



POLYMER CLAY NANOCOMPOSITES

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Friday 23rd May 2008, 11:00 a.m. – 12:00 p.m.
Science Lecture Theatre S10

Nanofillers, and particularly high aspect ratio nanofillers are receiving considerable attention due to the enhancement in properties they can bring to polymer matrixes at low content compared with traditional fillers. Clay is the lamellar nanofiller that has been the most widely studied in the past 15 years. The dispersion of the clay agglomerates into individual clay platelets in a polymer material (termed exfoliation) has been shown to potentially dramatically increase its barrier, thermal and mechanical properties. However, this optimal dispersion is not easily attained and clay organo-modification which makes the particle organo-philic is a first step to reach this goal. This lecture will mainly focus on thermoset and elastomer epoxy/clay nanocomposites. In these reactive systems the dispersion is partly reaction driven and therefore the exfoliation process mechanism more difficult to understand. Considering these objectives we have varied the chemical nature of the organoclays as well as the monomers used to form the polymer matrix in order to obtain a better understanding of how chemicals interactions might influence polymer network building, the final state of dispersion of clay in the matrix and the mechanical properties of the nanocomposites. Regarding thermoplastic nanocomposites, we are also investigating new routes to make the processing of exfoliated dispersion states in commodity plastics such as polyethylene more facile, which could allow an increased application of these nanocomposites in the industrial field.

Visitors are most welcome: Please note the parking arrangements. There is a designated Visitors Car Park (N1) clearly ground-marked by white paint and tickets, at a cost of \$3/day, are available from a dispensing machine. ('Blue' permit designated areas are for Monash members only.). It is also possible to park at other designated Visitors Car Parks (E1, S1 and S2) on the Clayton Campus, but tickets are \$1.4/hour.

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