

**Hyperform<sup>®</sup> HPN-20E**  
BY MILLIKEN



**NUCLEATING AGENTS FOR POLYOLEFINS**

**Polyethylene**

The first commercially available nucleating agent for polyethylene, Hyperform<sup>®</sup> HPN-20E, modifies the morphology of polyethylene which results in a range of property enhancements across a variety of application areas including film, blow molding, rotational molding, injection molding and others.

**Rotomolding**

**Blown Film**

**Blow Molding**



Hyperform HPN-20E successfully nucleates polyethylene resulting in a modification to the crystal growth behavior.

FEATURES	BENEFITS
Optimum T <sub>C</sub>	Increased machine throughput
Bulk & surface haze reduction	Optimum clarity, haze and gloss in blown film
Better retention of tear & impact properties in LLDPE films	Creation of novel constructions with improved physical properties
Enhanced flexural modulus	Downgauging opportunities
Enhanced moisture vapor barrier properties	Increased shelf life or downgauging opportunities
Improved hot tack performance of polyethylene films	Faster FFS line speed and throughput
Nucleation performance across different machine conditions	Wider blown film processing window
More controlled and uniform crystallization	Improved warpage control in rotational molding

## BLOWN FILM

- Significant nucleation effects in a wide range of linear types of polyethylene (LLDPE, mLLDPE and HDPE)
- Enhancements in optical, physical and barrier properties
- Broader processing window in LLDPE and LLDPE / LDPE blended films leading to faster output rates



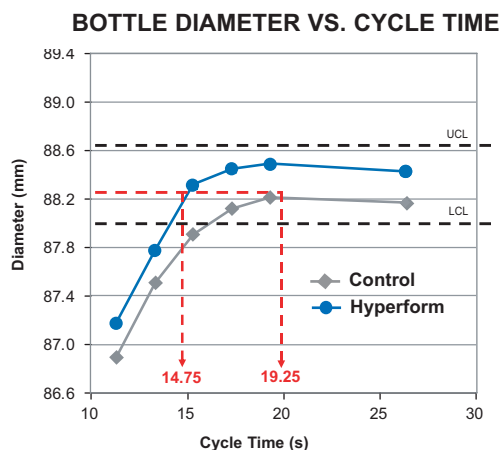
PE Film without Hyperform HPN-20E



PE Film with Hyperform HPN-20E

## BLOW MOLDING

- Unique orientation & crystallization effects lead to less tendency for panel warpage and better post mold trimming
- Better control of neck dimensions across a range of cycle times
- Significant cycle time reduction potential



Evaluations performed with a 0.958g/cc, 0.3 MI HDPE resin on a 1 L round container.

## ROTATIONAL MOLDING

- Reduced spherulite size and spherulite size gradient across part wall thicknesses
- Better control of warpage across a wider range of MDPE materials
- Enhanced crystallization kinetics aid in faster cycle times



with Hyperform HPN-20E

Control

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