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Microwave Irradiation on Halloysite-Polypropylene Nanocomposites OMAR ESPINO, BRIAN YUST, DORINA CHIPARA, Univ of Texas, Pan American, PULLICKEL AJAYAN, ALIN CHIPARA, Rice University, MIRCEA CHIPARA, Univ of Texas, Pan American, UTRGV COLLABORATION, RICE COLLABORATION — Halloysite is an unique cyllindrical nanoclay characterized by poor electrical and thermal conductivity, which may become the filler of choice for the reinforcement of polymeric matrix, where electrical or thermal insulation are required. The main limits in the use of halloysite as replacement for carbon nanotube (CNT) are: 1. Smaller aspect ratio as halloysites are typically shorter than CNTs. 2. Smaller Young modulus of halloysites compared with CNTs. 3. Reduced thermal stability due to the loss of water upon heating. A research on halloysite dispersed within isotactic polypropylene is reported. To improve the interface between the halloysite and the polymeric matrix a microwave irradiation step has been considered. The local heating of the halloysite nanotubes is mediated by the absorbed/structural water content of the nanoclay. Nanocomposites loaded by various amounts of halloysite ranging from 0 % to 20 % wt. have been prepared by melt mixing by using a Haake RheoMixer. The as obtained nanocomposites have been subjected to microwave irradiation at 75 W in an Anton Paar Monowave 300 system and various irradiation times ranging from 5, 10, 15, 30, 45, and 60 minutes. The effect of microwave irradiation has been studied by Raman and FTIR spectroscopy

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