

Lewis: Progress Report for November

Within the past 3 weeks

1. Recently I showed that trichlorosilyl functionalized PIB undergoes facile hydrolysis/condensation reactions in the presence of water to form PIB stars. (Figure 1)
2. Similar reactions in the presence of DMSO lead to condensed materials with molecular weights ranging from 2-3 times the arm molecular weight. These condensed materials may have formed due to the presence of residual water in the DMSO.
3. At the present time I have been working on reducing these trichlorosilyl groups so that percent functionality can be assessed using ^1H NMR. Furthermore, I am looking into deconvolution of recent GPC data to see what species make up the mixture of star material.

Future work

1. I have been producing more allyl-ended PIB in order to further explore the use of trichlorosilyl functionalized PIB. Specifically I will focus on the affect that water concentration has on the product distribution. I will also plan some simple kinetic studies using this material.
2. The remainder of the allyl-ended PIB will be converted to trimethoxysilyl ended PIB (which Aldrich said will finally arrive in a few days). Hopefully this material will be more reactive than triethoxysilyl ended PIB.
3. Finally, I would also like to look further into the non-hydrolytic condensation reactions of trichlorosilyl functionalized PIB (DMSO, ZnO, NaHCO_3). (Figure 2)

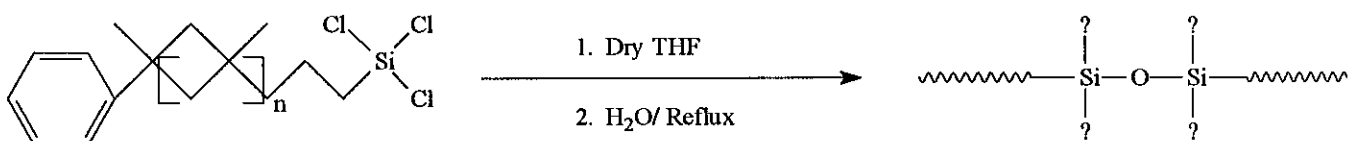
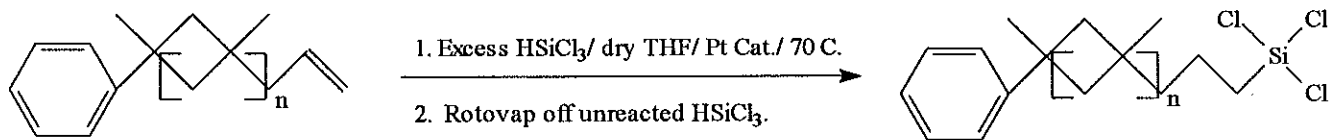


Figure 1

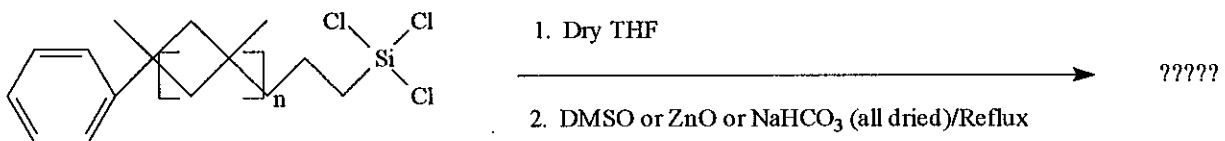
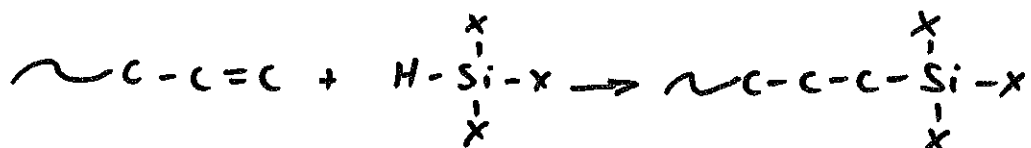


Figure 2

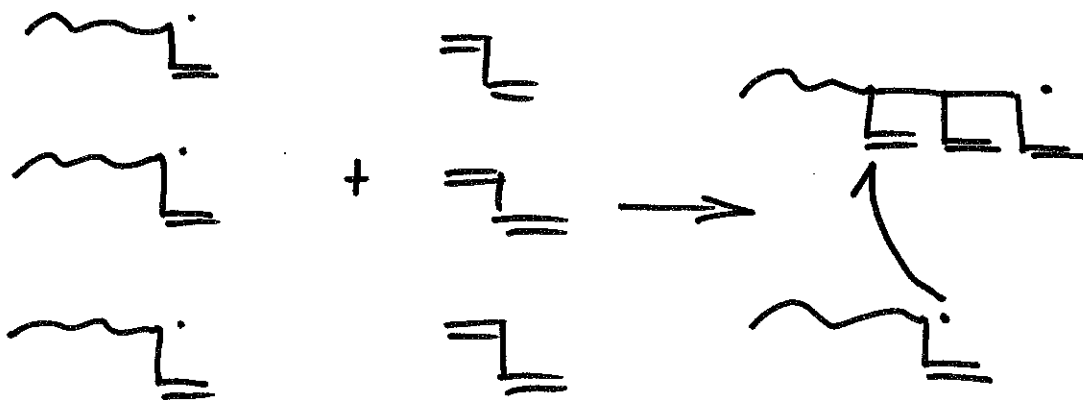
Progress Report Nov. Items Discussed

Should make sure rxn is defined in notebook



X = OR, halogen

Stars made with Divinylbenzene - see Marsalho



Stars could be studied (Morphology of) using
A dye to stain the core which can then be
measured using microscopy.