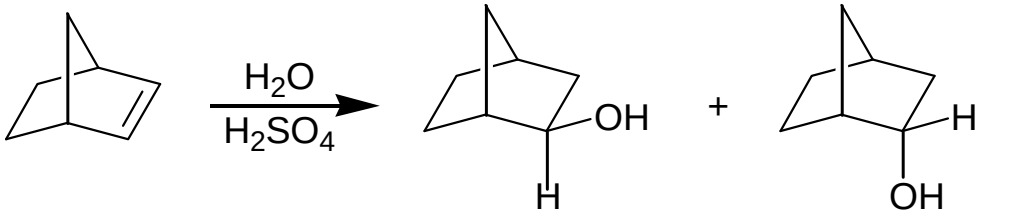
HYDRATION OF NORBORNENE



exo-norborneol *endo*-norborneol

PROCEDURE

For this experiment, it is easier to develop a flowchart procedure.

Pipet 1 mL of water into a 25-mL Erlenmeyer with a spin bar. Chill the flask on ice and carefully add 1.5 mL concentrated sulfuric acid dropwise. Stir briefly, then remove from the ice. Transfer 450 mg norbornene [**CAUTION—stench!**] to the flask, and stir and heat on **LOW** on a hot plate for about 20 minutes, or until the solid has dissolved.

Cool the flask in an ice bath and carefully add 11 mL of 6 M NaOH dropwise with stirring. Check the pH; it should be basic. If not, add additional base in 0.2-mL increments until basic.

Transfer the solution to a separatory funnel. Rinse the flask (and stir bar) with 10 mL water and add to the separatory funnel. Now rinse with 5 mL methylene chloride and add to the separatory funnel. Repeat with another 5 mL methylene chloride. Extract the product into the methylene chloride layer. Remove the methylene chloride layer. Add another 10 mL of methylene chloride to the aqueous layer and again extract any last traces of product into the layer. Remove the methylene chloride layer and combine with the previous fraction. Dry the organic extracts over sodium sulfate and then rotovap the solution to dryness. Obtain the mass of the final product.

If needed, the product can be recrystallized from an ethanol/water solvent pair.

Determine whether the norborneol product is a mixture of the *endo*- and *exo*- products, or a pure sample of either. Report the percent yield of the reaction.

	Melting Point (°C)	**C—O stretch in IR (cm^{-1})**
exo-norborneol	124-126	1000
endo-norborneol	149-151	1030