

Mechanism \rightarrow Copolymers



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This type of polymerisation reaction also involves an initiator. Which may be a free radical, a cation or anion.

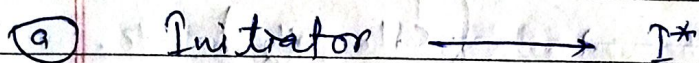
* The addition polymerisation reaction is very rapid and is also characterized by three steps.

(i) Chain initiation

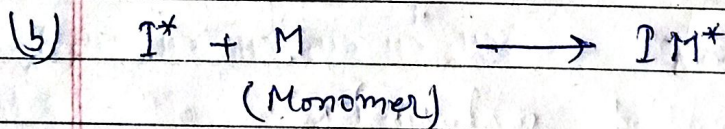
(ii) Chain propagation

(iii) Chain termination

(1) Chain initiation \rightarrow



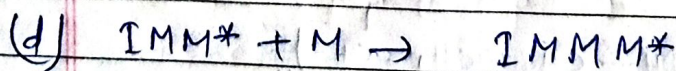
Reactive species (free radical, cation or anion)



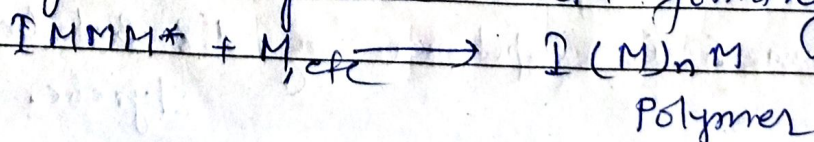
(2) Chain propagation \rightarrow



Bigger reactive species



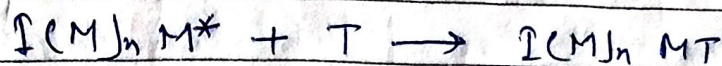
The propagation continues and results in growth of the chain forming polymer.



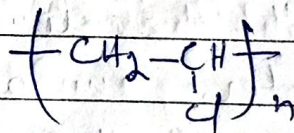
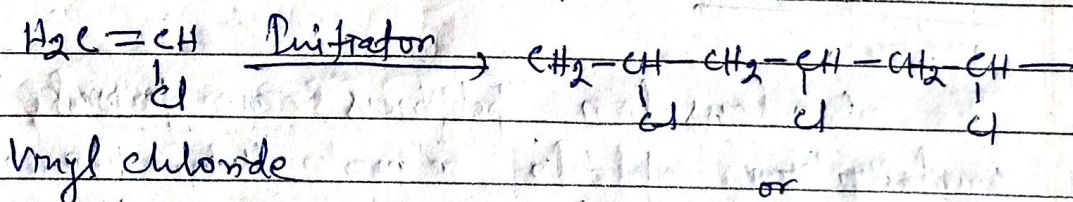


Finally, the chain gets terminated when the active end reacts with a species which gives a molecule which is not an active species.

③ Chain termination

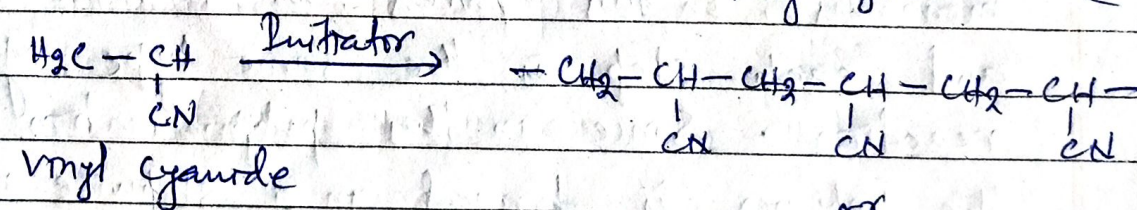


Many vinyl polymers are formed by chain reaction polymerisation in which the active species that initiates the reaction is a free radical and the chain grows by the successive addition of monomer to a free radical at the end of the chain. The active end may also be a cation or an anion or a coordination complex.

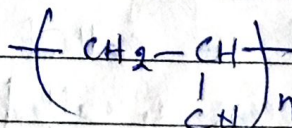


PVC

Polyvinyl chloride



(Acrylonitrile)

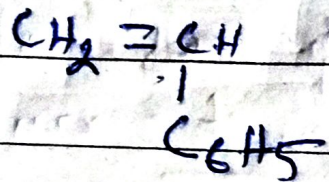


(PAN) / Polyacrylonitrile / (Orlon)



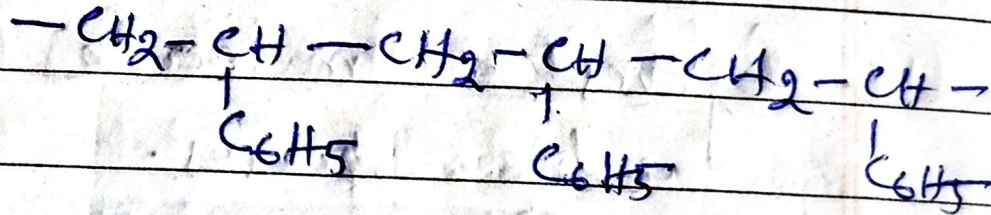
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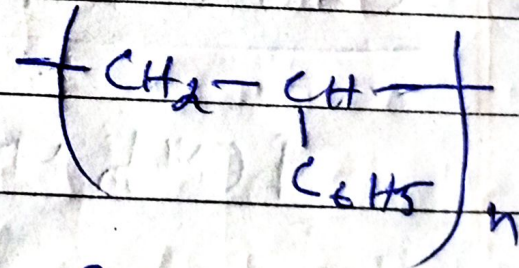


styrene

Initiator



or



Polystyrene