Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Epoxy thermoset networks derived from vegetable oils and their blends[1] CHANG RYU, MATTHEW RAVALLI, Rensselaer Polytechnic Institute — Epoxidized vegetable oils (EVOs), such as epoxidized soybean oil and linseed oils were prepared by the partial oxidation of the unsaturated double bonds in vegetable oils and used as monomers for preparing epoxy thermoset materials based on the cationic polymerization. These EVOs have been used to prepare epoxy thermosets of different network densities by cationic polymerization using onium salt catalyst. The crosslinked epoxy thermosets provide an ideal platform to study the structure-property-relationships of networked polymers. In particular, rheological studies on the epoxidized vegetable oil thermosets have been performed to measure the molecular weights between crosslinks (Mx) in the epoxy thermosets and to ultimately elucidate the role of functionality of epoxy groups in EVO on the mechanical and thermophysical properties of the epoxy thermoset materials.

[1]NSF DMR POLYMERS 1308617

Chang Ryu
Rensselaer Polytechnic Institute

Date submitted: 12 Nov 2014 Electronic form version 1.4