RHEOLOGICAL STUDY OF EXPANDED RIGID PVC COMPOUND USING A CAPILLARY RHEOMETER

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ABSTRACT

The effect of the addition of a chemical blowing agent Azobisformamide (ABFA) and that of the processing parameters on the rheological properties (in terms of apparent viscosity and foaming efficiency) of a rigid poly (vinyl chloride) compound, were investigated using a capillary rheometer.

The apparent viscosity was found to decrease with the ABFA loading. But, the extent of viscosity reduction by the ABFA level was found to decrease with the increase in shear rate for high L/D ratio. On the other hand, foaming efficiency was observed to increase with ABFA level. However, at high ABFA content, foaming efficiency will go through an optimum value corresponding to a critical ABFA level. This critical level was found to increase for low shear rate, high L/D ratios and low temperatures. Finally, the maximum foaming efficiency was obtained at 170°C and L/D ratio of 2.0 (corresponding to 0.6 Phr of ABFA content).