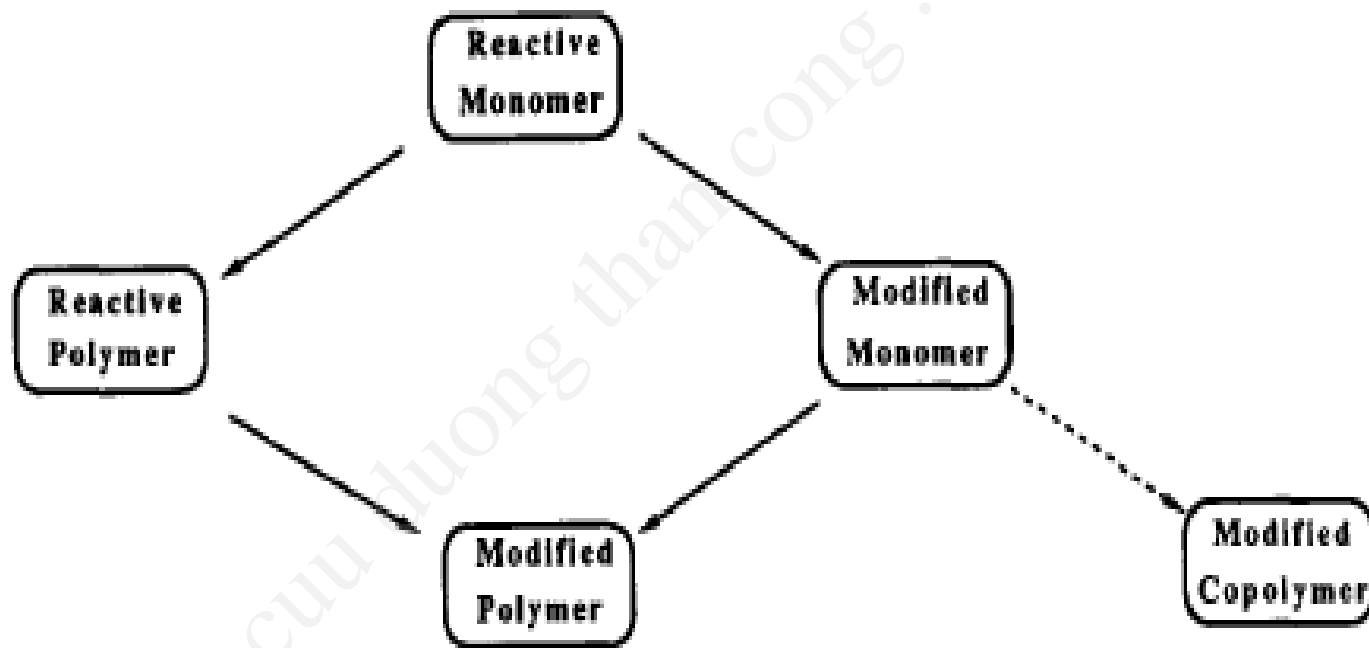
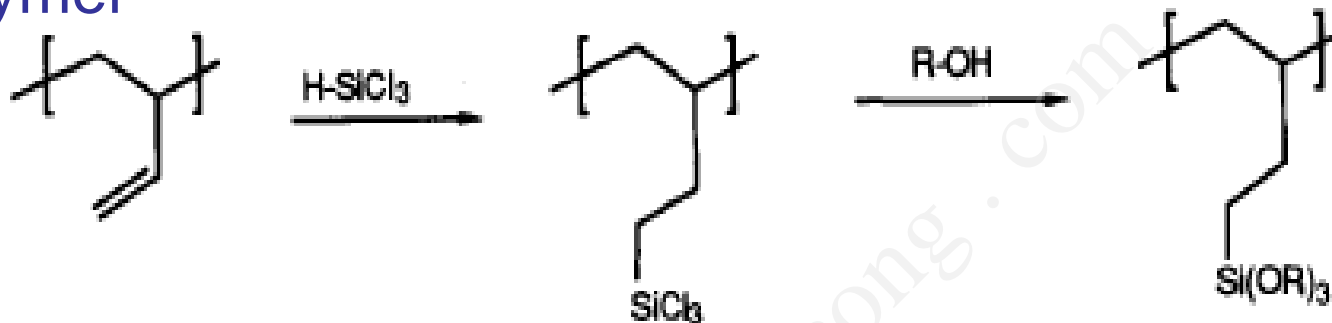


CHEMICAL MODIFICATION OF POLYMERS APPLICATIONS AND SYNTHETIC STRATEGIES

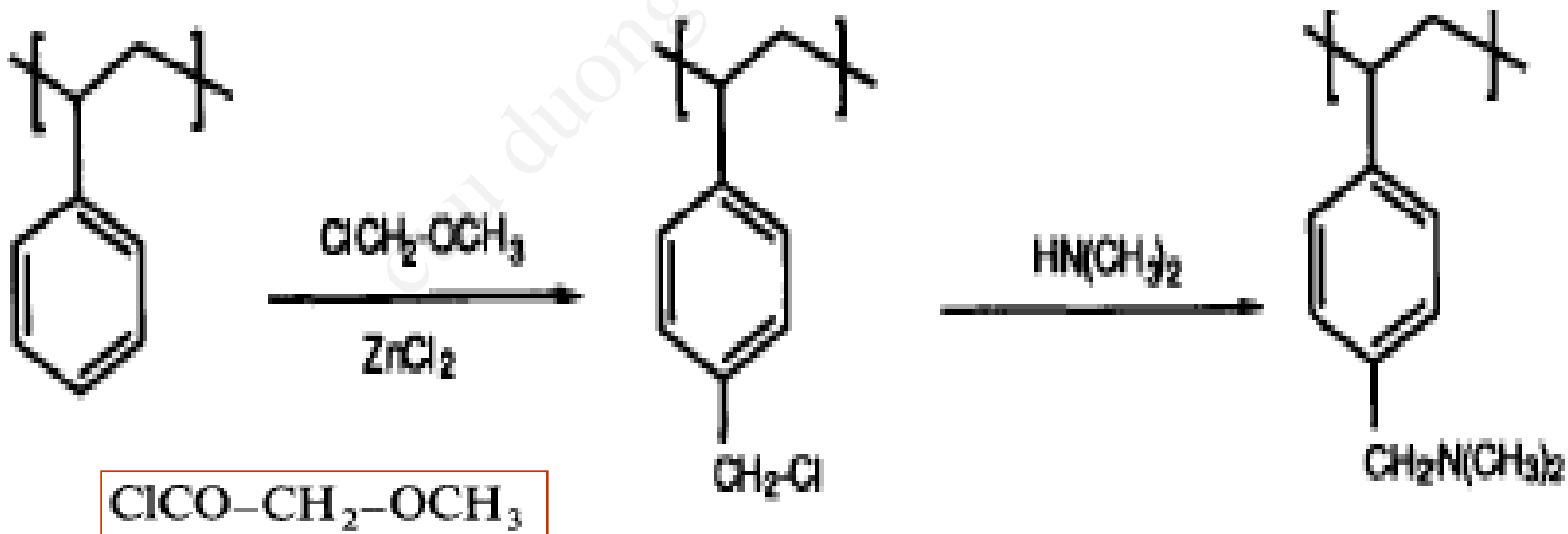


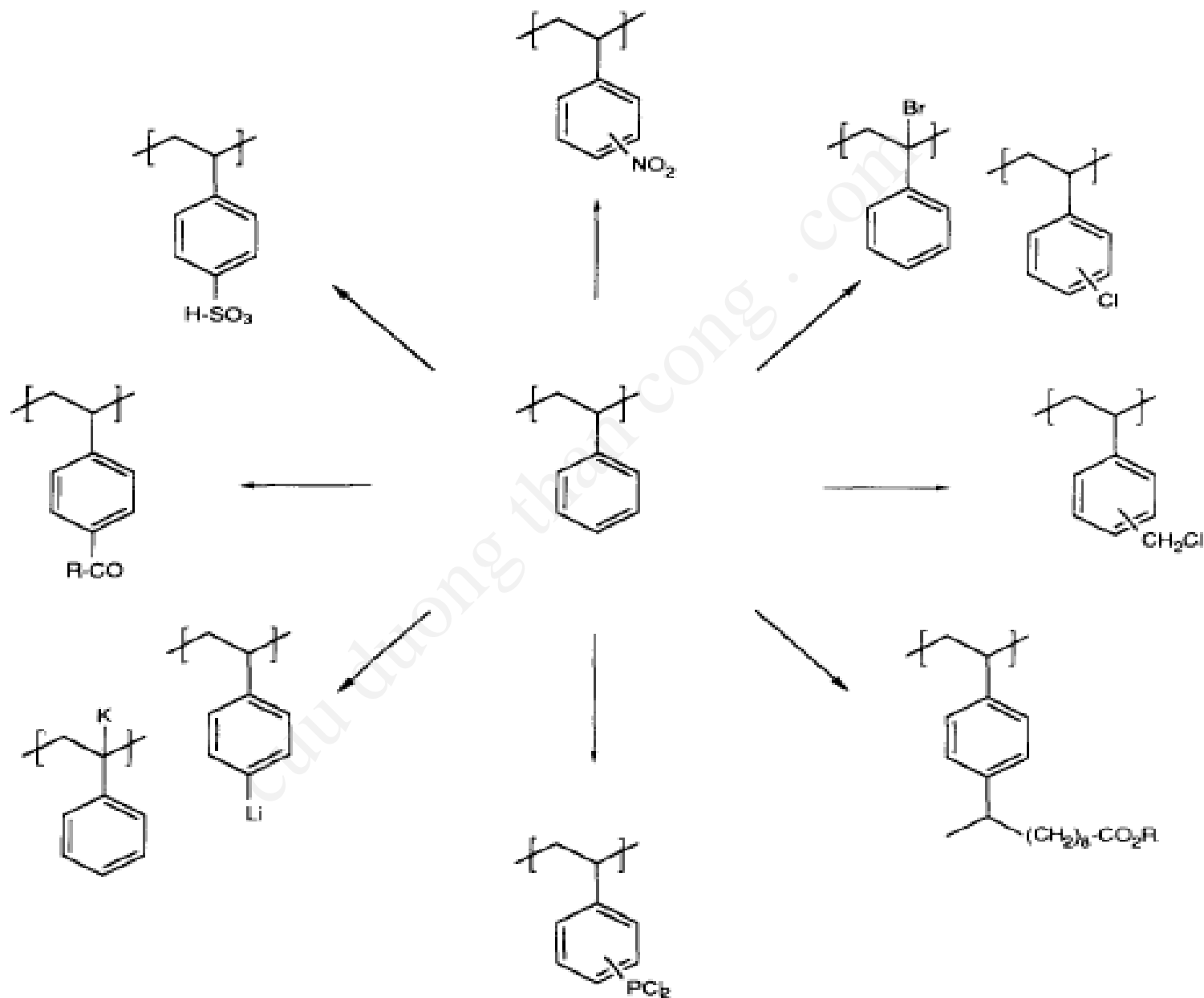
Two routes to modified polymer from a reactive monomer.

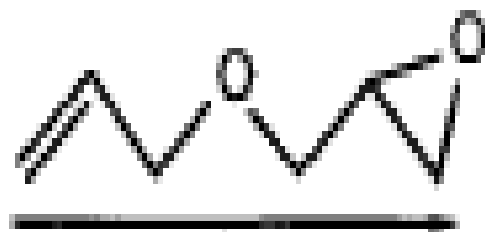
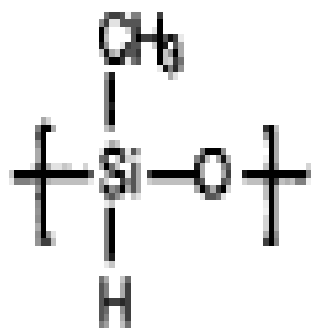
b/ addition of silanes to the double bonds of an unsaturated polymer



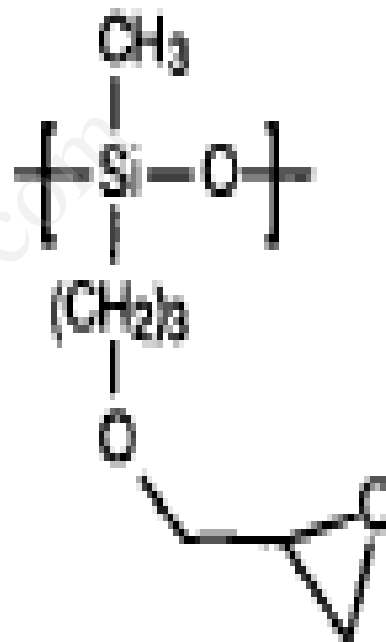
c/ introduction of $\text{-CH}_2\text{Cl}$ groups on polystyrene by chloromethyl ether catalyzed by a Lewis acid



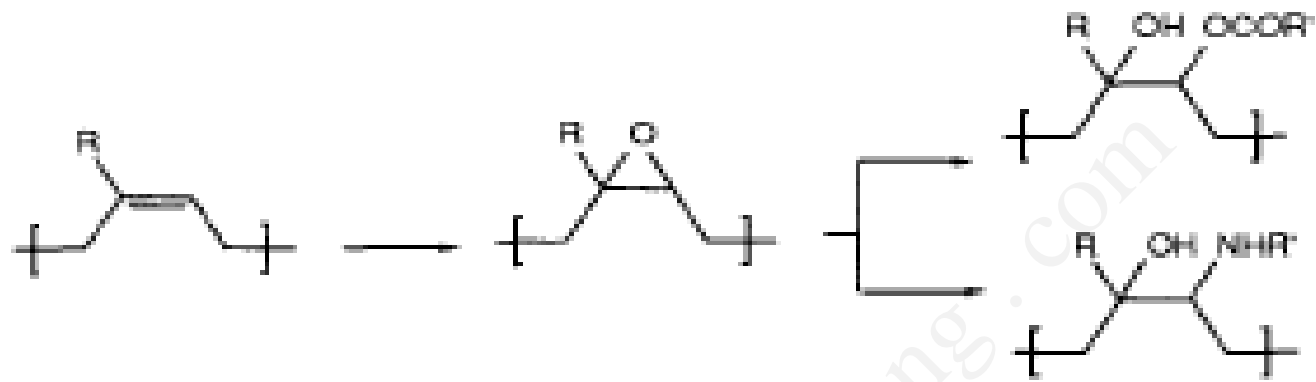




Pt catalyst

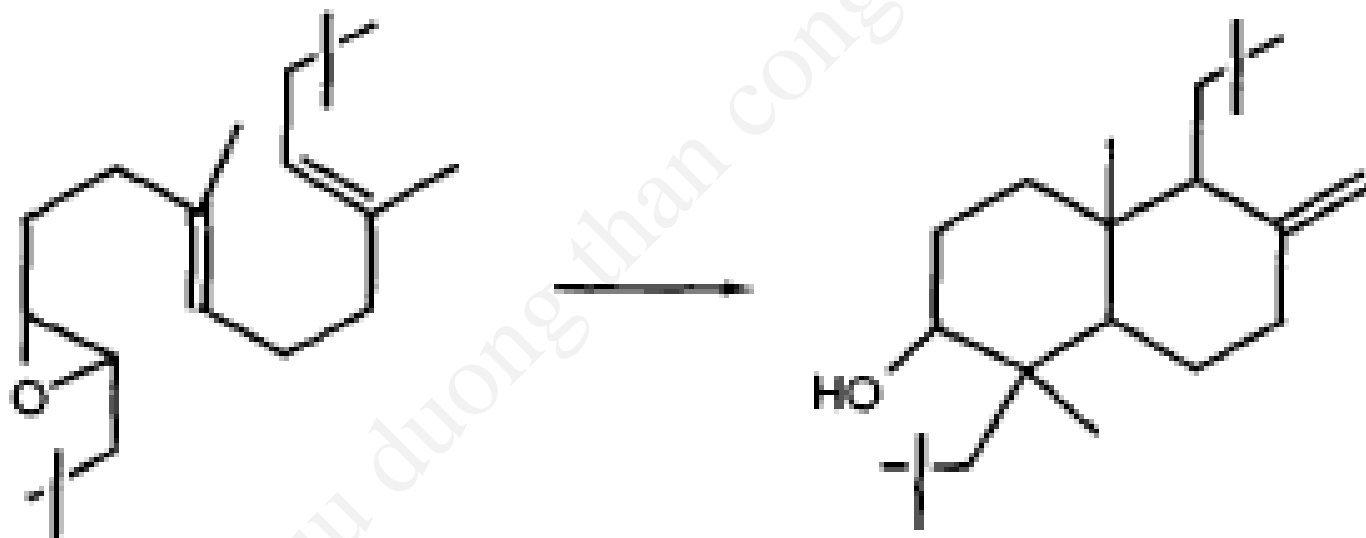
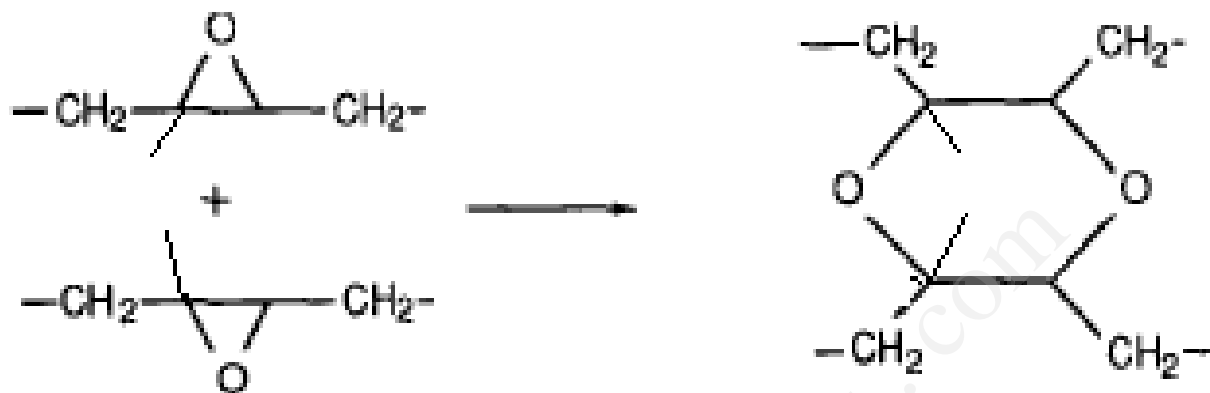


d/ the epoxidation of unsaturated polymers or copolymers

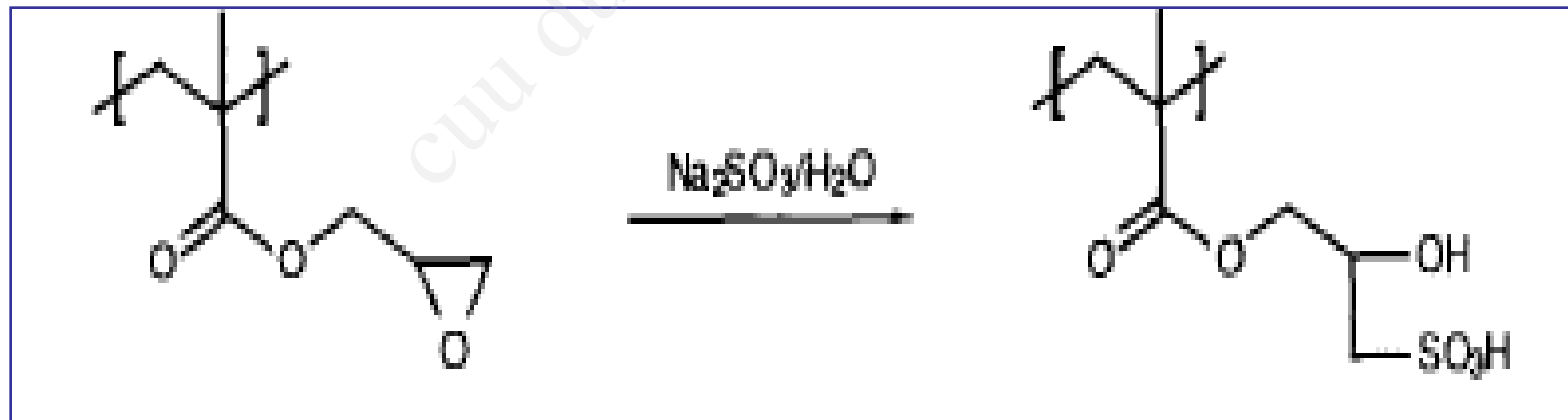
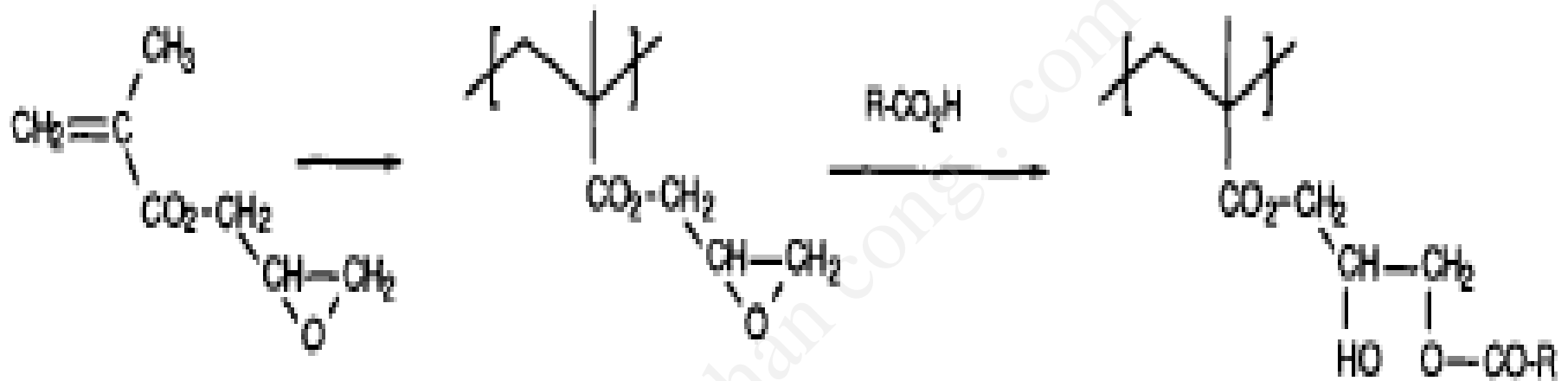


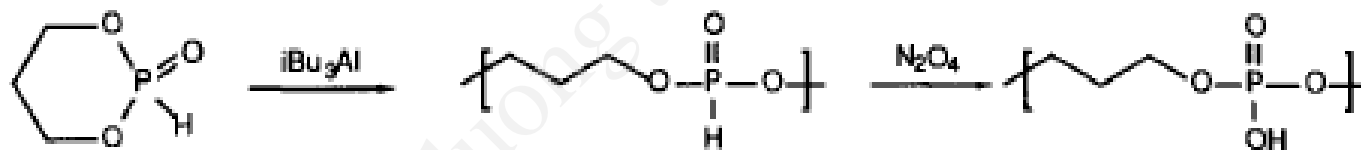
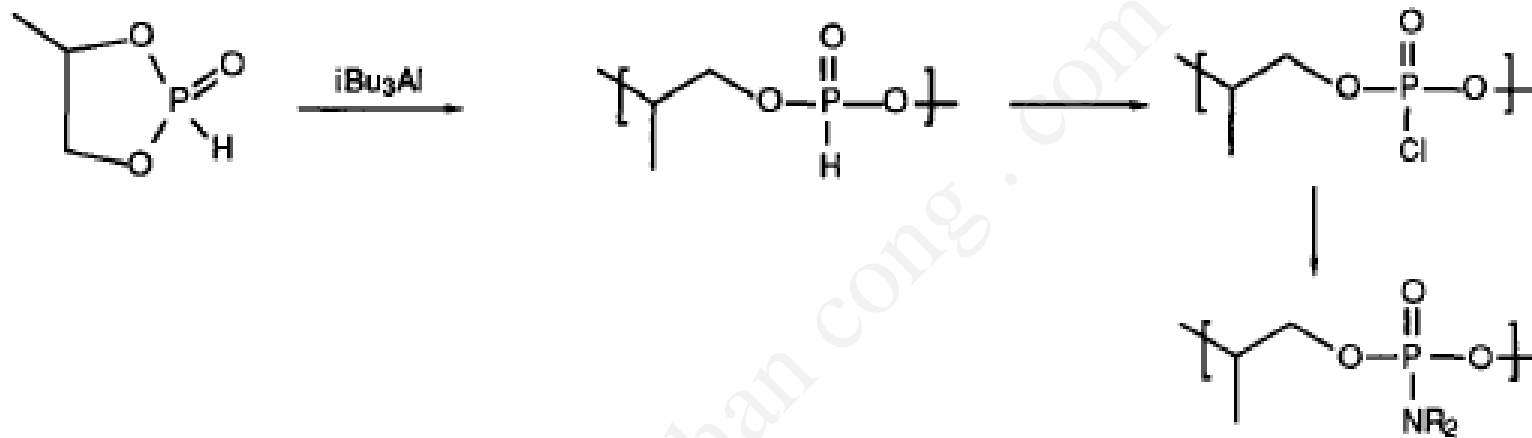
Secondary reactions



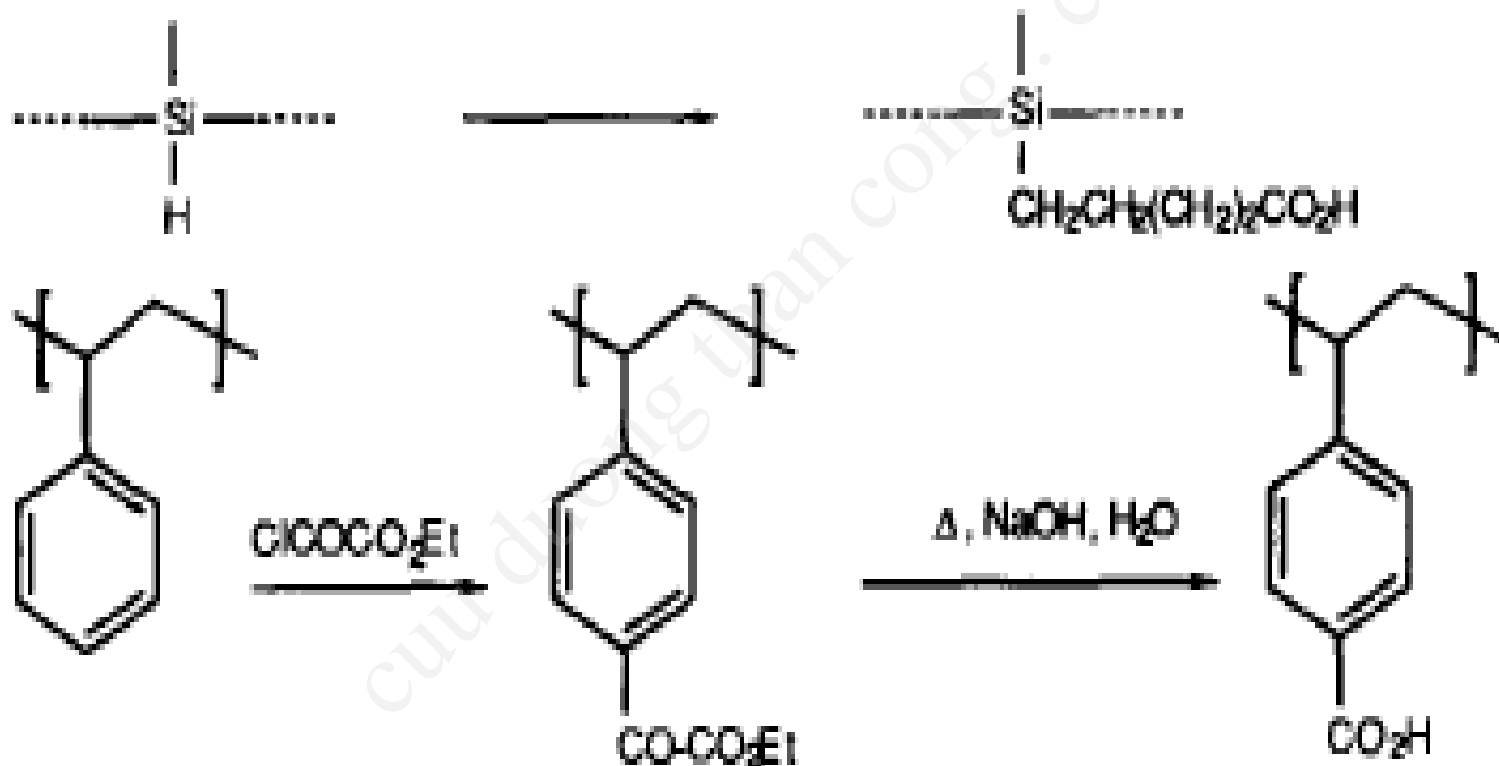


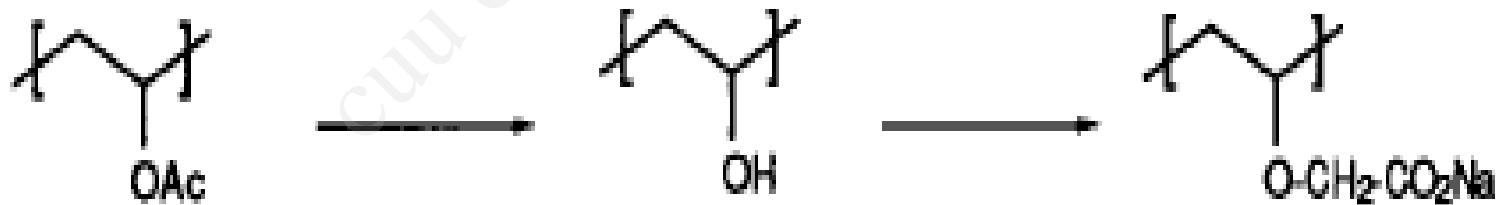
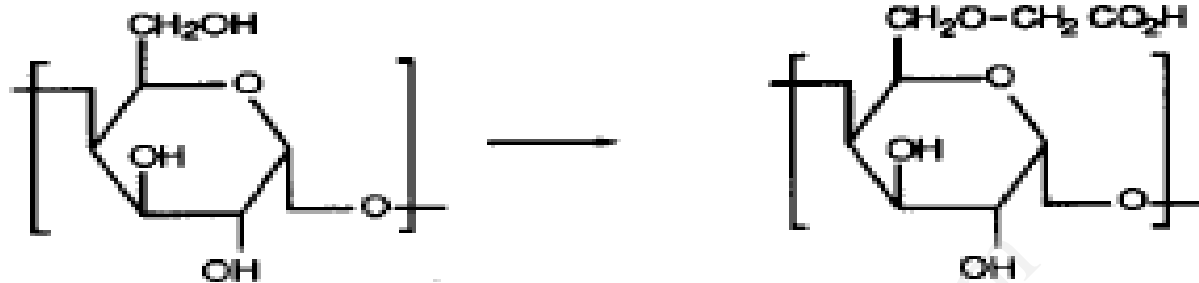
2/ polymerization of a precursor monomer

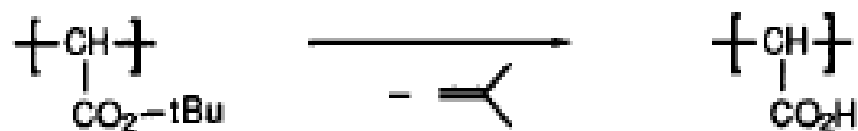
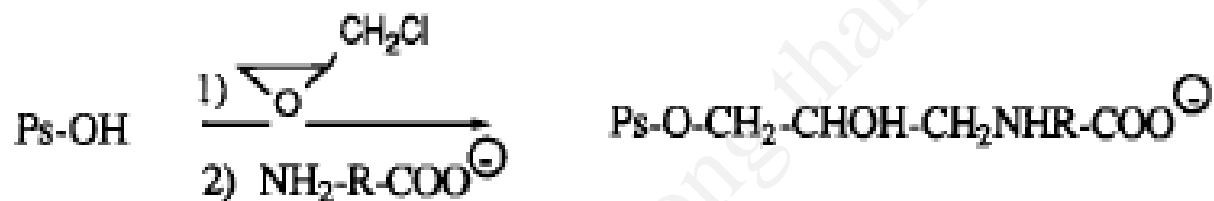
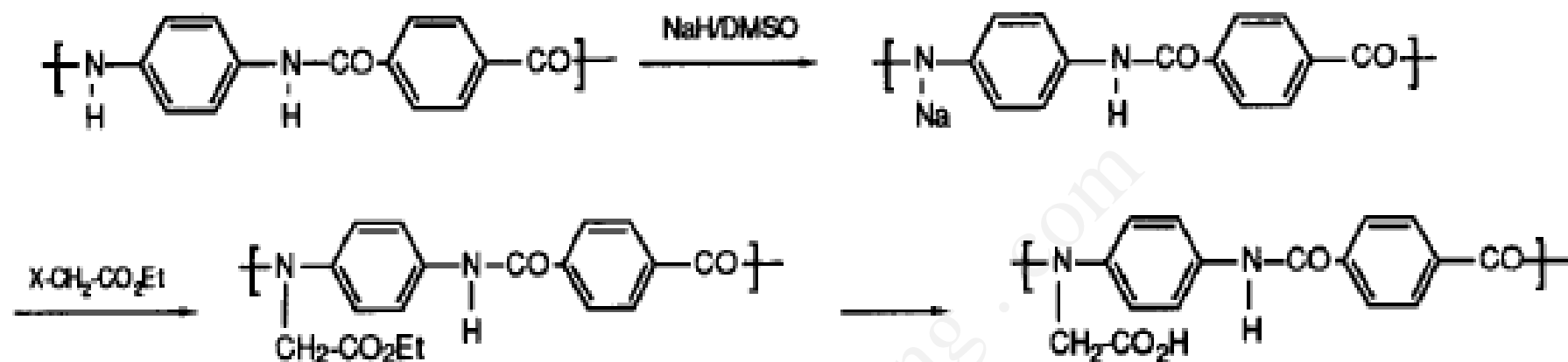




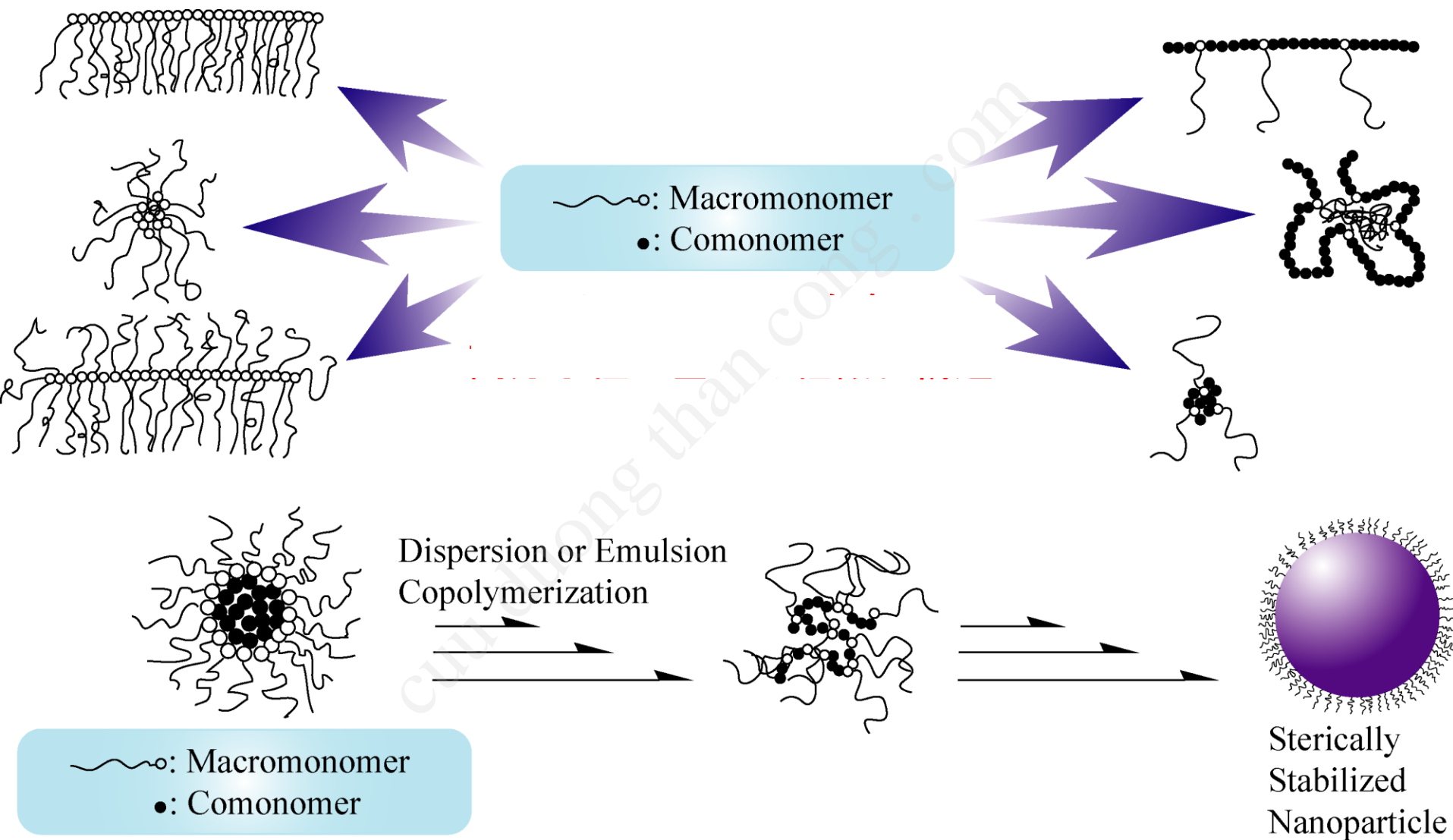
Synthesis of polymers bearing acid groups







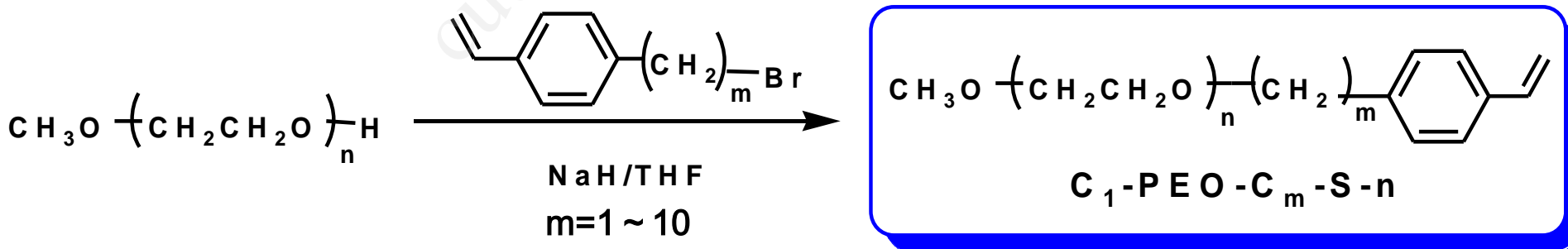
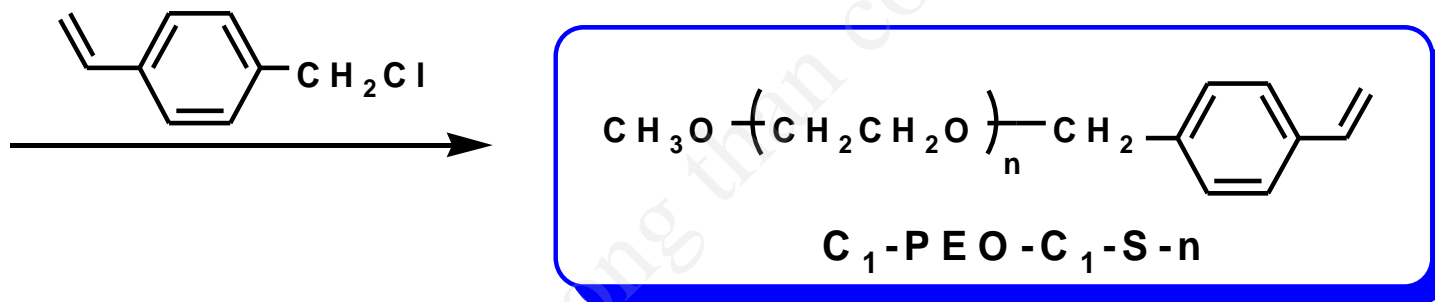
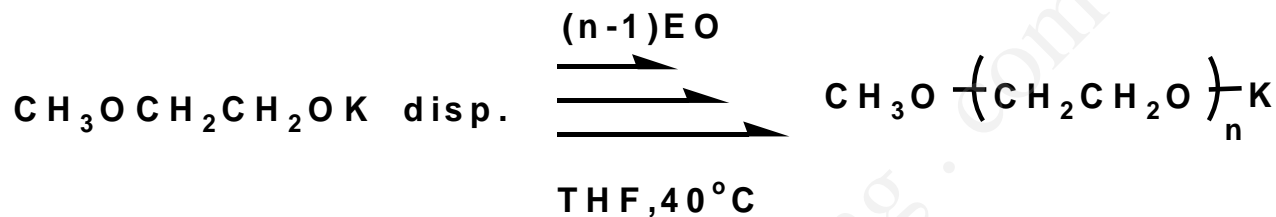
Macromonomer Method



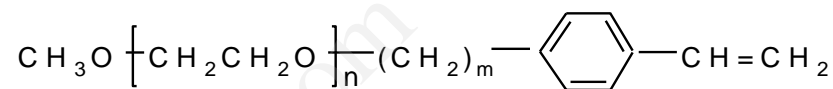
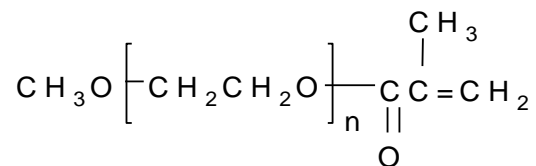
K. Ito, S. Kawaguchi, "Poly(macromonomers), Homo- and Copolymerization", *Advance in Polymer Science*, **142**, 129-178(1999).

S. Kawaguchi, K. Ito "Dispersion Polymerization", *Advance in Polymer Science*, **175**, 317-346(2005).

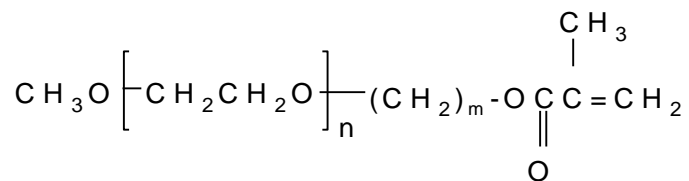
Synthesis of Macromonomers



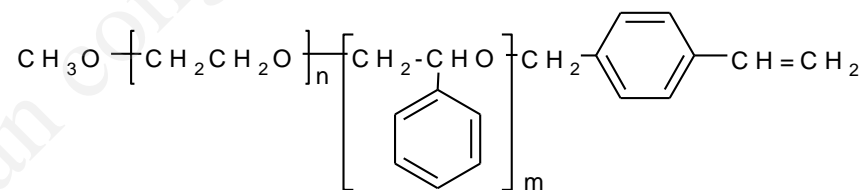
PEO



(m = 1, 4, 7)

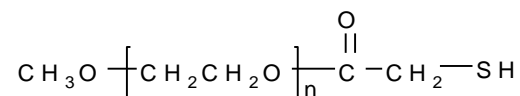
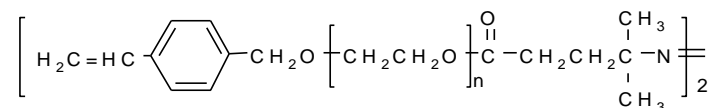
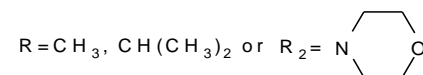
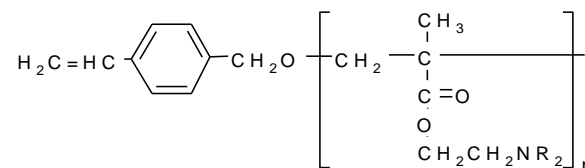
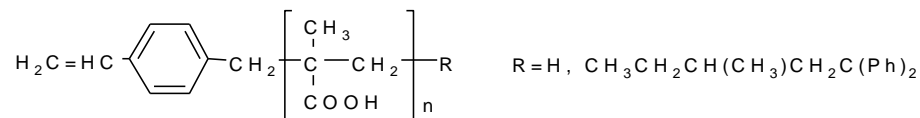
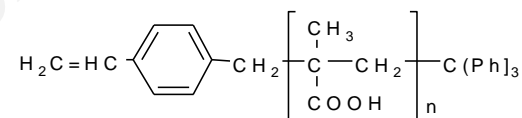
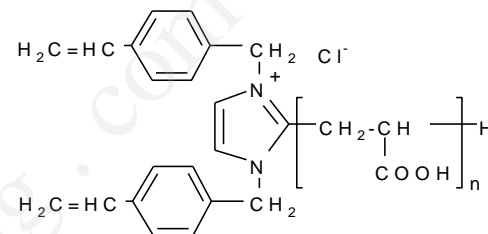
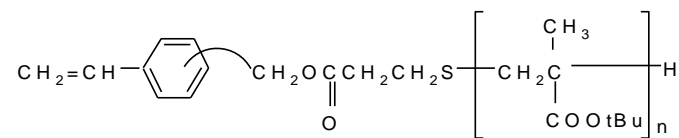
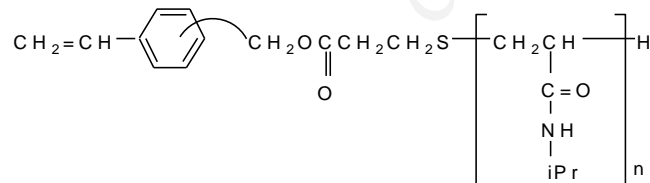
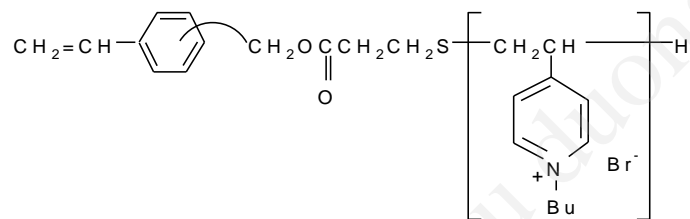
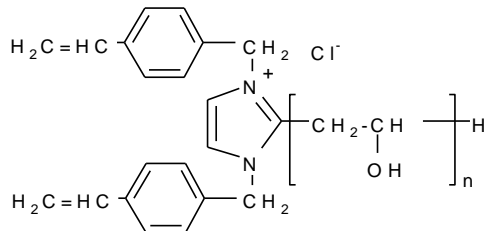
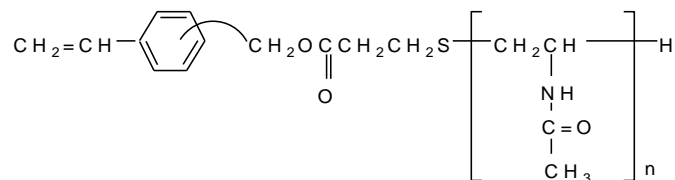
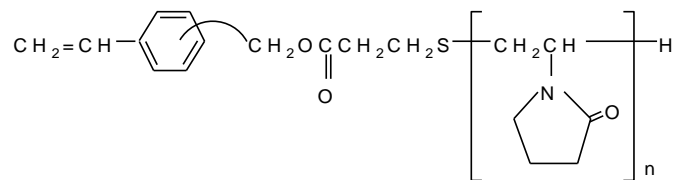


(m = 6, 10, 11)

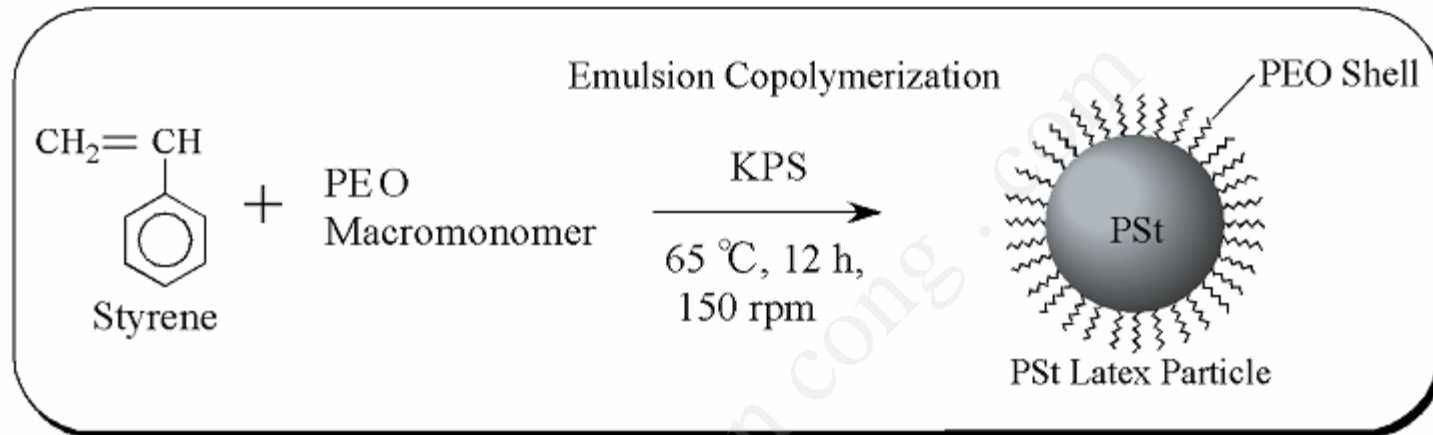


(m = 2.6, 4.1, and 6.8)

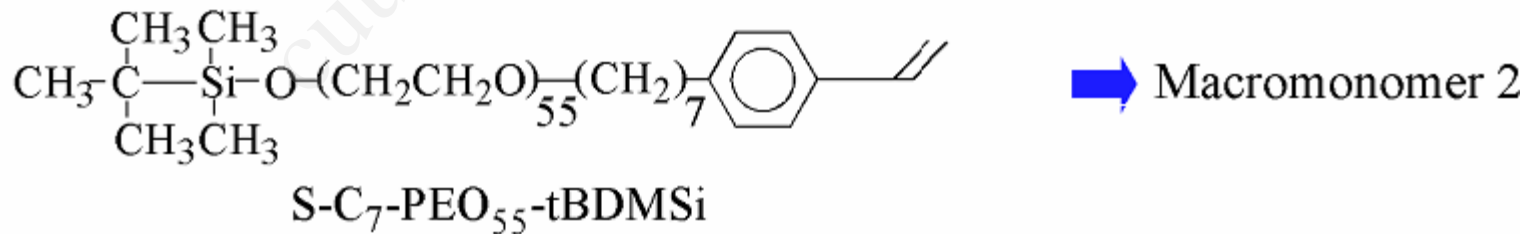
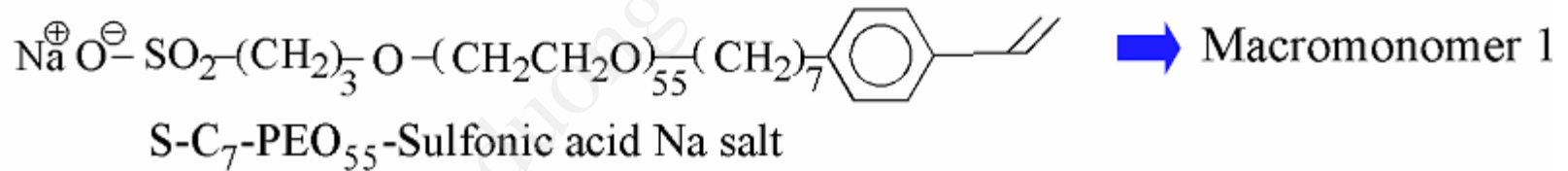
Other Water-soluble Macromonomers



Emulsion Polymerization

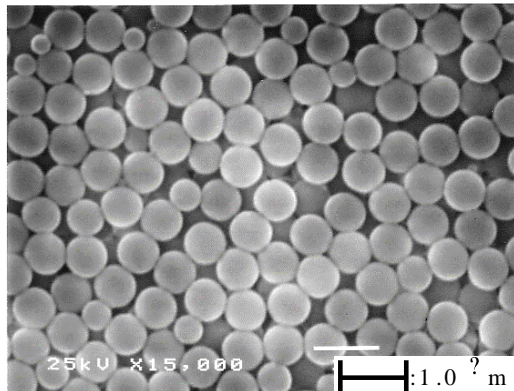


PEO Macromonomers

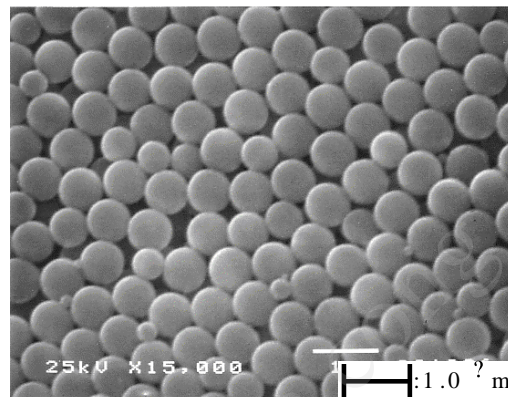


SEM photographs

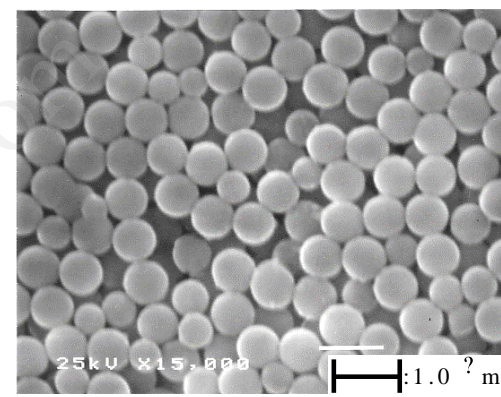
2-1 645 nm



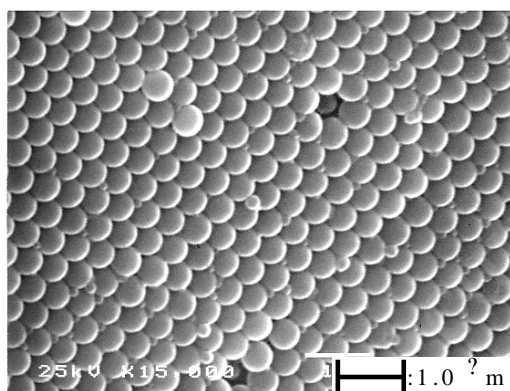
2-2 710 nm



2-3 699 nm



2-4 515 nm



2-5 409 nm

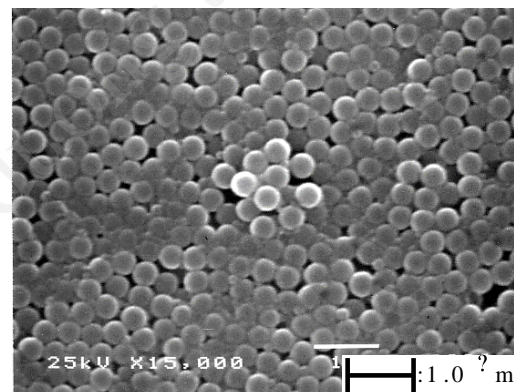


Figure. SEM photographs of polymer particles synthesized by emulsion copolymerization of ST with PEO Macromonomer 2.

(3) Characterization of particle surface

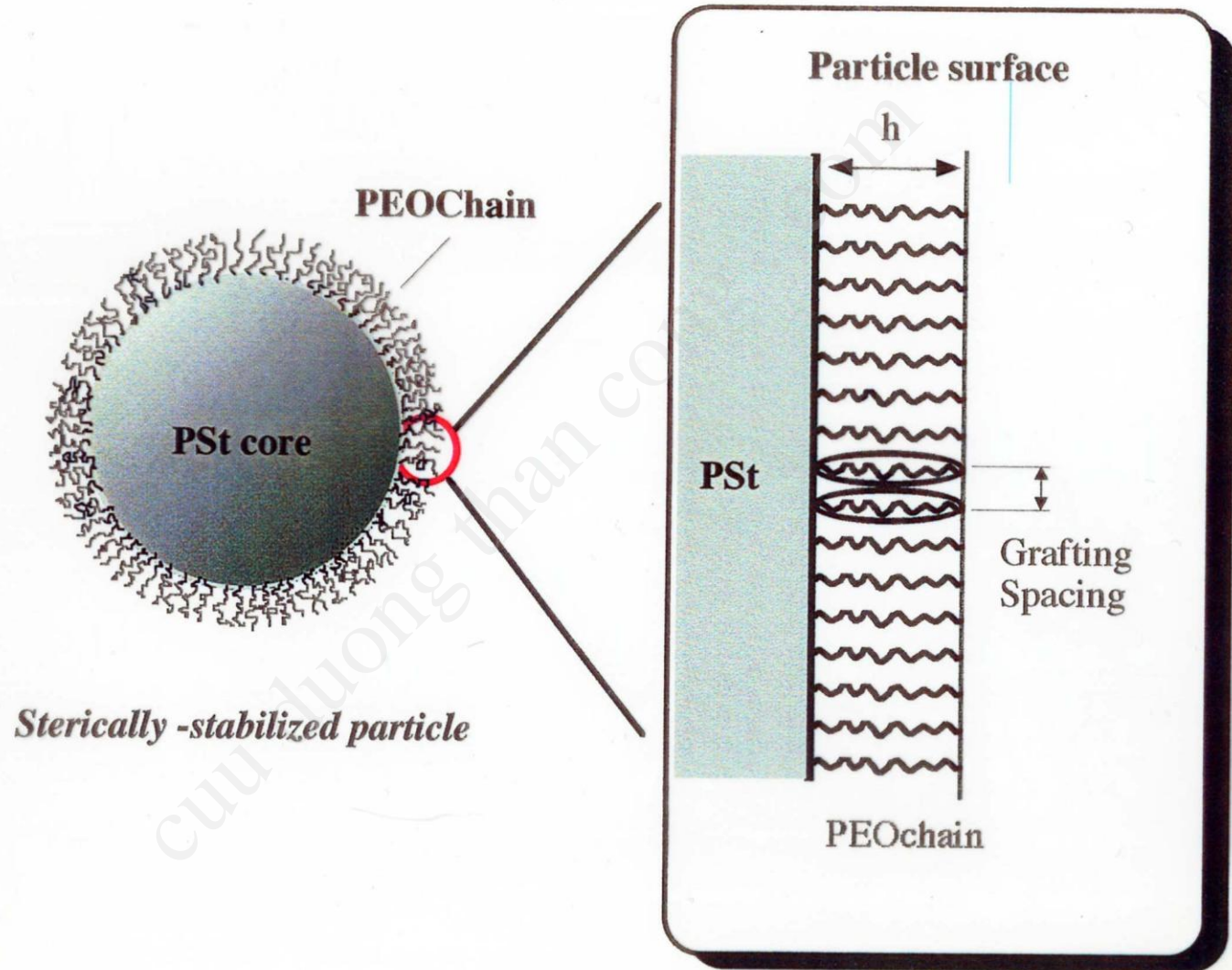


Fig. Schematic representation of Sterically-stabilized particle.

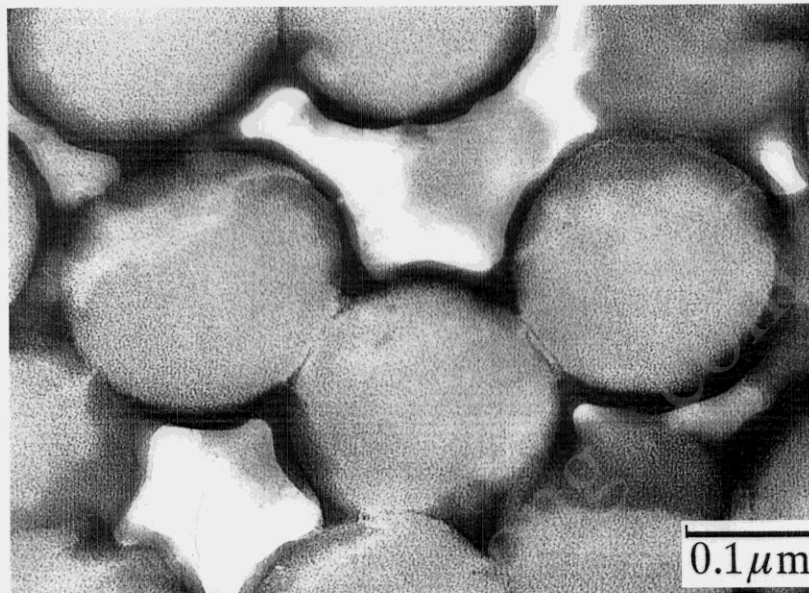


図1-7 SPECIMEN 下リス4vの粒子

MAGNIFICATION $\times 250,000$

FILM No. 69315

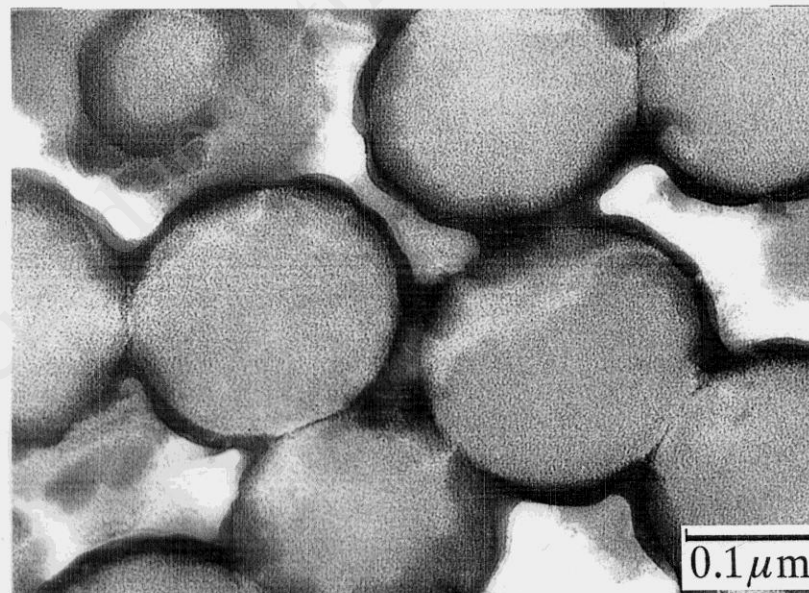


図1-8 SPECIMEN 下リス4vの粒子

MAGNIFICATION $\times 250,000$

FILM No. 69315