

Figure 4.

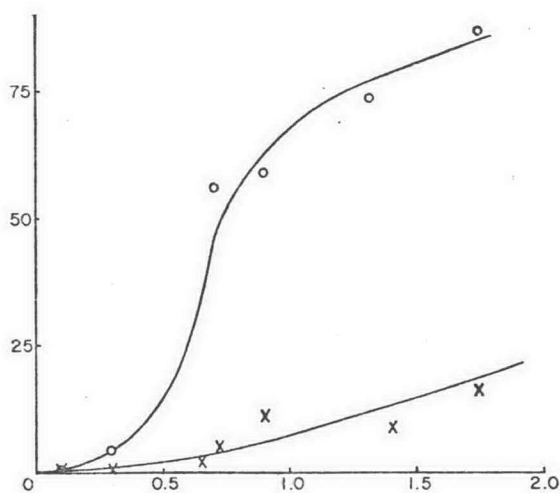


Figure 5.

90,000 psi do not affect the initiation reaction. Here it is the propagation reaction which is inhibited, suggesting that applied stress tends to oppose the disruptive stress induced by the growing polymer chain. As acrylamide polymerizes, more free volume becomes available, and the propagation falls off with increasing distance between monomer and growing polymer. The pressure-induced acceleration at high conversions of acrylamide may be explained as due to the reduction of this free volume.

The retardation in polymerization effected by this pressure is particularly marked in the case of methacrylamide (Fig. 4), reaching an almost limiting conversion above a dose of  $4 \times 10^5$  r.

The polymerization of crystalline calcium acrylate prepared from the dihydrate (Fig. 5) shows an appreciable induction up to a dose of  $3 \times 10^5$  r;