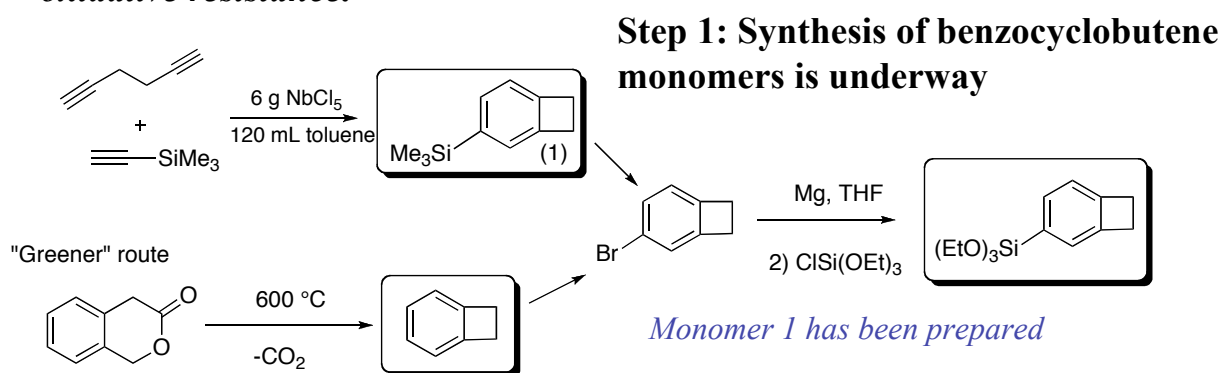


New Solar System Sealants by Plasma Polymerization

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Photovoltaic (PV) systems are generally sealed behind glass to prevent water & weather from damaging the electrical contacts. Organic based PV materials are also susceptible to damage from the oxygen in air. Existing polymers used to seal the PV systems rapidly react with air in the intense light and can lose up to 40% of transmission per year. Objective: *Develop a new class of sealants, based on plasma polymerization of benzocyclobutenes, for photovoltaic systems that is easy to apply and would have improved oxidative resistance.*



**Step 2:
Inductively
coupled plasma
polymerization
apparatus**

*Branson 3000
plasma asher was
acquired.*



**Step 3: Conduct plasma
polymerizations of new monomers**

*Awaiting monomer synthesis and apparatus
set-up*

**Step 4: Evaluate photochemical
stability of coatings**

Acquired photochemical test chamber

Summary: In last six months, significant progress has been made on synthesis of benzocyclobutene monomers with an eye on environmentally friendly, low cost approaches. A plasma chamber and photochemical test chamber were acquired and are being set up. Films will be deposited by plasma polymerization on quartz and tested for stability and permeability during the next semester.

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