

Milliken®
Hyperform® HPN® 909ei
 Cleaner chemistry for thermoforming applications

CASE STUDY

This Milliken performance additive for polypropylene helps thermoformers produce sparkling clear, clean yogurt cups

Derived from a clean chemistry, Milliken’s Hyperform® HPN® 909ei performance additive is used to modify homopolymer polypropylene (HPP) that can be thermoformed into clear food packaging such as yogurt cups. The resulting material is well suited for these types of food-contact applications, as it has one SML (Specific Migration Limit) less than the previous-generation product, which is critical when it comes to European Union regulations.

Additionally, products made from resin optimized with Hyperform HPN 909ei feature improved aesthetics, including reduced haze, less yellowing, and an overall cleaner look. This enables end users to replace other resins in various applications with highly recyclable polypropylene.

PP modified with Hyperform HPN 909ei offers an excellent balance of physical properties, and helps to resolve many of the production issues, including shrinkage and warpage, that occur when thermoformers use traditional nucleators. No longer do converters need to sacrifice impact strength in order to gain greater stiffness (flexural modulus).

Hyperform HPN 909ei provides isotropic shrinkage (similar shrinkage in both directions, which reduces warpage), and a higher heat-deflection temperature (HDT) that offers the improved heat resistance vital for hot-fill and microwaveable applications.

When comparing HPP modified with Hyperform HPN 909ei (at 400 ppm) with HPP standard resin, the benefits of using this performance additive become clear:

		HPP Standard	HPP with HPN 909ei @ 400ppm
	MFR (g/10 min)	2.7-3.0	2.7-3.0
	Portion Cup Haze (%)	80.8	10.7
	Crystallization behavior Tc (°C)	113	123
ISO	Chord Modulus (MPa)	1254	1510
	Notched Charpy impact @ 23°C (KJ/m²)	3.56	4.46
ASTM	1% secant Modulus (MPa)	1272	1515
	Notched Charpy impact @ 23°C (J/m)	32	47



STIFFNESS INCREASE



HAZE REDUCTION

Please contact your Milliken representative for any additional information.

PLEASE NOTE: As each customer’s use of our product may be different, information we provide, including without limitation, recommendations, test results, samples, care/labeling/processing instructions or marketing advice, is provided in good faith but without warranty and without accepting any responsibility/liability. Each customer must test and be responsible for its own specific use, further processing, labeling, marketing, etc. All sales are exclusively subject to our standard terms of sale posted at www.milliken.com/terms (all additional/different terms are rejected) unless explicitly agreed otherwise in a signed writing.

NORTH AMERICA
 Spartanburg, SC, USA
 Tel: 800-910-5592
 Fax: 864-503-2430
millichem@milliken.com

EUROPE
 Gent, Belgium
 Tel: 32-9-265-1100
 Fax: 32-9-265-1195
eurochem@milliken.com

LATIN AMERICA
 Sao Paulo, Brazil
 Tel: 55-11-3043-7942
 Fax: 55-11-3043-7096
lachem@milliken.com

LATIN AMERICA
 Mexico City, Mexico
 Tel: 52-55-3088 3600
 Fax: 52-55-9000 2643
lachem@milliken.com

ASIA
 Singapore
 Tel: 65-6377-0770
 Fax: 65-6377-0990
asiachem@milliken.com

ASIA
 Shanghai
 Tel: 86-21 6145-5555
 Fax: 86-21 6145-5558
asiachem@milliken.com

ASIA
 Pune, India
 Tel: 91.20.6730.7501
 Fax: 91.20.6730.7514
asiachem@milliken.com