Periodic Mesoporous Silicas as Supports for Late Metal Olefin Polymerization

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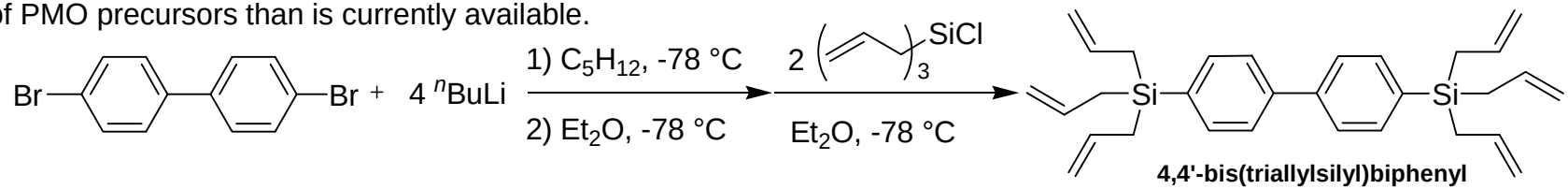
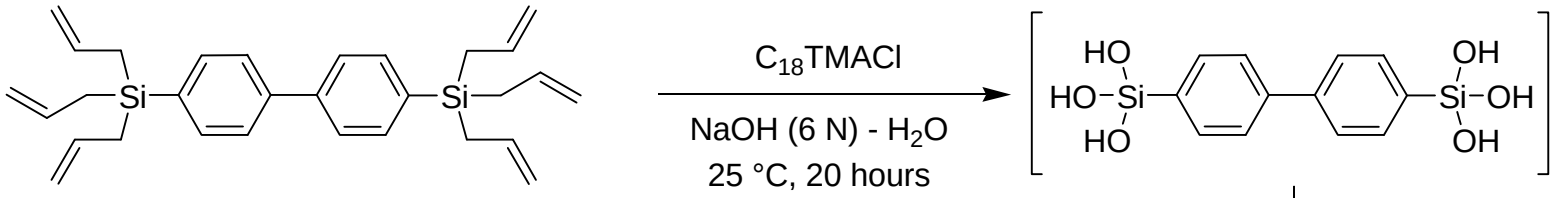
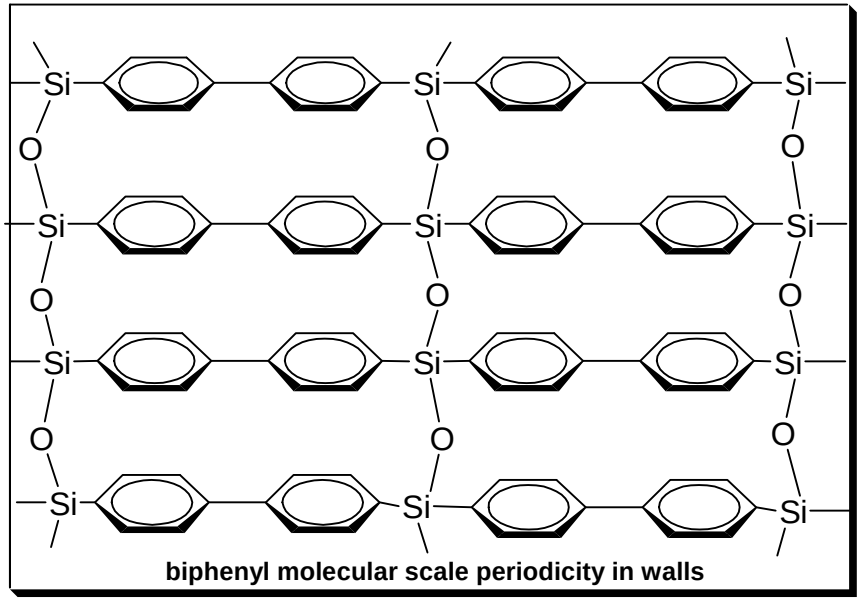
We are working to develop a new synthetic route to hydrolytically stable organosilica precursors for the formation of ordered mesoporous organosilicas with molecular-scale periodicity of the organic groups in the walls of the silica pores. We have synthesized 4,4'-bis(triallylsilyl)biphenyl using our new methodology and formed the corresponding PMO. We are currently targeting other large organic molecules and heterocycles with which to create organosilica precursors to allow access to a larger library of PMO precursors than is currently available.



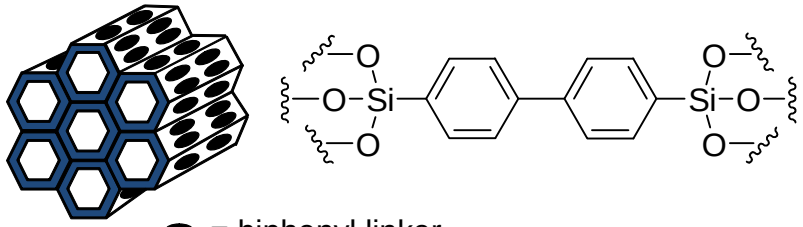
4,4'-bis(triallylsilyl)biphenyl





biphenyl molecular scale periodicity in walls

1) Condensation, 95 °C
20 hours
2) surfactant extraction



= biphenyl linker

biphenyl-silica mesoporous PMO