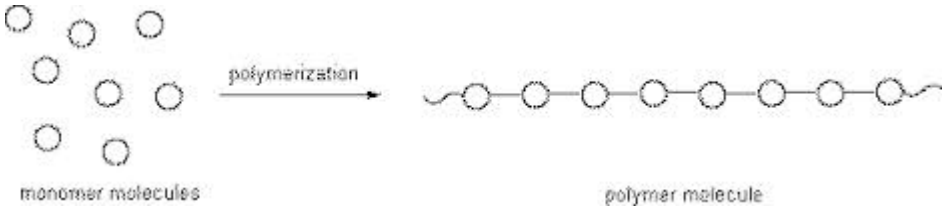
*Question#46451 – Chemistry – Organic Chemistry*

**Question:**

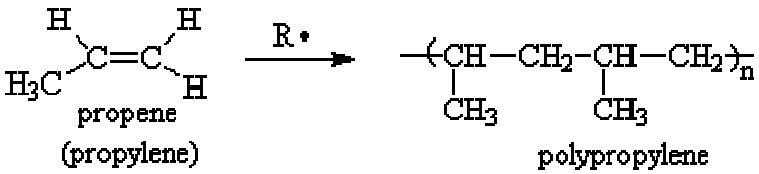
Explain addition and condensation polymerization with an example of each.

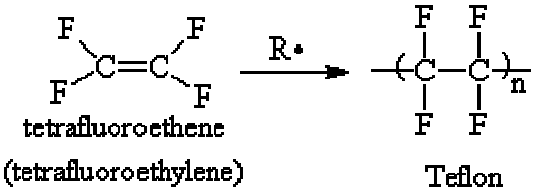
**Answer:**

The process of addition polymerization is a process, similar to adding links onto a chain. In addition polymerization, monomers react to form a polymer without the formation of by-products. Sketch of the process is presented at the scheme below.



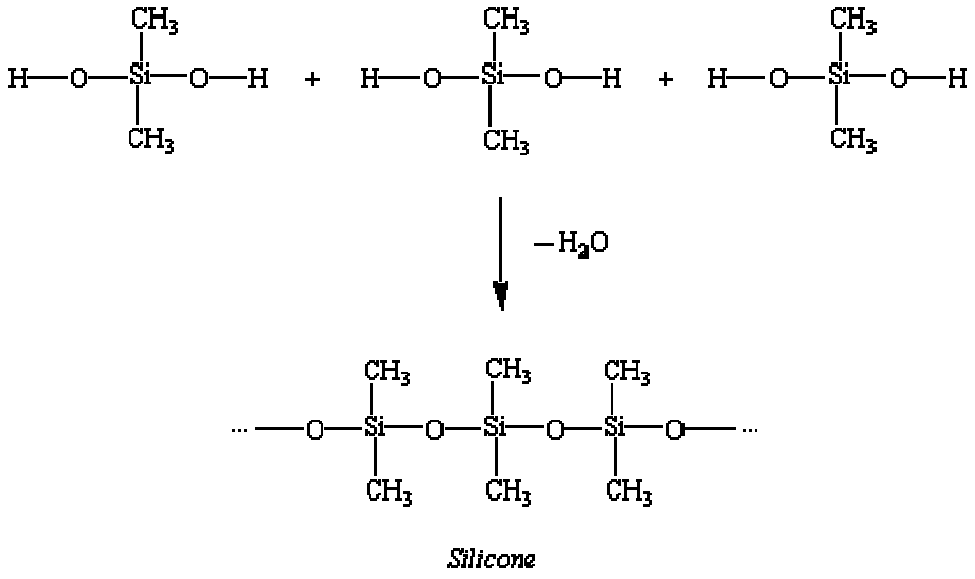

Chain-growth polymerization is most commonly applied to vinyl monomers, for example:



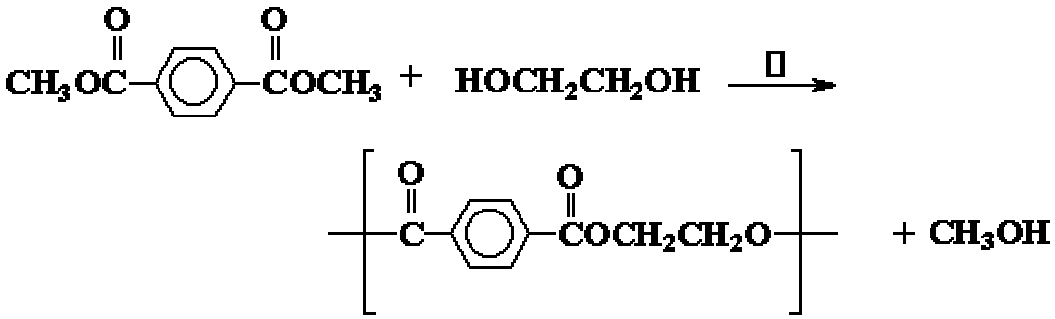




Condensation polymerization, or polycondensation, a form of step-growth polymerization, is a process by which two molecules join together, resulting loss of small molecules which is often water. The type of end product resulting from a condensation polymerization is dependent on the number of functional end groups of the monomer which can react.

The examples of such polymerization are presented below:



Another example is condensation with polyester formation:



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In the first example, water is released. In the second example, methanol $CH_3OH$ is released.