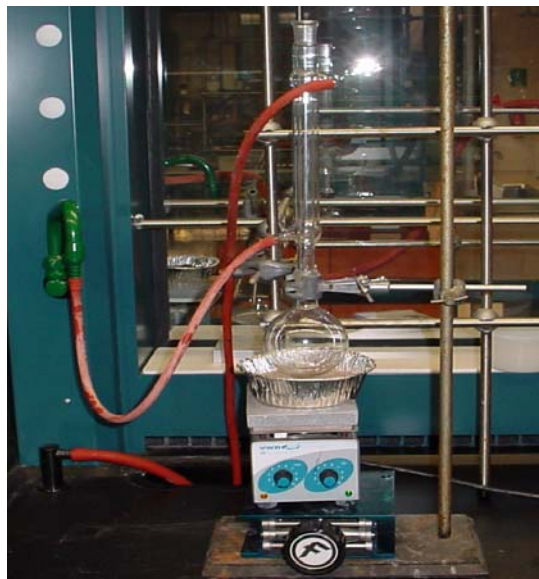


Part A: Preparation of 1-bromobutane Experimental Procedure

- Place 20.0 g of sodium bromide in a 250 mL round-bottomed flask. Add 15 mL of water and 15 mL of 1-butanol. Mix thoroughly and cool the flask in an ice bath.
- **Slowly** add 15 mL of concentrated sulfuric acid to the solution. Remove the flask from the ice bath, add a couple boiling chips, and attach a reflux condenser.
- Heat the flask with a heating mantle until most of the salts have dissolved and the solution is at a gentle reflux. Note the appearance of two layers (lower layer is the alkyl bromide). Continue the reflux for 45 min.



- Equip the flask for simple distillation with a heating mantle. Distil the mixture rapidly into an ice-cooled flask until the head temperature reaches 120°C. Co-distillation of 1-bromobutane and water occurs, and the increased boiling point is due to the co-distillation of sulfuric acid and hydrobromic acid with water.



- Transfer the distillate to a separatory funnel (with a closed stockcock!) and perform an extraction. Add 25 mL of water to the organic layer in the funnel. Invert the funnel and point into the fume hood and away from any other people. Remember to shake the funnel gently with venting. Separate and label each layer carefully.
- Wash the organic layer with 15 mL of saturated sodium bicarbonate solution and then again with 15 mL of saturated sodium chloride solution. Collect the organic layers and discard the aqueous layers.