

If there's no Anhydrous Ether, use non-anhydrous and dry it with calcium chloride & decant it

CHEMISTRY 251 EXPERIMENTS

Experiment 1: Melting Point Distillation (hand-out)

24 Unknowns bottles in center table

Part 1: Melting Point Determination

1. Urea (solid)
2. Cinnamic Acid (solid)
3. *Urea/Cinnamic Acid 25 / 75 % -.*
4. Urea / Cinnamic Acid 50/50 % (mix the two solids)
5. *Urea / Cinnamic Acid 75/25 %*

Experiment 2: Determination of Boiling Point via Distillation and via Micro Boiling Point Method

1. Toluene / Methylene Chloride 50/50% instead of cyclohexane
2. Boiling chips

Experiment 3&4: Isolation of Eugenol from Cloves

1. Cloves (instructors pick up from the stock room)
2. Dichloromethane (Methylene Chloride)
3. Sodium Sulfate anhydrous (solid)
4. Sodium Hydroxide 10%
5. Hexane
6. Hydrochloric acid concentrated
7. TLC plates with indicator (instructors pick up from the stock room)

Experiment 5: Recrystallization of Benzil/ Isolation of Acetylsalicylic Acid from Aspirin Tablets

Recrystallization of Benzil

1. Benzil impure -> mix benzil with sand and charcoal
2. Ethanol 95 % (was methanol changed to ethanol)
3. Carbon (decolorizing) (solid)

Isolation of Acetylsalicylic Acid from Aspirin Tablets

1. Aspirin tablets
2. Ethanol 95 %

Experiment 6: Preparation of Cyclohexene

1. Cyclohexanol
2. 85% O-Phosphoric Acid (regular phosphoric acid)
3. Sodium Sulfate anhydrous (solid)
4. Sodium Chloride saturated
5. Boling chips (carborundum)

Experiment 7: Preparation of 1-Bromobutane

1. Sodium Bromide (students use 31 g each use large bottle)
2. N-Butyl Alcohol (1-butanol)
3. Sulfuric Acid Concentrated
4. Calcium Chloride Anhydrous
5. Sodium Sulfate anhydrous (solid)
6. Sodium Bicarbonate saturated

Experiment 8: Nucleophilic Substitution of Alkyl Halides

1. 18% Sodium Iodide in Acetone → 180 g NaI / 1L Acetone takes about 15-20 min to dissolve
2. 1% Silver Nitrate in Ethanol → 10g AgNO₃ / 1L Ethanol takes about 15-20 min to dissolve
3. 1% Silver Nitrate in 1:1 Water/Ethanol → 10g AgNO₃ / 500ml of Ethanol and 500ml of Water
4. 1- Chlorobutane (N-butylchloride) (solid)
5. 1-Bromobutane (solid) (N-Butyl bromide) soln
6. 2-Chlorobutane(solid) (Sec-Butyl chloride) soln
7. 2-Chloro-2-methylpropane (solid) (Butyl-tert-chloride) soln
8. Crotyl chloride same as 1-chloro-2-butene(cis & trans) (should be fridged)
9. 1-Chloroadamantane → check to see if it has arrived

Experiment 9: Oxidation of Cyclohexanol

1. Cyclohexanol
2. Acetic Acid concentrated
3. Bleach (instructors pick up from stockroom)
4. Sodium Bisulfite saturated
5. Sodium Hydroxide 6M
6. Non-Anhydrous Ether (instructors pick up from stockroom)
7. Sodium Chloride
8. Thymol Blue (indicator)

Experiment 10: Preparation of Triphenylmethanol (Grignard Reaction)

Give out glass rods

1. Calcium Chloride anhydrous (solid)
2. Anhydrous Ether (instructors pick up from stockroom)
3. Bromobenzene 99% (brown glass bottle in organic section "liquid")
4. Mg metal (turnings)
5. Sodium Bisulfite saturated
6. Benzophenone (solid)
7. 10% Sulfuric Acid
8. Sodium Chloride Saturated
9. Sodium Sulfate anhydrous
10. Pet. Ether (same as Ligroine)
11. Dichloromethane (Methylene Chloride)
12. Iodine (solid)
13. TLC paper with indicator

Experiment 11: Reactions of Triphenylmethanol

Part 1: Trityl Methyl Ether

1. Sulfuric Acid Concentrated
2. Methanol
3. Triphenyl -Methanol (solid) Triphenylmethanol 97%

Part 2: Triphenylmethyl Bromide, Trityl Bromide

1. Acetic Acid Concentrated
2. Hydrobromic Acid 47% (under the hood)
3. Pet. Ether (Ligroine)
4. Copper Wire (instructors pick up from stockroom)

Part 3: Triphenylmethyl Iodide, Trityl Iodide

1. Acetic Acid concentrated
2. Sodium Bisulfite (Solid)
3. Methanol
4. Copper Wire (give out)
5. Hydroiodic Acid 47% (under the hood)

Acids and Bases needed

1. 10% sodium hydroxide
2. Hydrochloric acid concentrated
3. 85 % O-Phosphoric Acid
4. Concentrated sulfuric Acid
5. Concentrated Acetic Acid
6. 6M Sodium Hydroxide
7. 10 % sulfuric acid
8. Hydriodic Acid 47% -
9. Hydrobromic Acid 47%-
10. mineral oil

Chem. 251 ACIDSs:

- Hydrochloric acid --Concentrated
- Sulfuric Acid--Concentrated
- Sulfuric acid--10 %
- Acetic Acid--- Concentrated
- Hydriodic Acid 47% -
- Hydrobromic Acid 47%-
- Phosphoric Acid--85 %

Chem. 251 BASES:

- 10% sodium hydroxide
- Sodium Hydroxide --6M