

Critical Loci of Polyethylene-*n*-Alkane Systems

The bubble- or dew-point pressures were also determined for the highest molecular weight fraction with ethane, butane, and pentane at several temperatures (Table II). These runs were carried out at about 5 wt.-% polymer, although not exactly at the critical polymer concentration. Because of the flatness of the dew-point-bubble-point curve near the UCSP and because of the slow shift in critical concentration with temperature, the pressures on the phase boundary are within experimental error of the UCSP and are listed as such. It is now clear that the data of Table I and Table II define sections of the critical locus for all systems investigated. These critical loci, i.e., the P, T projections of the $(P, T, \text{composition})$ space models, are shown in Figure 5.

With all solvents except pentane, solid precipitates at about 90–110°C., where the vapor pressure curve of the partly amorphous and partly crystalline polymer intersects the critical locus. The point of intersection, not

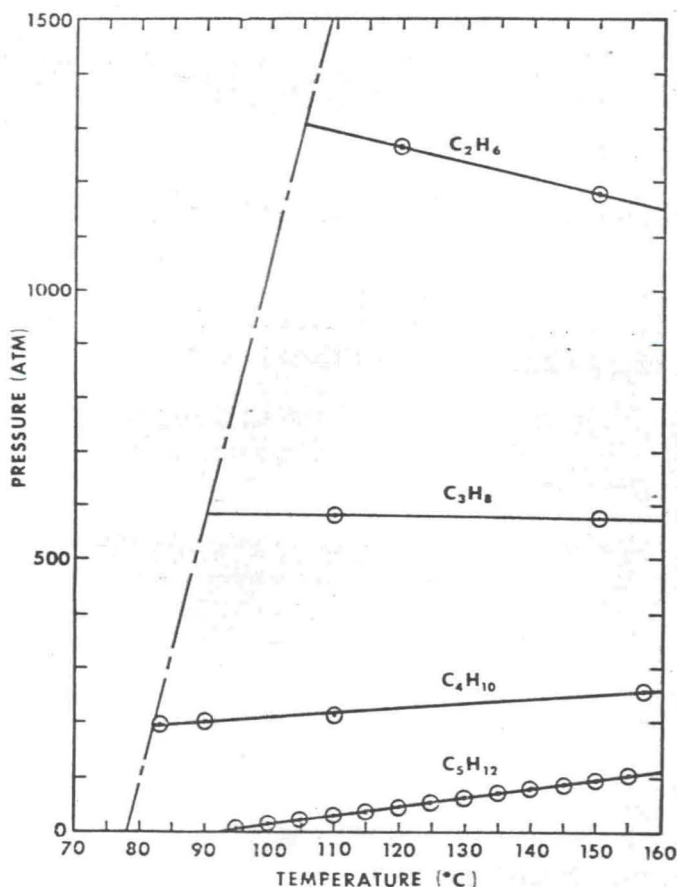


Fig. 5. Critical loci for polyethylene-*n*-alkane systems. The broken line indicates approximate crystallization boundary.