

UNH Materials Science Seminar

13:10-14:00, Wednesday, Nov. 3, 2010

DeMeritt 240

University of New Hampshire

Water Whitening of Polymer Films and Coatings

Bo Jiang

Materials Science Program, UNH

The sorption of water into dry polymer films can affect practical applications of many polymer coatings, and it may also result in films losing their transparency (water-blushing). This talk will discuss the factors affecting the blushing process such as polymer glass transition temperature and polarity, salt content, and temperature. We applied both waterborne latex films and solvent borne films in the study, and we also categorized the water within film into two different states: one being bound water which plasticizes the polymer chains, and the other being 'free' water which forms separated phase domains that lead to whitened films. Moreover, we are able to characterize and quantify the amount of water in each state via differential scanning calorimetry.

Host: Prof. Marshall Ming, x1446