

It should be noted that the dimer we obtained boils at a somewhat higher temp. than does the 2,2,3,5,6-pentamethyl-3-heptene obtained by ionic polymerization (b.p. 54.9-56.5° at 12 mm) /6/. No other physical constants for this hydrocarbon have appeared in the literature.

Thus, thermal polymerization of tetramethylethylene at 300° and at pressures of about 200 atm, apparently results in the formation of products different from those of ionic polymerization.

B. Experiments at ultra-high pressures were conducted in a two-stage intensifier with internal electrical heating, using the arrangement for temp. and pressure measurement described previously /8/. A 0.3-0.4 g charge was placed in a lead ampoule, which was then sealed. The "hot" junction of a differential thermocouple was inserted into its thickened upper portion. The intensifier channel was filled with a mixture of n-pentane and isopentane. Pressure was measured by means of a manganin manometer inserted in the cool zone of the intensifier channel.

Expt. No. 1. Pressure 23,000 atm; temp. 280 ± 5°; duration three hours. The product was a thick colorless liquid; mol. wt. 297; bromine no. 30.5 which corresponds to 57% of unsaturated hydrocarbons present in the polymer. No starting monomer was observed in the products.

Expt. No. 2. Pressure 27,000-27,500 atm; temp. 300 ± 5°; duration 6.5 hours. Mol. wt. of the viscous product was about 400; n_D^{20} 1.4742; bromine no. 13.3, corresponding to 33% of unsaturated hydrocarbons present in the polymer.