

Abstract Submitted
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Polypropylene Nanocomposites from Porous Clay Materials: Application in Ethylene Scavenger Packaging Films KASINEE PRAKOBNA, RATHANAWAN MAGARAPHAN, HATHAIKARN MANUSPIYA, The Petroleum and Petrochemical College, Chulalongkorn University — The PCH is interesting material to use as entrapping system owing to its structure provides high surface area with uniform and specific pore size. In this work, the PCH is synthesized within the galleries of Na-bentonite clay by the polymerization of tetraethoxysilane (TEOS) in the presence of surfactant micelles (cetyltrimethylammonium bromide and dodecylamine). In addition, a mesoporous clay with hybrid organic-inorganic PCH (HPCH) is modified via co-condensation reaction of TEOS and methyltriethoxysilane (MTS). Before the preparation of PCHs and HPCHs, the Na-bentonite clay was adjusted pH into 9, 7, 5 and 3. Furthermore, both PCH and HPCH are utilized as ethylene scavenger and blended with polypropylene (PP) for producing ethylene scavenging films in food packaging application. The eight samples of nanocomposites films including PCH-9, 7, 5, 3 and HPCH-9, 7, 5, 3 (numerals denote the pH-adjusted condition of Na-bentonite clay) will be measured oxygen and ethylene permeabilities; however, the present results obtained from PCH-9 and HPCH-9 nanocomposites films revealed that both oxygen and ethylene permeabilities of these films were less than that of PP virgin film. So these materials could be found new application in active packaging.

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