**CHEM 303 REPORT**

**GRIGNARD REACTION**

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**Section**:3 (Thursday)

**1.Reaction Scheme**



**2.Table of Reactants and Reagents**

1. **Table of Reactants and Reagents:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Reagents/Reactants** | **Mol/mmol** | **Mwt (g/mol)** | **Mass (g or mg)** | **Density (g/mL)** | **Volume (mL)** | **equivalence** |
| Magnesium turnings | 25 mmol | 24,31 g/mol | 0,6 g |  |  | 1 |
| 1-bromobutane | 25 mmol | 137,02 g/mol | 3,5 g |  |  | 1 |
| Benzaldehyde | 25 mmol | 106,12 g/mol | 2,65 g |  |  | 1 |
| Ammonium chloride | 0,14 mol | 53,49 g/mol | 7,5 g | 0,25 g/mL | 30 mL | 5,6 |

**3.Reaction Mechanism**



**4.Procedure**

Mg turnings (0.6 g) add to round bottomed flask add .Stir magnet add, a few crystals of iodine.Iodine used in order to dry water traces and activate the surface of Mg.

Put the round bottomed flask into the water bath.Set the reflux.

Open the stir.As the reagent forms the solution will become cloudy and then begin to boil spontenously.

Add the diethyl ether to extraction funnel to prepare the solution of 1- bromo in 15 ml diethyl ether. Add the funnel top of the reflux.

After spontaneous boiling warm the water bath to 50°C.

After the reaction begins add the solution dropwise at the rate that maintains gentle reflux. After all the solution put the dropping funnel aside.

Turn of heater.Remove the water bath and allow the round bottomed flask to cool down to room temperature.

Gently reflux the reaction for 15 minutes. As the magnesium is consumed the reaction mixture become darker in color.

Dry the combined organic phase over calcium chloride. Filter that. Put the organic phase to rotary evaporator. Evaporate the solvent.

Transfer the round bottomed flask to separation funnel add the diethyl ether to funnel.Take the aqueous phase.Take the organic phase another Erlenmeyer flask. Add the diethyl ether to aqueous phase repeat extraction.

In ice bath set the reflux put the separatory funnel top of reflux slowly add the ammonium chloride solution to the reaction mixture with constant strirring.

After the add of benzaldehyde the color of the reaction becomes yellowish. Carefully remove the ice bath stir the mixture at room temperature for 30 minutes.

Put the round bottomed flask to ice bath. Reflux set up open the stir add benzaldehyde small drop reaction very exothermic.