

Standard Operating Procedure

General Laboratory Safety

Topic: Dispersion polymerization without water and w/o agitation

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Recipe:

Materials	General Recipe	Recipe for each vial (1/20)	Recipe for 8 vials (mother solution)
MMA (mL)	40	2	16
Hexane (mL)	10	0.5	4
LPO (g)	1.128	0.0564	0.5412
PDMS (G)	0.533	0.02665	0.2132
Temperature (°C)= 70	Time (hr)=2		

Method:

- Turn on the oil-bath, put magnet in it and adjust it at 70 °C and 120 rpm.
- Make ready the vials and label them.
- Close the door of the vials and weight them all using a balance.
- Make the oil solution: Weight 0.5412 g of Lauroyl Peroxide (LPO) and then add 16 mL of Methylmetacrylate (MMA) solution to it, put a small magnet in it and then close the door of the erlenmyer by aluminium foil and put it on the mixer plate.
- Make the hexane solution: Add 0.2132 g of Polymethyl siloxane (PDMS) to 4 mL of hexane, close the door of the erlenmyer by foil, and then shake it to mix the solution.
- Put 2 mL of oil solution in each of the vial, close the door of the vials and weight the vial again.
- Put 0.5 mL of hexane solution in each vial, and close the door of the vial tightly.
- Put the nitrogen tube in each vial for 2 minutes.

- Turn off the oil-bath stirrer button and take out the magnet.
- Put all the vials in the oil-bath and turn on the time recorder.
- Take out each vial from the oil-bath at the determined time (10-120 minutes).
- Add a very small amount of hydroquinone to each vial, and stir by a spoon.
- Add some methanol to each vial to precipitate the polymer (PMMA).
- Filter the solution using a filter paper.
- Put all vials and their doors and the filter under the hood to release the good amount of solvent and then put them all in the vacuum oven.
- Take out samples from the vacuum oven and weight them and put the polymer powder in plastic bags and label them and save them in an appropriate container to discard them according to the rules.
- Put all the excess amount of solutions of all containers such as erlenmeyers in the waste bottles with green tags on them and write your name, the date and the contents of the waste materials with volume percent of each component of it. Then, put all the containers such as erlenmeyers which you used before under the hood to release the solvent by vaporization and then wash them using soap and water.