

coefficient on temp. and pressure) /7/. The clear product that was discharged was characterized by its increased refractive index (n_D^{20} 1.4205). On distilling off the starting monomer (80% of the charge) through a column with 20 theoretical plates, we observed a very small quantity (a few drops^s) of low-boiling products (57.0-71.5° fraction; n_D^{20} of the first drops was 1.3890). Vacuum distillation of the residue afforded the unsaturated dimer:, bromine number 97.7. Calculated for $C_{12}H_{24}$: mol. wt. 168; C 85.62%; H 14.38%; bromine number 95.3. After distillation of the dimer, there remained a thick liquid of av mol. wt. 248, n_D^{20} 1.4650, bromine number 68.8; calculated bromine number 64.5.

Thus it was shown that, under the conditions of the investigation, tetramethylethylene forms an unsaturated dimer, $C_{12}H_{24}$, and higher mol. wt. unsaturated polymers.

Let us consider the possible pathways for the thermal dimerization of tetramethylethylene. The first of these is the reaction of two molecules of olefin to form octamethylcyclobutane. This pathway requires overcoming very great steric hindrance. The dimer we obtained was not cyclic; therefore, the reaction did not proceed in this direction. The second pathway is the saturation of the double bond of one mol. of tetramethylethylene by a methyl group from another mol. By this route the most probable product is 2,3,5,5,6-pentamethyl-2-heptene:

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This pathway appears to be very much easier from a