

Rheological properties of kaolin/PolyetherSulfone (PESf) used in hollow fiber fabrication: Effects of content ratio

Abstract

In the present work, the rheological properties in terms of shear stress and viscosity of Kaolin/Polyether-Sulfone (PESf) of varying ratio were investigated by a rotating rheometer. The shear rate of Kaolin/PESf sample was measured at increasing interval shear rate. By assuming that the fluid behaves like a typical Non-newtonian polymeric liquid, the consistency index, K and flow index, n were able to be determined. Thus, the rheology behaviors of the kaolin/PESf suspension could be investigated at a wider range of shear rate. The shear stress was found to increase with increasing shear rate, with the rate of change quite apparent at low shear rate. At higher shear rate, the shear stress increases definitively with the increase of kaolin content. On the other hand, the viscosity decreased at a faster rate initially and slows down to monotonous rate as the shear rate increases. Evidently at increasing shear rate, the viscosity tends to become constant as the deviation become smaller which is also known as zero shear rate viscosity region.