**Hyperperform® HPN-68L**

**Nucleating Agent for Polypropylene**

**Hyperperform HPN-68L Attributes**
- Extremely fast polymer crystallization speed
- Isotropic shrinkage for reduced warpage and high productivity
- Overriding nucleation power

**Typical Applications**
- Automotive
- Appliance
- Material handling
- TWIM
- Closures
- Thermoforming

**Productivity and Quality Improvements**

**Thermal Performance**

**Peak Crystallization Temperature ($T_c$)**
Higher peak crystallization temperatures allow quality parts to be produced with decreased cooling times.

**Isothermal Crystallization Half-Time**
Shorter halftimes allow quality parts to be produced with decreased cooling times.

**Typical Productivity Results**

The addition of Hyperperform HPN-68L to a polypropylene resin allows a processor to make the highest quality parts at the fastest possible production rates.

**Typical Quality Improvements**

Hyperperform HPN-68L has dramatically improved part quality in numerous field trials. This includes the elimination of:
- Warpage
- Sink marks
- Ejection pin marks
- Voids
- Deformations during mold release
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Isotropic Shrinkage and Quality Improvements

Resins containing HPN-68L provide improved isotropy and can help improve part quality, warpage and cycle time.

**Case Study – Door Panels**
- Process: Injection molding
- Resin: 20 MFR Impact Copolymer PP
- Formulations: Control Conventional Nucleator (1000 ppm) Advanced Nucleator (600 ppm) Hyperform HPN-68L (600 ppm)

Overriding Nucleation Effect in Pigmented Systems

Hyperform HPN-68L can be added to pigment formulations and will override color-to-color variation in crystallization temperature and shrinkage, reducing the need to make color-specific machine adjustments and to maximize production.

**Case Study – Caps and Closures**
- Process: Injection Molding
- Resin: 20 MFR Homopolymer
- Formulations: Various commercial pigments and Hyperform HPN-68L

Nucleation Effect in Filled Systems

Hyperform HPN-68L is compatible with filled PP systems including talc, calcium carbonate, and glass filled polypropylene.

**Case Study – Appliance Parts**
- Process: Injection molding
- Resin: 20% Talc filled HP
- Formulations: Base resin, Base resin and Hyperform HPN-68L (500 ppm)