

# ETP Markets and the use of PCN

Short Story of Innovation and  
meeting customer needs

CARE CONFERENCE  
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# Compounding Feedstocks

- Resin Producers built their business on virgin polymer. (Monsanto, DuPont, BASF, DSM)
- ETP was the a small piece of the overall fiber production.
- Excess and off-grade fiber resin & finished fiber was sold into the PI (Post Industrial Markets)

# Examples of PI Nylon



Material was clean - low Tio2 - SIMILAR VISCOSTY TO VIRGIN

# PI Pellets



# What happened to PI Markets

- 15years ago fiber productions goes to the carpet mills. (Shaw, Mohawk, Beaulieu)
- Further integration with polymer production
- Endusers demanded “More competitive “ alternatives to 100% virgin formulations
- Resin producers & compounders increasingly using PI .
- Simultaneously fiber producers pull back PI for reprocessing.

# Characterizing PCN

- The cleanest ( low ash) will command the highest price.
- Consistency is important.
- Most compounders can only utilize densified or pelletized product.
- Virtually all applications will be black due to mixed colors.

# Melt filtered Pellets



# Contamination is a killer

- PP contamination
- Latex / Calcium Carbonate
- High moisture
- Finishes , consumer chemicals
- Low elongation vs . Virgin



# PCN becomes more important

- As PI becomes less available – more compounding projects must consider PCN
- PCN might be used 100% but more often used as a formulation component .
- Today most compounders and nylon resin producers have grades which are either 100% PCN ( Wellmen Ecolon) or partially based on combinations of virgin/PI/PCN

# Estimate of Compounding Mkts

- 100 Million lbs. of PCN going to compounding
- All nylon producers have programs in place to use more PCN (DuPont, Invista, BASF, Ascend)
- As PCN can be made more like PI – markets will expand.
- Compatibilizers , additive improvements make PCN more useable.

# How ETP markets Work

- Endusers ( Ford, GM, Chrysler ) create application demand and specifications
- Compounders are asked to produce price / performance compounds.
- Development lead times can be 3 years.
- Automotive applications will continue to evolve to more functional –performance oriented parts.

# Typical Automotive Application

- Intake manifolds
- Engine dressing ( beautification )
- Mirror Housings
- Electrical connectors



# What's driving OEMs

- The need for sustainable materials
- Design for recycling
- Nylon remains a “Workhorse Polymer” for automotive.
- Some market studies indicated automotive is responsible for more than 50% of Nylon ETP use.

# Proprietary Apps are best

- Geo-hay
- Retaining walls
- Decking materials
- Fiber pad underlayment (LA Fibers)
- Totes- materials handling
- CARE can be a resource to develop your application.

# Hierarchy of Price

Prime Virgin Nylon



Post Industrial



Post Consumer