Flow Polymers

Effect of SureFlo™ on Polypropylene Contamination in Nylon

Effect of SureFlo® on PP Contamination in Nylon

- **Background and Objectives**
  - Contamination on Nylon with Polypropylene (PP) is a common problem during the reclaiming of carpet scrap.
  - PP is not compatible with Nylon and the resulting gross morphology results in diminished physical properties.
  - In this study, the effect of SureFlo on the morphology and impact strength of Nylon containing Polypropylene contamination was investigated.

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- **Experimental**
  - *Morphology*
    - The formulations were mixed in a Brabender Plasticorder at a temperature of 235°C. Samples morphologies were examined using a Scanning Electron Microscopy (SEM).
  - *Impact Strength*
    - Samples were prepared by injection molding and tested for Notched Izod Impact.

Formulations:

	Control	Exp. 1
Nylon 6	90	85
Polypropylene	10	10
SureFlo®	-	5

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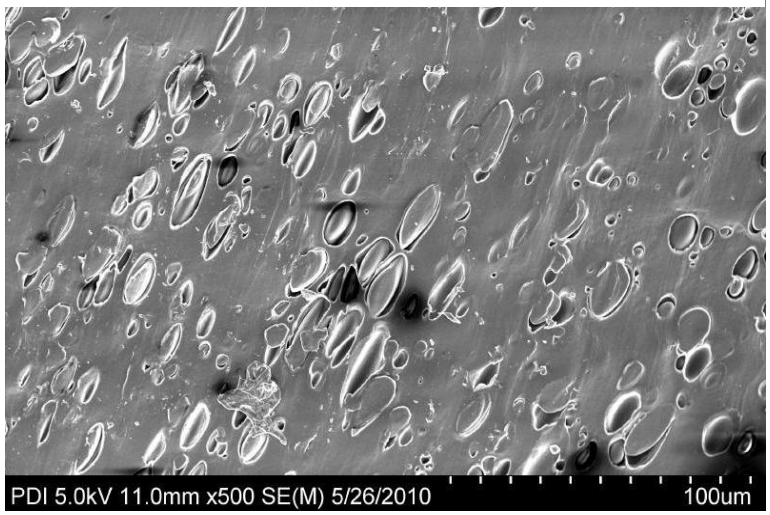
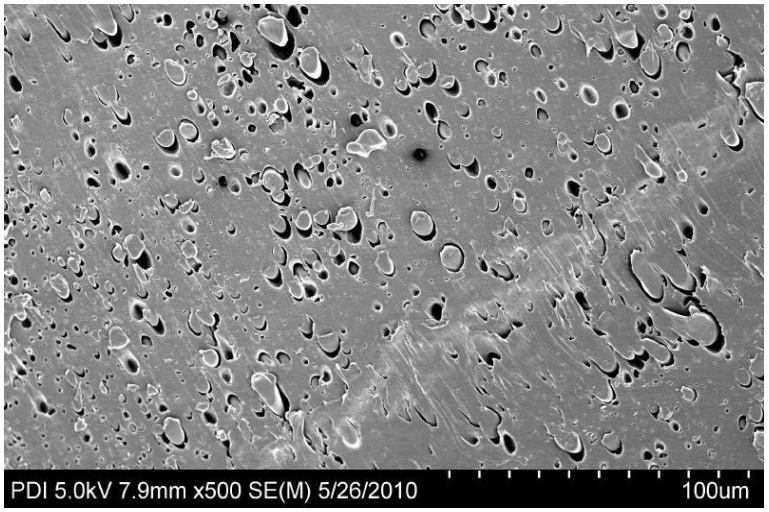
- **Results**
  - *Morphology*
    - The size of the dispersed PP phase decreased by about 50% with addition of 5% SureFlo

CONTROL



EXP. 1



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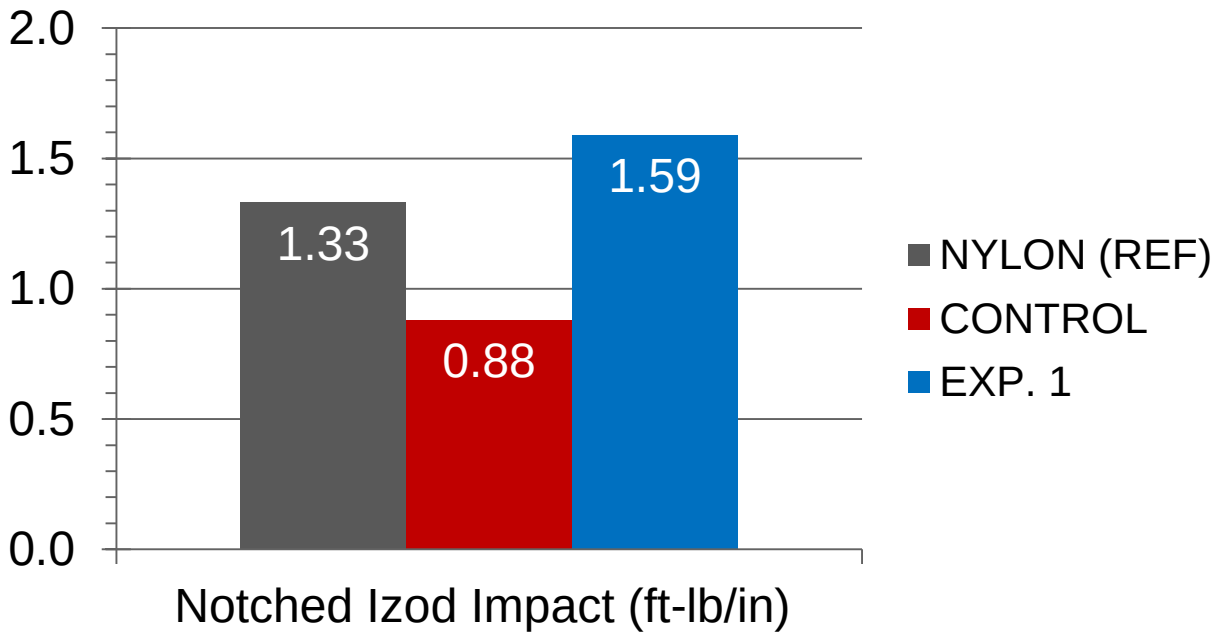
- **Results**
  - *Impact Strength*
    - The impact strength was completely recovered with addition of 5% SureFlo



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- **Conclusions**
  - Addition of SureFlo to a Nylon 6 contaminated with 10% PP resulted in a 50% reduction in the PP domain size
  - Addition of SureFlo to a Nylon 6 contaminated with 10% PP resulted in full recovery of the Notched Izod Impact Strength.
  - These findings illustrate the effectiveness of SureFlo as a homogenizer for dissimilar polymers.

	Nylon 6 (ref)	Control	EXP. 1
Average PP Domain Size (µm)	N/A	20	**10**
Notched Izod Impact (ft-lb/in)	1.33	0.88	**1.59**