Problem 33: Polymers

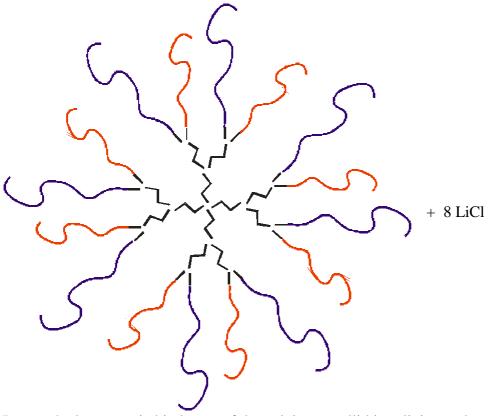
1. The volume of the Larnax is 40.9 cm x 34.1 cm x 17.0 cm = 23.7 dm³. Consequently, the Larnax will be filled with m=V d = 23.2 kg

This quantity corresponds to $(23200/10^6)$ x N_A Vergina Star Copolymers, or 0.0232 x N_A Vergina Star Copolymers, where N_A is the Avogadro number.

2. The following reaction scheme should be followed in order to synthesize the Vergina Star Copolymer:

Due to the steric hindrance of the styrillithium anion, only one polymeric chain can react with each –SiCl₂ group.

$$(A) + 8$$
 CH_2
 CH_2
 CH_3
 Θ
 CH_2
 CH_2
 CH_2
 CH_3
 CH_2
 CH_3
 CH_2
 CH_3
 CH_3
 CH_3
 CH_4
 CH_5
 CH_5
 CH_6
 CH_7
 CH_7



Due to the lower steric hindrance of the polyisoprenyllithium living ends, the reaction goes to completion.