Step II Chain propagation step The new free radical adds to another molecules of monomer to form a larger free radical.



Step III Chain termination step There are three ways of chain termination: Coupling reaction, disproportionation reaction, chain transfer reaction. One mode of termination of chain is shown as under:



(ii) **Cationic polymerisation** It involves formation of carbocation which are generated by Lewis acids (like BF_3 , AICI₃, SnCI₄, etc.) and protonic acids such as $H_5(L)$ HP, etc.

Higher the stability of carbocation intermediate, more is the reactivity of monomers towards cationic addition polymerisation. It involves the to lowing steps

Step I. Initiation Step

$$H_2SO_4 \longrightarrow H^+ + HSO_4^-$$

 $BF_3 + H_2O \longrightarrow H^+ + BF_3(OH^-)$
 $CH_2 = C(CH_3)_2 + H^+ \longrightarrow (CH_3)_3 C^+$
 $carbocation$
 $Step II. Propagation$
 $(CH_3)_3C^+ + CH_2 = C(CH_3)_2 \longrightarrow (CH_3)_3 - C - CH_2C^+(CH_3)_2$
 $\frac{nCH_2 = C(CH_3)_2}{(CH_3)_3} (CH_3)_3 C - [CH_2 - C(CH_3)_2]_n - CH_2 \cdot C^+(CH_3)_2$
 $Step III. Termination$
 $(CH_3)_3C[CH_2 \cdot C(CH_3)_2]_n CH_2C^+(CH_3)_2]$
 $-H^+ (CH_3)_3C[CH_2 \cdot C(CH_3)_2]_n CH_2 = C(CH_3)_2$

It is a hard and transparent polymer and is quite resistant to the effect of light, heat and ageing. It is used, in the manufacture of unbreakable lights, protective coatings, dentures, and in making windows for aircrafts.

2. Glyptal

It is a polyester having crosslinks. It is a thermosetting plastic. It is obtained by condensation of ethylene glycol and phthalic acid or glycerol and phthalic acid.



It is a condensation product of ethylene glycol and terephthalic acid.

Polymerisation is carried out at 420 to 460 K in the presence of catalyst mixture of zinc acetate and antimony trioxide.



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