**Chem/MatS/ChEn 4223W**

**Assignment 20**
**Due:** *In Lab,* Tuesday, May 7/Thursday, May 9

1. In Lab 7, you determined the mass and the volume of your crosslinked and uncrosslinked P(CO) polymers before swelling. (If you didn't determine the volume, you can calculate it using $\rho = 0.91$.[1]) You also determined mass values after swelling. From the mass increase, and using the density of each solvent used, calculate fractional volume increases $V_{final}/V_{initial}$ for each experiment you ran.

2. Do your observations make sense in terms of good and poor solvents for polyalkenes?

[1] Data from Degussa, which sells poly(cyclooctene) (also called polyoctenamer, sold as Vestenamer). http://www.degussa-hpp.com/eng/products/rubber/index.shtml for details.

3. Did either of your P(CO) materials—crosslinked or not—exhibit shape memory? If so, how quickly did your materials respond to changing temperature? Considering the amount of crosslinker you added, how do your observations compare to those of Coughlin and Mather in their article (*Macromolecules* **2002**, *35*, 9868-9874) on crosslinked and uncrosslinked P(CO)?