

# 3<sup>rd</sup> International Conference and Exhibition on Materials Science & Engineering

October 06-08, 2014 Hilton San Antonio Airport, USA

## Plant oil-based polymers and composites

**Alejandrina Campanella**  
Dixie Chemical Company Inc., USA

Resins used in composite manufacturing for the aerospace, automotive, and building materials industries are primarily derived from petroleum based products. Due to the cost volatility of petroleum and long-term sustainability concerns, there is growing interest for composites derived from renewable resources. Plant oil-based resins, such as maleinated acrylated epoxidized soybean oil (MAESO) and maleinated acrylated epoxidized linseed oil (MAELO), have proven to be viable replacements for vinyl ester and polyester resins due to their comparable mechanical properties and similar processability. This work demonstrates the practicality of plant oil-based resins with a variety of reactive diluents for use in composite applications. The mechanical properties of the resulting bio-based composites were analyzed. Composites were made with fiber glass and natural fiber reinforcement using the bio-based resins via Vacuum Assisted Resin Transfer Molding (VARTM) and Bulk Molding Compounding (BMC). The resulting composite parts exhibited similar physical performance to parts made with commercial petroleum derived resins.

[ACampanella@dixiechemical.com](mailto:ACampanella@dixiechemical.com)