Mechanical & Industrial Engineering
UNIVERSITY OF TORONTO

Thesis Projects (MIE498 H/Y) 2018–2019

Title/Topic:

Dispersion and Distribution of Boron Nitride Nanotubes (BNNTs) in Polycarbonate (PC)

Description:

The very first challenge in the production of all nanocomposites is to achieve homogenous distribution and dispersion of fillers through their polymeric matrices. Well dispersion and distribution of BNNTs into polymeric matrices remain very challenging due to their low dispersibility in polymer matrices as well as lack of experimental studies due to difficulty in mass production of good quality BNNTs. Various factors can affect dispersion and distribution of BNNTs into a polymeric matrix, including their size, concentration, dispersion, distribution, orientation, surface properties, matrix and processing conditions. In this project, students will be able to get familiar with the effects of different melt mixing as well as solvent mixing processing conditions on the morphology of BNNT throughout polycarbonate (PC) nanocomposites. They also will study, characterize and analyze the nanocomposite properties to delve into the effects of the process-structure of PC/BNNT nanocomposites.

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