Kinetics Vs Thermodynamics Procedure

Part A:

1. Add 0.5 g of semicarbazide hydrochloride and 1 g of K_2HPO_4 to a 25 mL Erlenmeyer flask and dissolve the solids with 6 mL of distilled water.
2. Add 0.5 mL of cyclohexanone to a test tube containing 2.5 mL of ethanol. Pour this solution into the Erlenmeyer flask.
3. Swirl the flask for a couple of minutes and then filter the solid product. Scape the solid into a weigh boat to air-dry while you complete the other parts.
4. Obtain a melting point.

Part B:

1. Add 0.5 g of semicarbazide hydrochloride and 1 g of K_2HPO_4 to a 25 mL Erlenmeyer flask and dissolve the solids with 6 mL of distilled water.
2. Add 0.4 mL of 2-furaldehyde to a test tube containing 2.5 mL of ethanol. Pour this solution into the Erlenmeyer flask.
3. Swirl the flask for a couple of minutes and then filter the solid product. Scape the solid into a weigh boat to air-dry while you complete the other parts.
4. Obtain a melting point.

Part C:

1. Solution W1 and solution E1 are already prepared. W1 contains 3.0 g of semicarbazide hydrochloride in a dibasic potassium phosphate buffer. E1 contains 3.0 mL of cyclohexanone and 2.5 mL of 2-furaldehyde dissolved in ethanol.
2. Add 25 mL of solution W1 and 5 mL of solution E in separate flasks and cool them in an ice water bath.
3. Add solution E1 to solution W1 and swirl the mixture for a minute. Leave in the ice-water bath for 3 minutes then filter the solid product and scrape the product into a weigh boat to dry.
4. Obtain the melting point.
5. Add 25 mL of solution W1 and 5 mL of solution E1 in separate flasks (room temperature).
6. Add Solution E1 to Solution W1 and swirl the mixture for a minute. Leave in the ice-water bath for 3 minutes then filter the solid product and scrape the product into a weigh boat to dry.
7. Obtain the melting point.
8. Prepare 25 mL of solution W1 and 5 mL of solution E1 in separate flasks. Warm them both to ~80 ºC.
9. Add solution E1 to solution W1 and continue to heat for 10 minutes. Let the flask cool to room temperature and then cool further in the ice-water bath for 5 minutes then filter the solid product and scrape the product into a weigh boat to dry.
10. Obtain the melting point for all products.

Part D:

1. Put 0.3 g of the product made in Part A, 0.3 mL of 2-furaldehyde, 2 mL of ethanol, and 10 mL of distilled water in a 25 mL Erlenmeyer flask.
2. Warm the solution until homogenous and continue warming for 3 minutes (5 minutes total, max).
3. Let the flask cool to room temperature and then cool further in the ice-water bath for 5 minutes then filter the solid product and scrape the product into a weigh boat to dry.
4. Obtain the melting point.
5. Repeat the previous 4 steps from Part E using 0.3 g of the product formed in Part, 0.3 mL of cyclohexanone 2 mL of Ethanol and 10 mL of distilled water instead.