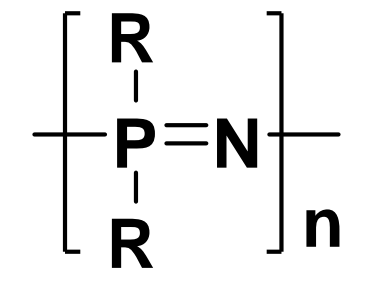


Classical Organic Polymers

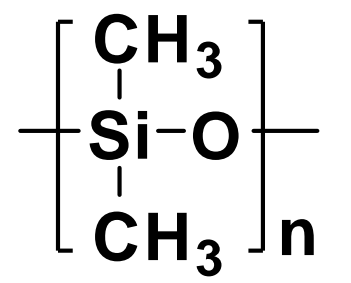
Polyethylene, Polystyrene, Teflon, Nylons, Polyesters, Poly(ethylene oxide), etc.

Hybrid Organic-Inorganic Polymers

Polyphosphazenes

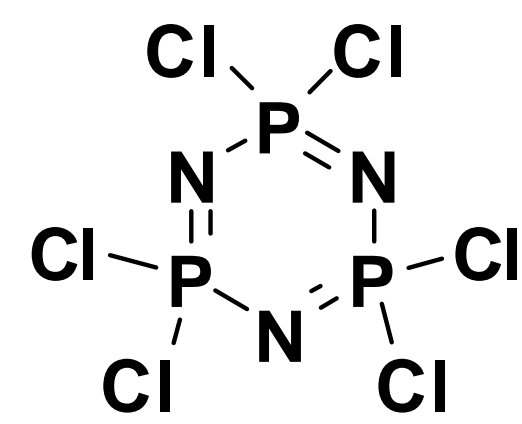


Silicones



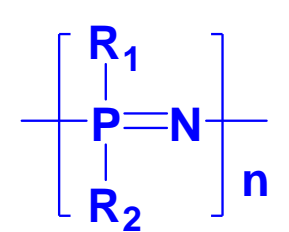
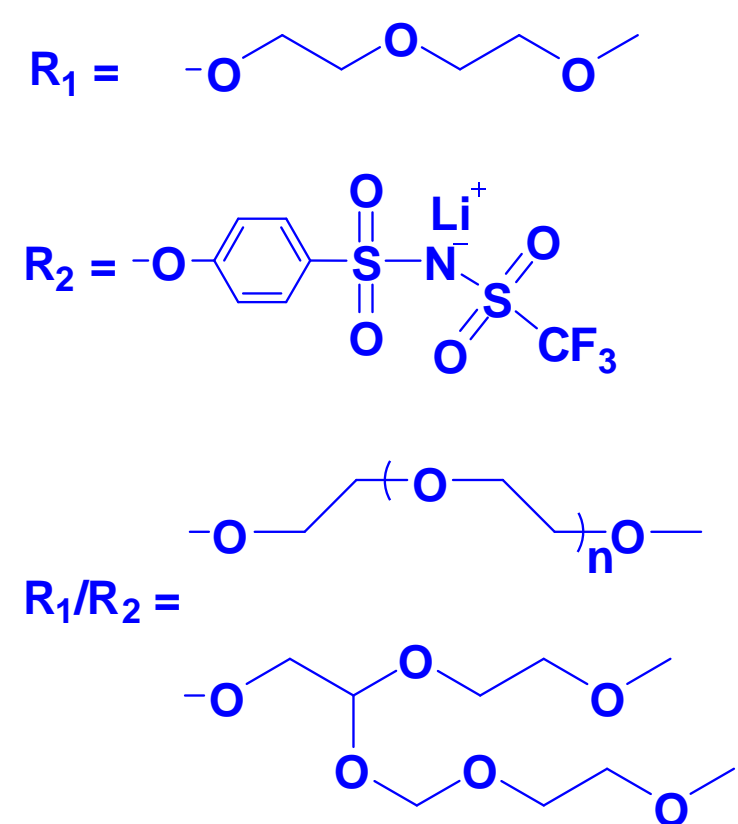
Small Molecule Models

NaOR



RNH₂

Small Molecule Models



NaH

THF, ΔH

Ring-opening

250°C

Polymerization Route

vacuum

NaH

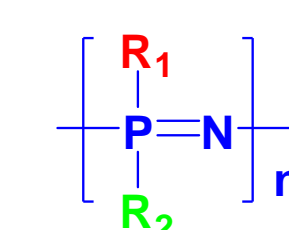
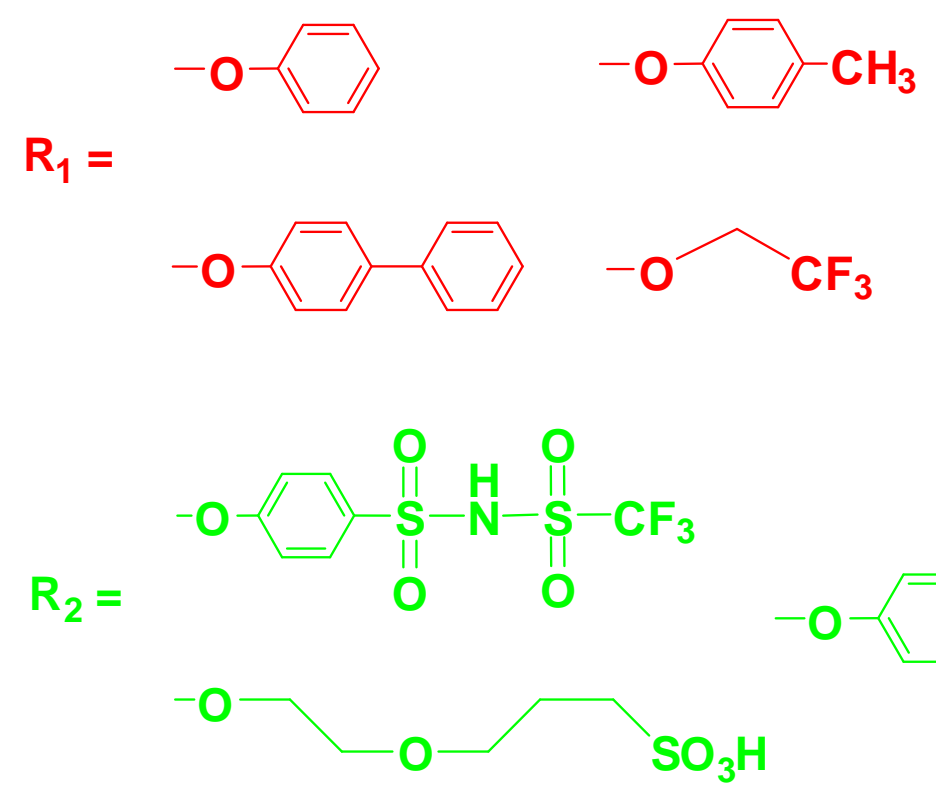
THF, ΔH

THF, Et₃N, ΔH

THF, Et₃N, ΔH

THF, Et₃N, ΔH

THF, Et₃N, ΔH



NaH

THF, ΔH, Autoclave

Living Polymerization Route

(block, star, dendritic, comb copolymers)

PCl₅ CHCl₃, 25°C

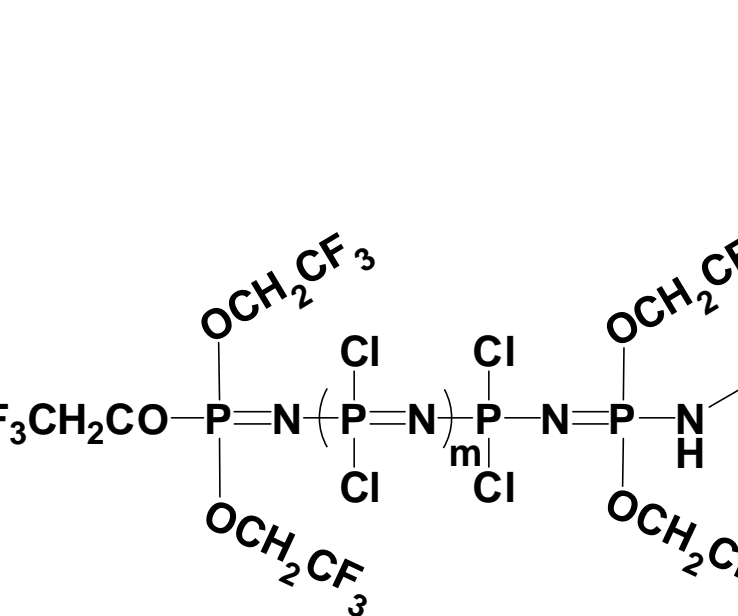
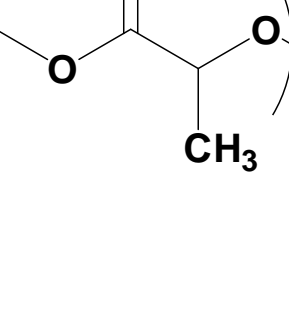
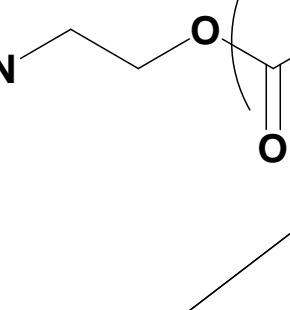
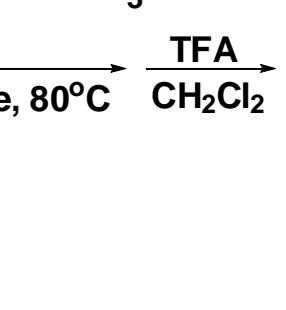
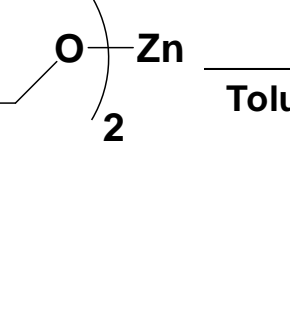
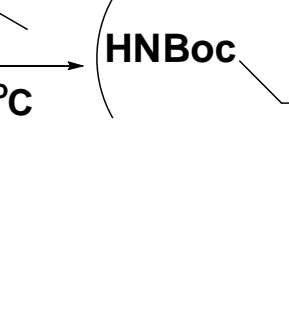
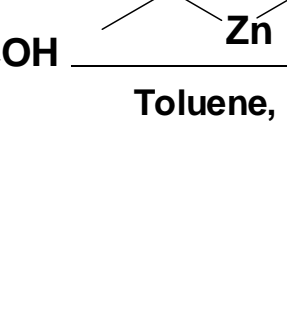
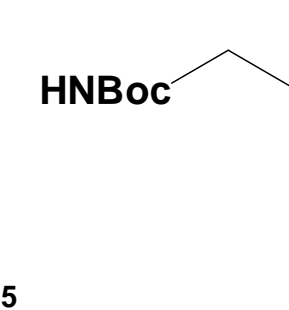
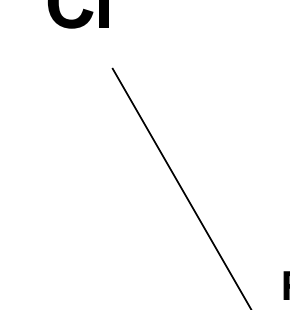
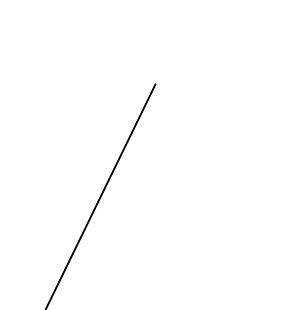
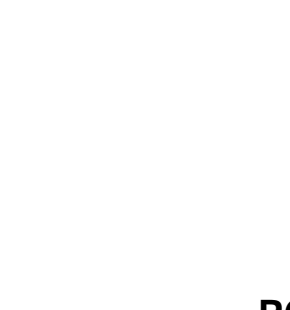
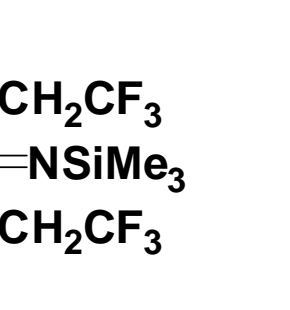
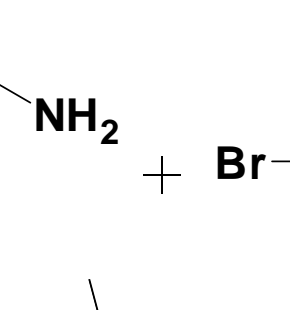
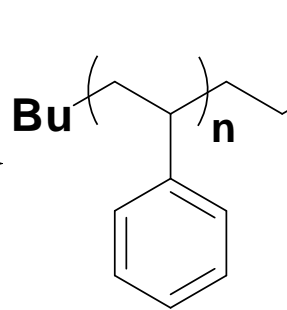
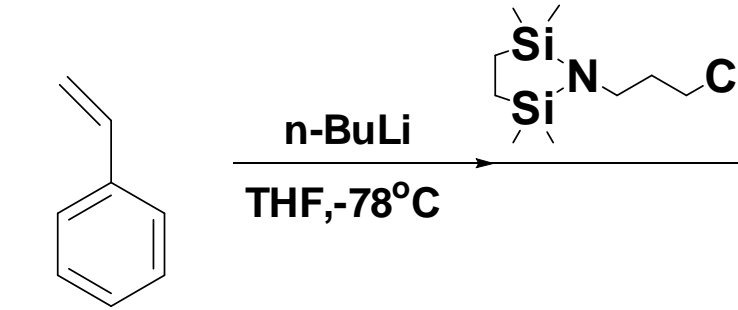
1) NH₂CHCOC₂H₅
2) NH₂C(CH₂OH)₃

THF, Et₃N, ΔH

THF, Et₃N, ΔH

THF, Et₃N, ΔH

THF, Et₃N, ΔH



CH₂Cl₂ RT



THF, Reflux

THF, Reflux



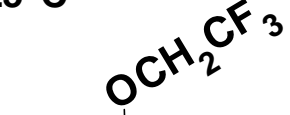
THF, Reflux



Et₃N THF, Reflux



Et₃N THF, Reflux



Et₃N THF, Reflux



Ring-Opening Metathesis Polymerization (ROMP) Route

