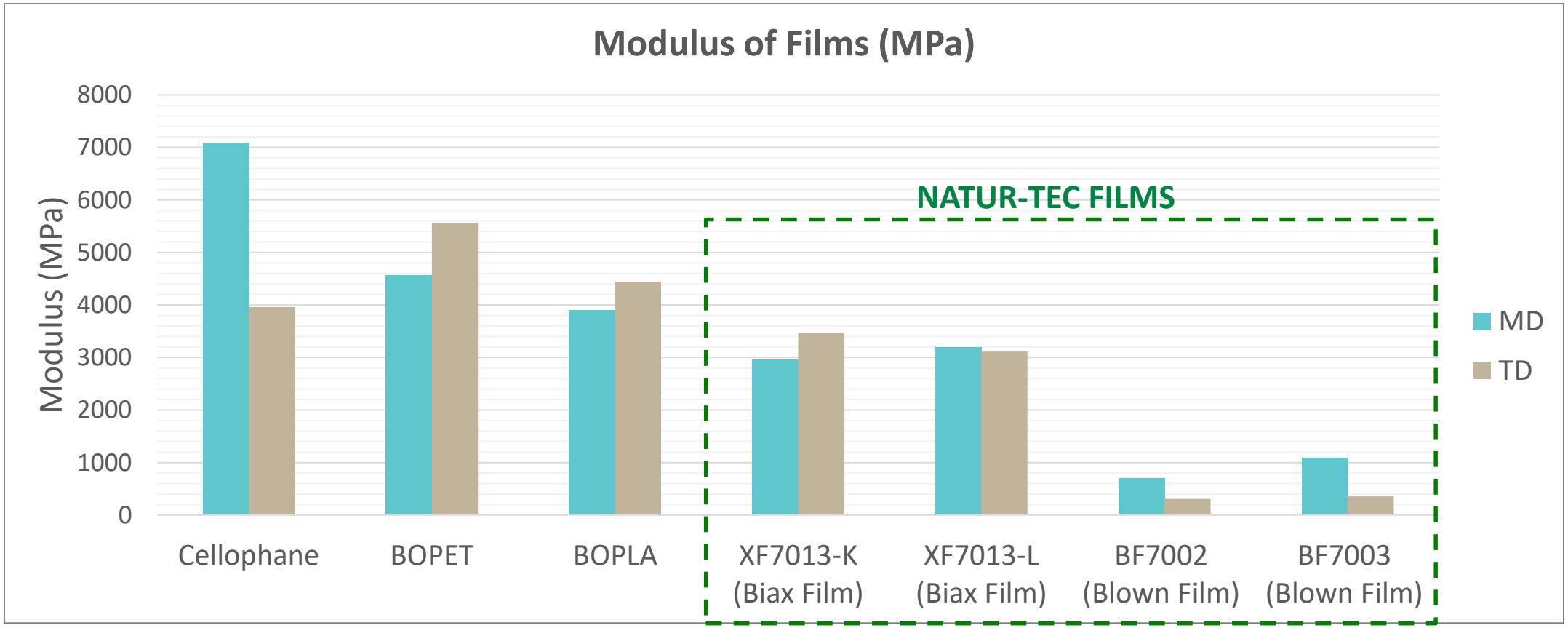
Optimized Performance of Packaging Films

Natur-Tec Films can be tailored for stiffness for better processability



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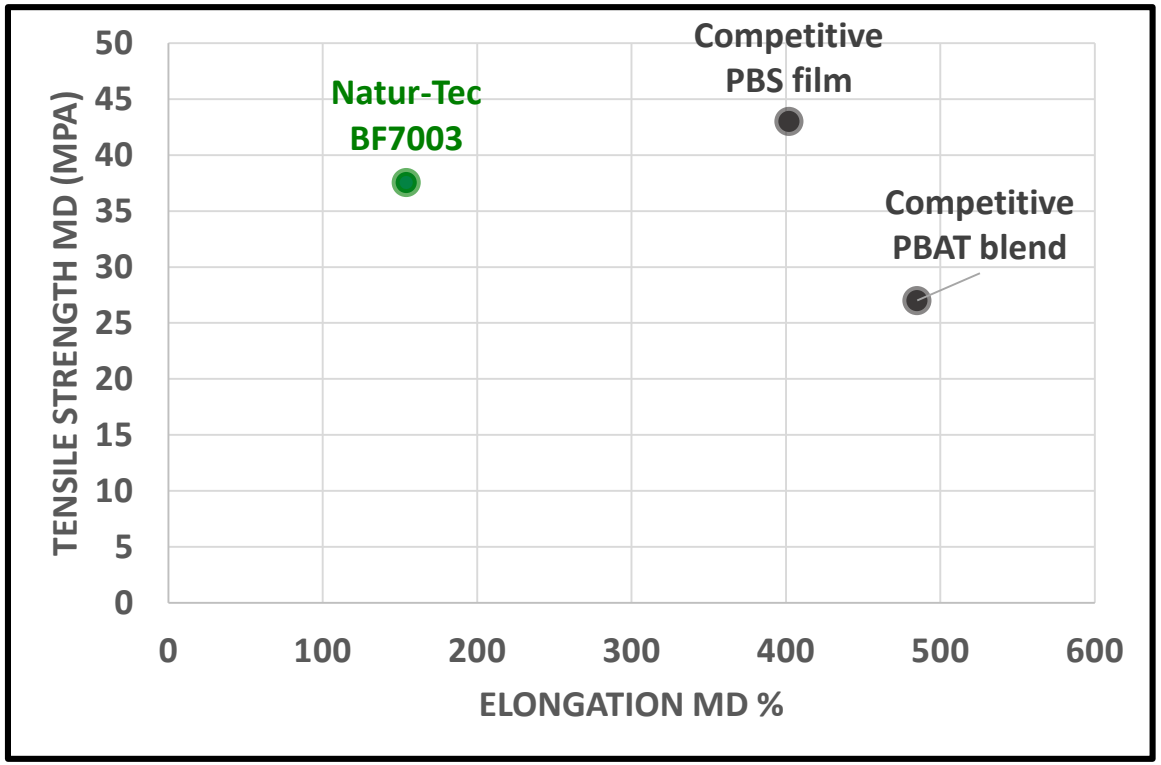
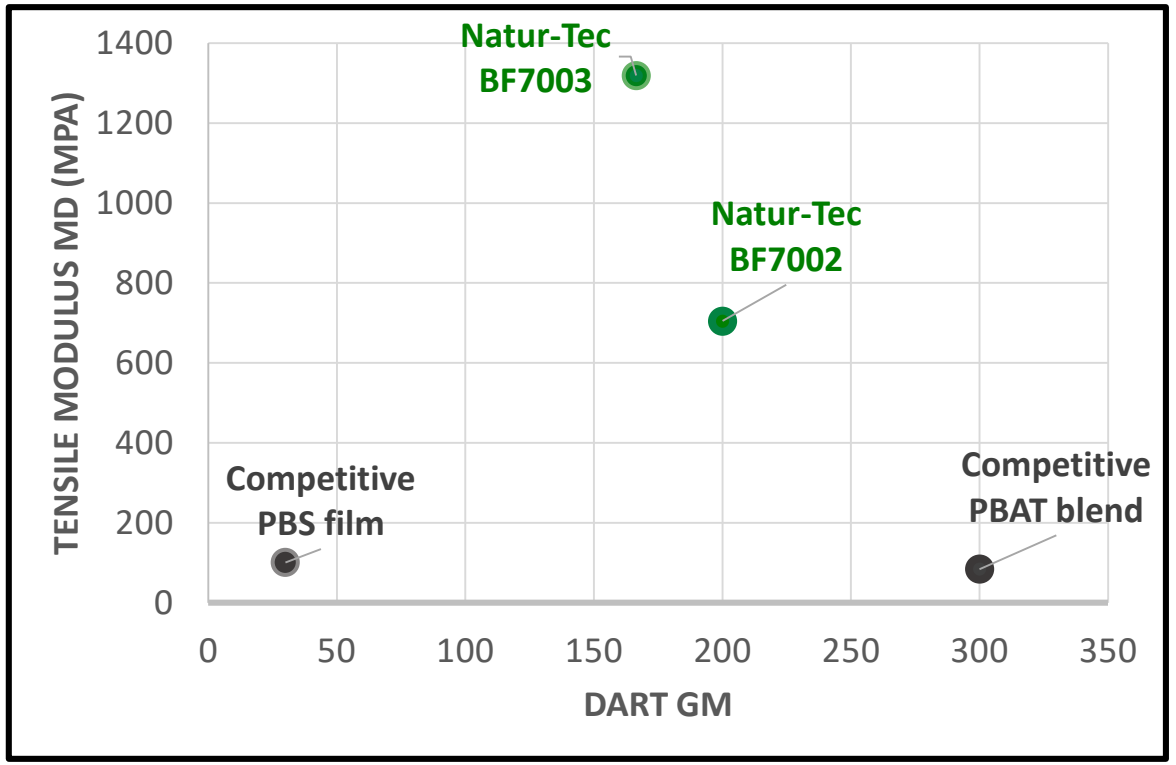
Film Performance | Mechanical Strength





Natur-Tec blown films have

- Comparable Tensile Strength as other compostable blown films
- Are less “stretchy” (elongation) with slightly more stiffness (modulus) allowing better processing on converting lines

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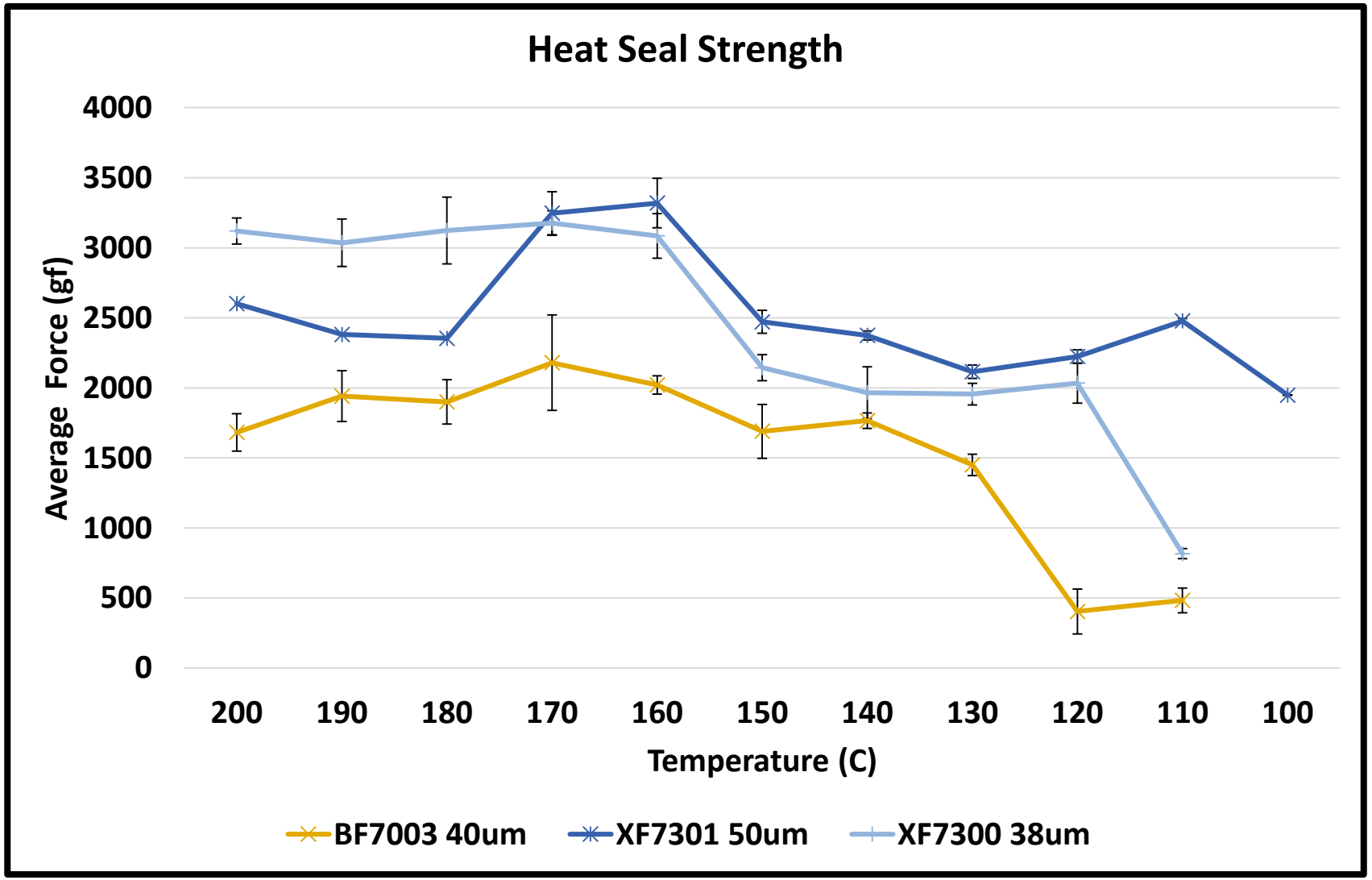
Natur-Tec Film Seal Performance

- Natur-Tec has new **multilayer film** offerings with improved seal-strength and seal-window
- Low seal initiation of <100°C with some films



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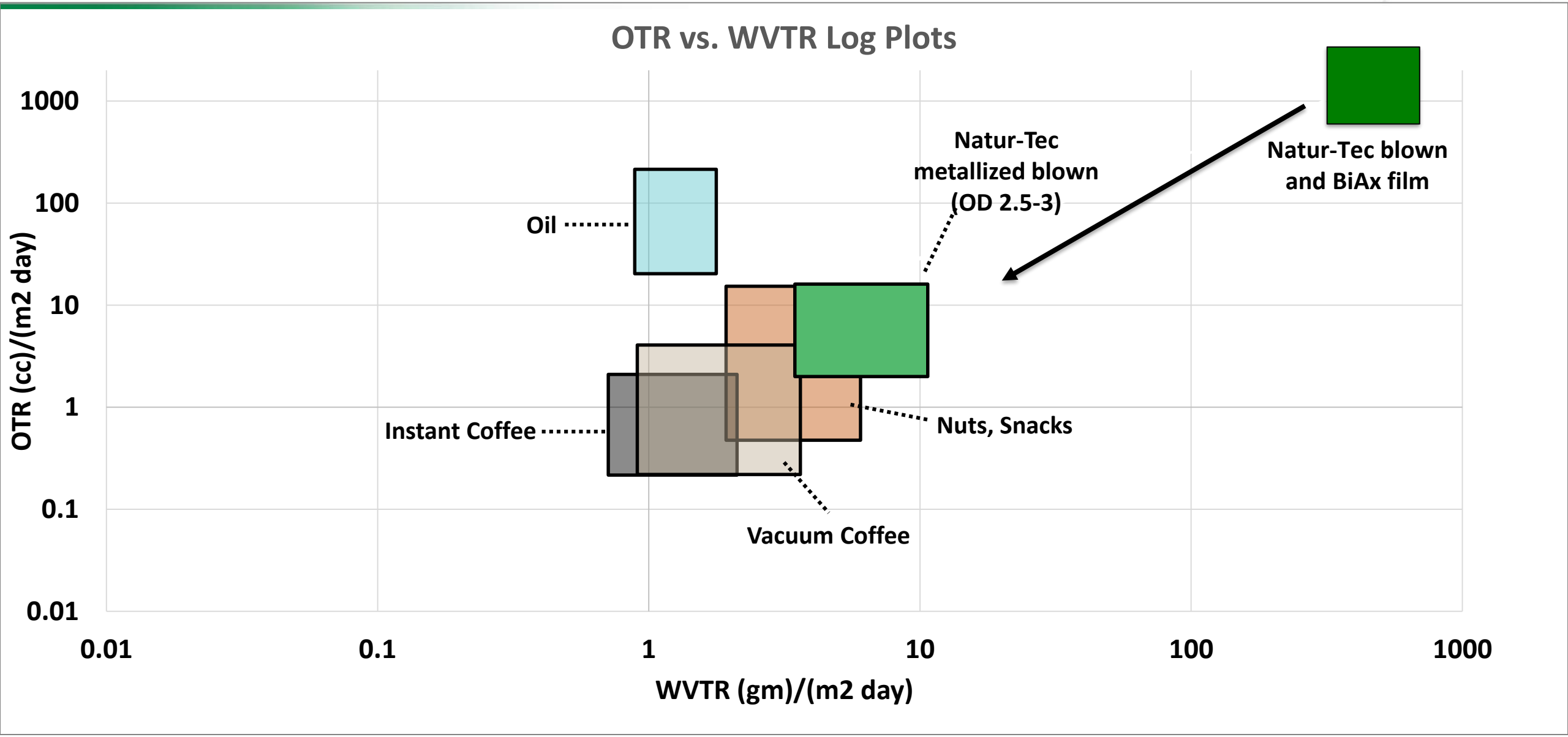
Natur-Tec Metallized IXF7008M | Barrier Performance



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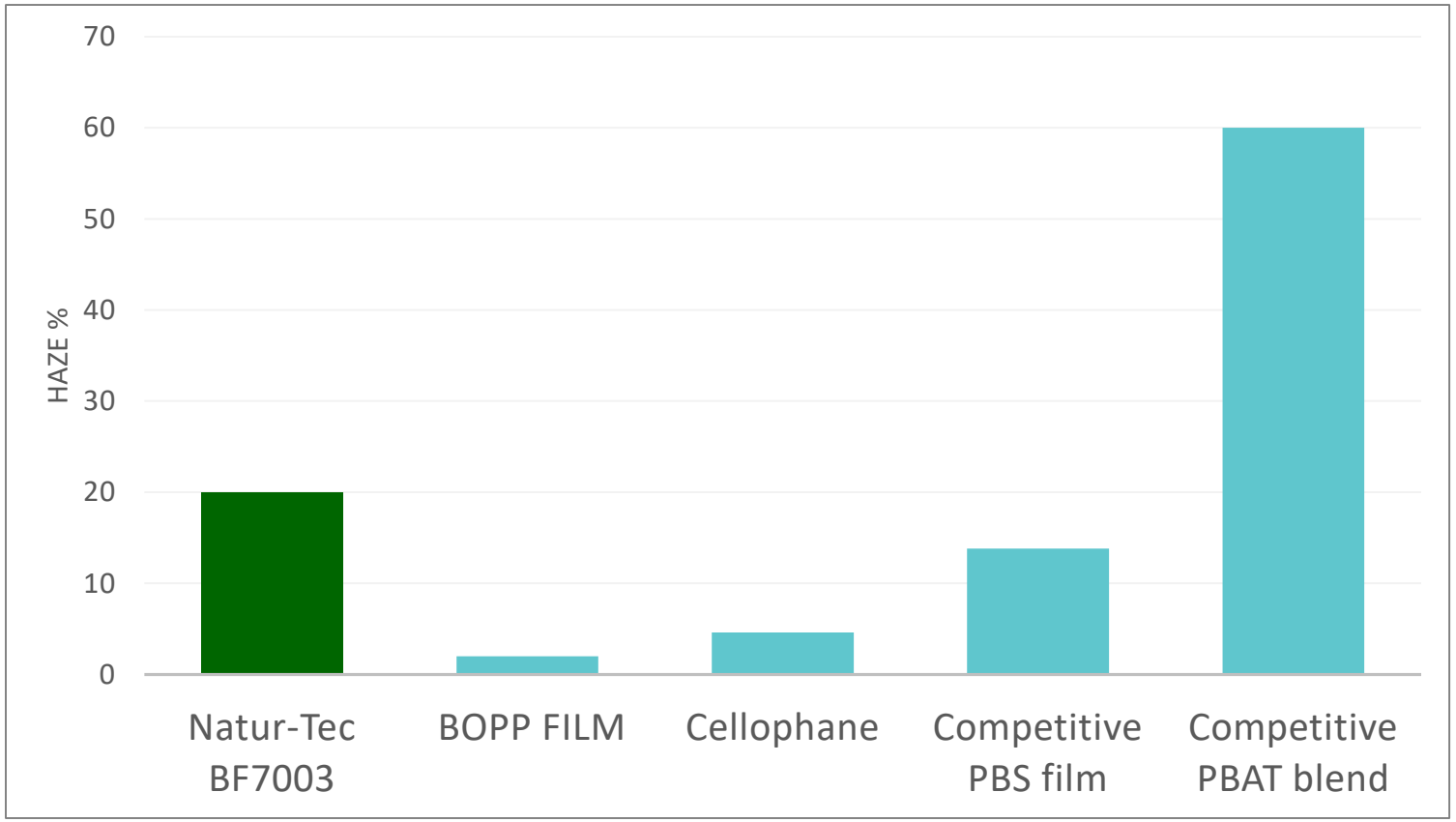
Clarity of Natur-Tec Films

Natur-Tec BF7003 is specifically engineered for better clarity



* All films are 20-25 µm (0.8-1 mil), except the PBS film which is 37.5 µm (1.5 mil)

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BF7003 Compostable Flow Wrap Film

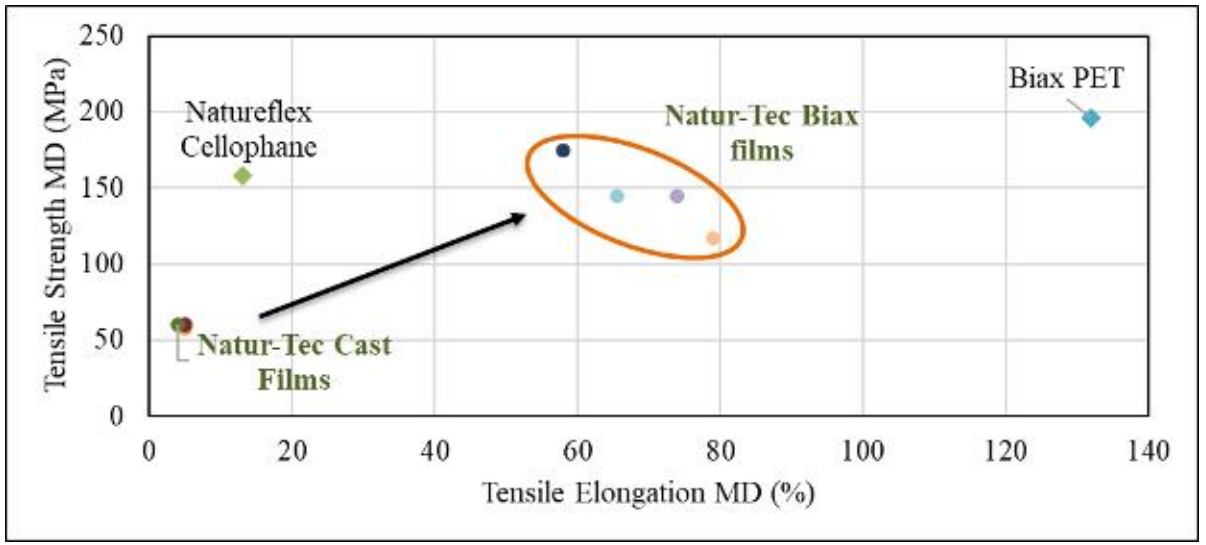
Key Features:

- Compostable flow wrap film for food and consumer goods packaging applications.
- Suitable for high-speed horizontal and vertical flow wrapping machines.
- Excellent sealability, printability, and product protection.
- Compostable alternative to conventional plastic flow wrap films.
- Complies with compostability standards (EN 13432)

Individual Paper Cup – Flow Wrap

NEW | Natur-Tec BIAX Films For Packaging | XF7013

Natur-Tec BiAx films tailored for reduced brittleness and improved strength than Cellophane



- **Biaxially oriented for improved**
  - Tensile Strength of 100+ Mpa
  - Fully crystallized for improved heat resistance and
  - <10% shrinkage in both directions

- **Engineered for improved:**
  - Flexibility and puncture resistance over cellophane
  - Processability with 25% lower modulus compared to BOPLA
  - Clarity for suitability in print applications

Pilot-scale, Brückner

Commercial-scale, Partner in India

1-meter sheeting

6.5-meter sheeting

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NEW | Natur-Tec Frozen Food Packaging Film | XF7017

Engineered for:

- Heat Sealability in VFFS
- Printability
- Tough (Survive Drop Tests)
- High Water Barrier (Prevent Freezer Burn)
- White (Not Possible to See Inside)
- Food Safe (FDA Approval and FCN)
- COF ~ 0.3

Certified compostable by BPI and TUV for industrial compost environments

BPI COMPOSTABLE
COMMERCIALLY COMPOSTABLE ONLY. FACILITIES MAY NOT EXIST IN YOUR AREA.
CERT #890984

OK compost
TÜV AUSTRIA
INDUSTRIAL
S0188

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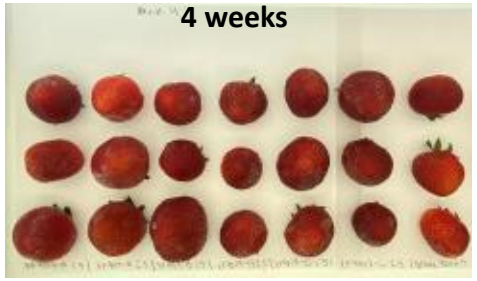
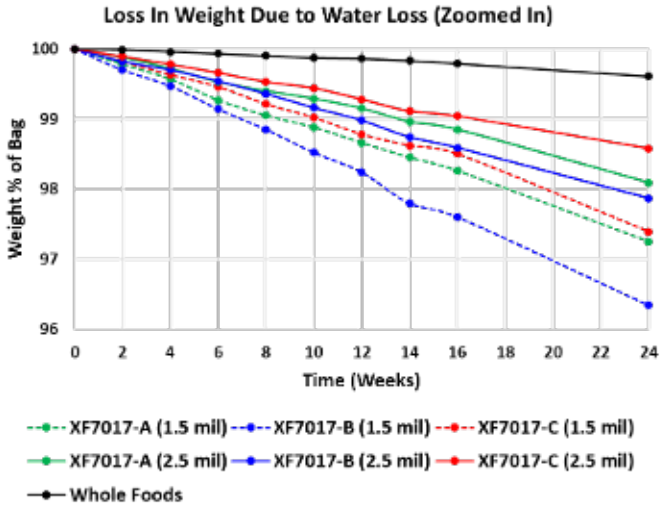
Performance | Natur-Tec Frozen Food Packaging Film, XF7017

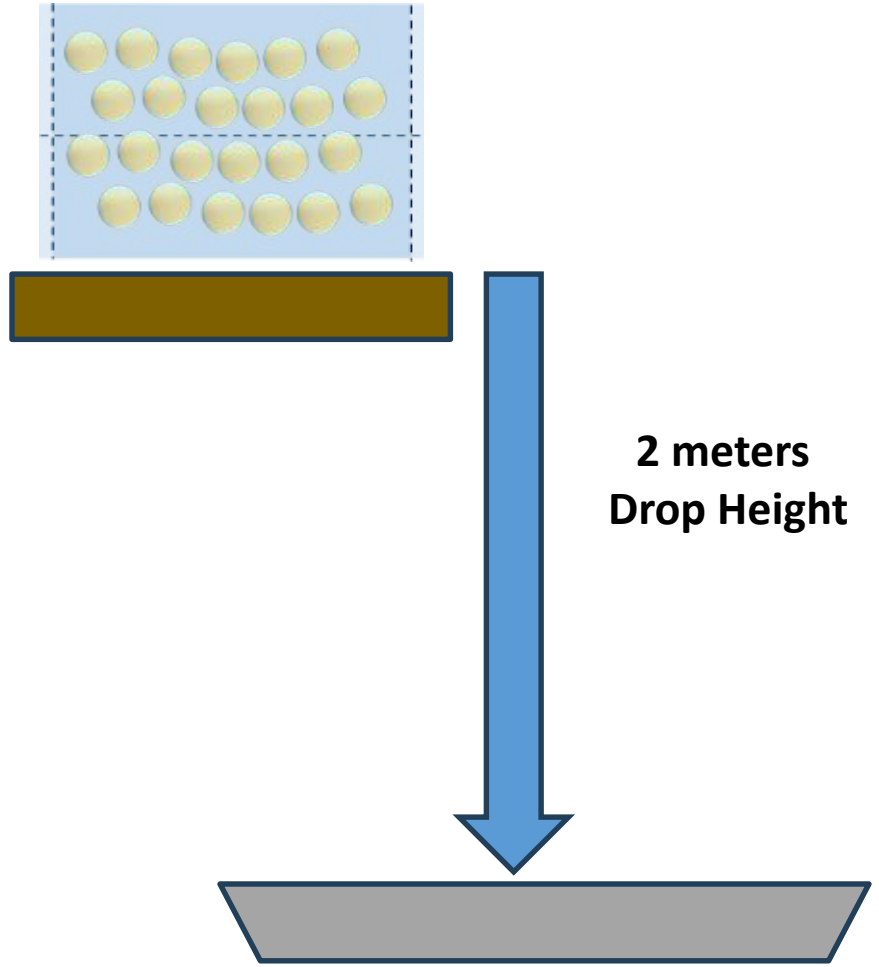
Natur-Tec XF7017 engineered for impact performance and moisture barrier

Freezer Burn Studies





Impact Strength



- **Freezer Burn:**
  - No discoloration of strawberries seen after 14 weeks
  - <3% water loss from frozen celery package made with Natur-Tec film XF7017 after 24 weeks
- **Impact Test**:
  - All bags with frozen product passed drop test from 2mt height

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NEW | CI Flexo Printing on Compostable Films

- Satisfactory printability on the compostable opaque film and transparent film.
- No print misregistration .
- Film width and repeat length were well within specification limits.
- Good ink adhesion achieved using an in-line corona booster.
- Stable web handling and dimensional performance during printing

Printing details:

- Printing type : CI Flexo Reverse, Surface Printing with 6 Colours
- Machine Speed: 150 m/min
- Ink: Toyo (Water base Ink)
- Substrate: Transparent Biax Film, White Opaque Film.

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NEW | Adhesive Lamination of Compostable Films & Substrates

- Compostable film compatible with solvent base, solvent free, adhesive lamination.
- Strong bond strength with paper, compostable metallized films, barrier films, and foil substrates.
- Stable lamination performance and bond development.
- Suitable for high-speed converting operations.
- Ideal for dry food packaging applications (nuts, dried fruits, cereals, powders, and snacks)

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Compostable Laminate Pouches & Compostable Film Bags

Stand-up Pouch

Pillow Pouch

3 Side Seal Pouch

Side Gusset Pouch

Flat Bottom Pouch

Spout Pouch

Courier Bag

Bag on roll

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The Natur-Tec® Difference

Delivering Fast, Flexible, and Scalable Innovation through reactive extrusion and offering customized films, coatings and laminate solutions backed by world-class technical service

EXPERTISE

Technology Platform

Materials agnostic with a deep biopolymer R&D foundation — reactive extrusion across PLA, PBAT, PBS, PHA and engineered blends.

FOOTPRINT

Global Footprint

Material supplier and conversion partners worldwide ensure a reliable, high-quality product from a supply chain you can trust.

INTEGRATION

Vertically Integrated

Exclusive manufacturing partnerships across extrusion, molding, coating, and packaging-film converters

PARTNERSHIP

Sales, Quality, & Technical Support

Passionate stewards of the industry backed with years of experience and know-how. Global team dedicated to supporting you grow the category of sustainability.

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Your Natur-Tec Team

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