



G09.32

Modeling of Mixing of Non-Newtonian Two Phases Flow in Co-rotating Twin Screw Extruders

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The main objective of the present work was to introduce a new method to quantify mixing of two fluids in co-rotating twin screw extruders. This is achieved by employing mapping method on two dimensional progressive slices of a co-rotating twin screw extruder. Imaginary Domain Method is introduced to track mapping mesh from one slice to the next. In this article a new feature of mapping method which is combined with boundary tracking method was introduced and two dimensional mixing analysis of two non-Newtonian fluids with different rheological properties in self-wiping co-rotating twin screw extruder was studied. Concentration, residence time distribution and average intensity of segregation was computed for a test case study.