

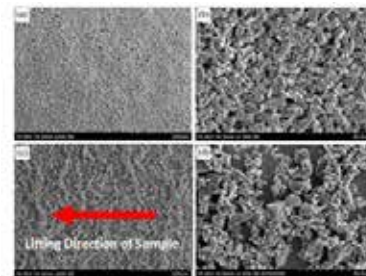
Table of Content

FULL PAPERS

Effect of cationic charging agent on the bonding strength of coarse Titanium particles deposited by electrophoretic deposition

Kok Tee **Lau** and Charles Christopher **Sorrell**

Electrophoretic deposition (EPD) has a potential to become an alternative coating technique for various applications, mainly because of its feasible equipment set-up and good control in the coating process and thickness of simple or complex shapes.

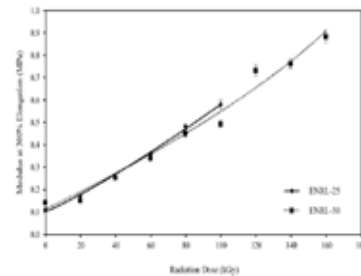


1-15

Effect of gamma radiation on the tensile properties of epoxidized natural rubber latex

Chee Keong **Chai**, ChantaraThevy **Ratnam**, Luqman Chuah **Abdullah**, Mohamed Syafiq Shaik **Mohamed Amin**, Wan Manshol **Wan Zin**

Epoxidized natural rubber (ENR) is a chemically modified natural rubber (NR) by adding oxygen atom to the carbon-carbon double bonds of rubber molecule chains, thereby converting them to oxirane (epoxide) ring. Epoxidation of NR can be done by treating natural rubber latex (NRL) with preformed peroxyacetic or in-situ generated peroxyformic acid.



17-25

Thermal properties and morphologies for polymer blends comprising of epoxidized natural rubber and semicrystalline thermoplastic

Chin Han **Chan**, Siti Farehah **Sulaiman**, Hans-Werner **Kammer**, Lai Har **Sim**, Mohamad Kamal **Harun**

Blending of polymers is an economic alternative and popular industrial practice as compared to that of direct synthesis of new materials to achieve physical properties. Blends of elastomer/thermoplastic have been studied extensively. For amorphous/semicrystalline immiscible polymer blends, one may observe minor influence of the amorphous constituent on the properties of the crystallizable constituents. The liquid-liquid demixing and liquid-solid phase separation offer variety of morphological patterns.

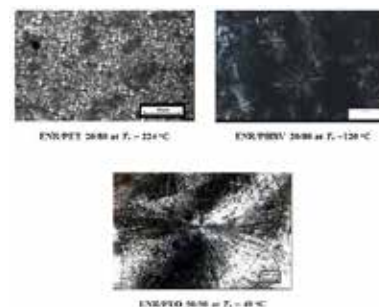


Figure 2. Morphology of immiscible polymer blends with ENR. Micrographs were taken after annealing at indicated T_c for 30 min.

27-37

The effect of thermal aging on the properties of recycled copper filled epoxy/unsaturated polyester composites

Jin-Luen **Phua**, Pei-Leng **Teh**, SupriAbdul **Ghani**, Cheow-Keat **Yeoh**

Conductive polymer composites are fabricated from the mixing of insulating electrical properties of polymer matrix and electrical conductive properties from conductive fillers, such as carbon black or metal powder. When a polymer is exposed to a relatively small amount of heat over a long period of time, the cumulative effects can be equalize to high temperature degradation. The polymer is said to reach its thermal stability limit and begin to degrade, it is also known as thermal degradation or thermal aging. Chemically and physically, the process of aging is irreversible with time.

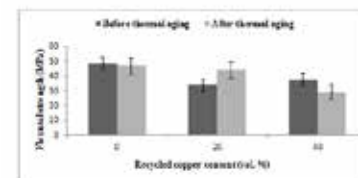


Figure 3. Flexural strength of recycled copper filled epoxy/unsaturated polyester composites before and after thermal aging.

39-49

Effect of hydrophilic nanoclay on morphology, thermal and mechanical properties of polylactic acid/ polycaprolactone/ oil palm mesocarp fiber biocomposites

Chern Chiet **Eng**, Nor Azowa **Ibrahim**, Norhazline **Zainuddin**, Hidayah **Ariffin**, Wan Md. Zin **Wan Yunus**, Yoon Yee **Then**

Natural fiber as reinforcement filler in polymer composites has received increasing attention to researchers as natural fibers have many significant advantages over synthetic fibers. They are environmentally friendly, fully biodegradable, abundantly available, renewable, cheap and have low density.

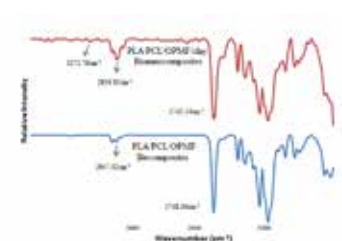


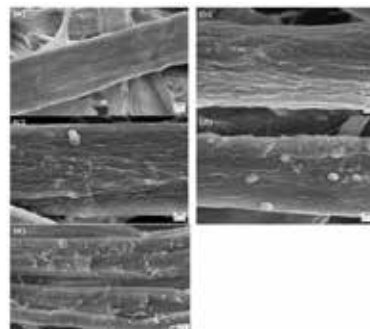
Figure 4. FTIR spectra of PLA/PCL/OMF biocomposites and PLA/PCL/OMF/Clay biocomposites.

51-70

Layer-by-layer deposition of CoFe_2O_4 nanocrystals onto unbleached pulp fibres for producing magnetic paper

Chin Hua **Chia**, Sarani **Zakaria**, Seng Chau **Goh**, Chi Hoong **Chan**

Lignocellulosic fibres possess magnetic properties offer opportunities to the exploration of new concepts in papermaking which will revolutionize the application of papers, including security paper, high density magnetic recording medium, electromagnetic shielding, reprographic printing and magnetic filtering.



73-89

Performance of a novel Sn-Ag-Cu-Pt solder as interconnections in bi-facial solar cells under the sun

Chin Kim **Lo**, Karen Mee Chu **Wong**, Yun Seng **Lim**, Yee Kai **Tian**

Bi-facial solar cell, unlike ordinary solar cells, is able to absorb sunlight from both sides to generate electricity. A number of bi-facial solar cells are connected together by soldering to form a bi-facial solar panel.

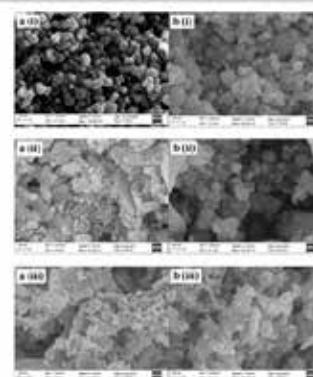


91-105

Effect of aluminium and indium doping on structural and optical properties of ZnO nanoparticles prepared by mechanochemical processing

Mahesh Kumar **Talari**, Nurul Syahidah **Sabri**, A.K. **Yahya**, Nur Aimi **Jani**, Mohamad Kamal **Harun**

Special properties of nanostructured materials have generated great interest among researchers. It is due to the decreasing scale of device and the interesting optical properties associated with nano size of particles, as optical properties can be tuned by quantum confinement effects at nano sizes.



107-123

Plasticizer as a salt dissociator: a FT-IR investigation

Winie **Tan**

Low molecular weight solvents such as ethylene carbonate (EC) and propylene carbonate (PC) have been the most widely used plasticizing solvents for electrolyte system in a lithium ion battery. The role of a plasticizer is to help in the dissociation of lithium salt, which allows greater numbers of free ions for conduction.

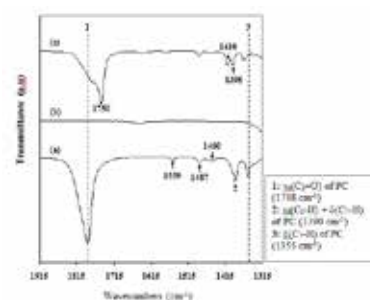


Figure 3. Infrared spectra of (a) pure PC (b) LiClO₄/PC and (c) LiClO₄/PC complexes at the ratio of 1:1 in the region between 1313 and 1011 cm⁻¹

125-134