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## ELONGATIONAL VISCOSITY OF POLY(VINYL CHLORIDE) PHYSICAL GEL

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The dynamic viscoelsticity and elongational viscosity of the PVC/DOP gel were measured at various temperatures. The gel exhibited a typical sol-gel tran- sition behavior with elevating temperature. The critical gel temperature (Tgel) characterized with a power-law relationship between the storage and loss moduli, G? and G??, and frequency ?, G? = G??/tan (n?/2) ? ?n, was observed to be 152?C. The elongational viscosity of the gel was measured below the Tgel. The gel exhibited strong strain hardening. Elongational viscosity against strain plot was independent of strain rate. This finding is different from the elongational viscosity behavior of linear polymer solutions and melts. The stress-strain relations were expressed by the neo-Hookean model at high temperature (135 ?C) near the Tgel. However, the stress-strain curves were deviated from the neo-Hookean model at smaller strain with decreasing tem- perature. These results indicated that this physical gel behaves as the neo-Hookean model at low cross-linking point, and is deviated from the neo-Hookean model with increasing of the PVC crystallites worked as the cross-linking junctions.