Substitute for Lab Manual Procedure

Polymerization of Styrene

CH-202L

1. In the hood, 1.6700 g styrene (16.0 mmol) monomer, 50.7 mg Reagent Grade (70% aqueous) benzoyl peroxide (0.146 mmol) and 5.0 mL mixed xylenes were combined in a 10 mL round bottom flask equipped with a thermometer, Claisen Head Adapter with side arm with septum cap, a magnetic stirrer bar and a reflux condenser.
    a. Set up thermometer through the condenser such that an open system is maintained.
2. The reaction was then heated on the hot plate to reflux and allowed to reflux for 20 minutes.
    a. A suggested alternative is to heat the reaction mixture with a hot water bath to 100 ^{o}C and hold at 100 ^{o}C reaction temperature for 30 minutes.*
3. The polymer was analyzed by deposition of a tiny drop on a KBr plate and the spectrum of the product was compared to the spectrum of styrene and to the polystyrene IR standard.
4. The whole reaction mixture was then placed in the waste and the flask cleaned with 3 mL mixed xylenes placed into the reaction waste jar and then acetone was used to rinse the flask into the Acetone Wash Waste bottle before returning flask to the lab drawer.

*Note: a rigorous determination of the amount of unreacted peroxide left over after this reaction has been stopped has not been made to date.

04/15/2013/DRB