

NMR Grading Rubric, Spring 2008

Session #1: Measurement of Spin-Lattice Relaxation Time T_1 and Spin-Spin Relaxation Time T_2 (60 pts.)

- I. Obtain an on-resonance FID for glycerin and record the Δf_0 . (10pts)
- II. Determine the lengths of the Π and $\Pi/2$ pulses. (16pts)
- III. Compare the difference between the off-resonance and on-resonance Δf_0 . (14pts)
- IV. Use the *inversion recovery* method to measure the spin-lattice relaxation time T_1 for glycerin. (10pts)
- V. Use simple spin-echo method to measure the spin-spin relaxation time T_2 of glycerin. (10pts)

One page draft shown at the beginning of Session #2 (10pts)

Session #2 Using the spin-spin relaxation time T_2 to probe polymerization kinetics (30 pts)

- I. Determine T_2 for DCPD monomer sample. (10pts)
- II. Measure the change in amplitude in the echo vs time as polymerization reaction takes place.
 1. A plot of A vs t. (15pts)
 2. Discussion. (5pts)