TELOMERIZATION

SAMUEL P. MASSIE
Langston University, Langston

The reactions of olefins with other compounds to give polymers have been studied very much. There has recently been discovered a new type of polymer, called a *telomer*, which differs from the usual structural type of polymer in that its components are not present in recurring units, the olefin part is present many times as compared to the adduct, and the adduct is always at the end; e. g., $CH_2 = CH_2 + YZ \rightarrow Y(CH_2CH_2)_nZ$ instead of — $YCH_2CH_2ZCH_2CH_2Y$— or some similar structure.

Telomers[1] are new types of compounds produced by a process called *telomerization* (from Greek *telos* meaning end plus Greek *mer* meaning part). Telomerization is defined as the process of reacting, under polymerization conditions, a compound YZ which is called a *telogen* with more than one unit of a polymerizable compound having ethylenic unsaturation called a *taxogen* to form products called telomers having the formula $Y\text{-}(A)_n\text{-}Z$, in which $(A)_n$ is a divalent radical formed by the chemical union, with the formation of new carbon bonds, of the taxogen, the unit A being called a *taxomon*, *n* being any integer greater than one, and *Y* and *Z* being fragments of the telogen attached to the terminal taxomons.

Kharasch and coworkers[2] have discovered that where the telogen is a halogen compound, the reaction may be limited to one-to-one products rather than the polymers. Bromides are best for one-to-one products; chlorides for polymers.

These reactions appear to proceed via a free radical mechanism and are initiated and catalyzed by compounds which decompose to give free radicals as peroxides or light which causes liberation of energy with the resultant formation of free radicals.

This discussion included examples of telomerization, postulation of the mechanism and some of the possible uses for the process.