CARE Conference  May 2008
Clearwater Beach, FL

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Opportunities for Post Consumer Nylon Fiber

- Overview of ETP markets in the US
- The important role of Nylon Polymers
- Key enduse markets for nylon
- Is there a fit for PCN
NA Sales of Plastics 2007
108 Billion lbs.

1.3 Billion LBS of Nylon ex-carpet
4.0 Billion LBS all other ETP
57 Billion LBS of PE, PP
Major Nylon Markets

- Automotive (some est. up to 50% of applc)
- Electronics (25%)
- Film (Packaging)
- Stock Shapes (Sheet Rod Tube)
- Industrial
- Monofilament
- Power tools / Lawn Garden
- Wire & Cable
Nylon Use by Market
2007 – 1.3 Billion lbs.
Market Characteristics

• Heavily Specified by enduse
• Performance oriented applications
• Agency recognition (UL, FDA, Auto)
• Broad formulation base, many compounds
• 700 Million lbs. of compounds
Automotive Markets

• Under the Hood
  Intake Manifolds, Radiator tanks, Engine covers
• Engine Electrical Components
• Exterior Body - alloys and blends with nylon
• Average US auto uses 300 lbs. of plastics
• 39 types of plastic used but only 10 make up 75% of weight - (nylon is one of those)
The Automotive Profile

• Specifications on a 3 yr. design cycle
• Approx. 25 lbs. of nylon per vehicle
• Most applications are “Black” – favorable to recycle content.
• Post industrial recycle is used extensively
Industrial Markets for Nylon

- Fasteners
- Fittings
- Building and Construction
- Mechanical Components (chain, gears...)
- Shoot and Ship applications
How will PCN enter the ETP Mkts.

• Separation technology is key
• Most compounders unable to work with Fluff
• Densification will be required – most would prefer pellets
• Characterization of PCN is needed
• Ability to differentiate PCN as a sustainable polymer
Where will the applications develop?

• Processor – Enduser (specifications in one place)
• Shoot & Ship applications
• PCN as a blend for compounding
• PCN as a stand alone “Sustainable Product Line” (Nylon producers, Tier one compounders)
• Develop applications with OEM’s which are then pulled through
OEM “buy in” is Key to Success

• Ford takes 50 million PET bottles into GOR’s (grille-opening reinforcements) Petra / BASF – started in the early 90’s
• Challenge automotive OEM’s to look at PCN for next generation “Intake manifolds”
• FROM CARPET TO ENGINE COMPONENTS (IT CAN HAPPEN!!)