Water to Wine

Purpose

To demonstrate concentration differences between acids and bases through color changes.

Materials

4 display glasses	1M NaOH
Phenolphthalein	Sat. $BaCl_2$
2L Erlenmeyer flask	6M H_2SO_4

Procedure

Preparation

1. Add 2-3 mL of phenolphthalein to a 2L Erlenmeyer flask and fill the flask with water.
2. In the first display glass put nothing, in the second add 1mL NaOH, in the third add 1mL H_2SO_4 , and the fourth add 1 mL $BaCl_2$
3. For the presentation, fill display glass 1 with the water/phenolphthalein solution. Then fill 2 with the water/phenolphthalein solution and notice the pink color change.
4. Pour the liquid contents from 1 and 2 with the grade/red solution and point out that these are still grape/red.
5. Fill 3 with the grape/red solution from the flask and note the colorless solution. Pour 3, 2, and 1 back into the flask to return it all to the colorless solution
6. Fill 1,2, and 3 with the colorless solution, then fill 4 and watch as the colorless solution turns to a milky white color, the "milk".

Story

- 4 guests come to a dinner party
- Guest 1 with glass 1 asks for water, guest 2 asks for wine or Kool-Aid (procedure #3), now guest 1 decides she wants wine/Kool-Aid (procedure #4)
- Guest 3 with glass 3 asks for water (procedure #5)
- Guests 1 and 2 decide they also want water (follow step 5)
- Guest 4 with glass 4 asks for milk (procedure 6)

Safety

Do not drink any of the solutions.

Disposal

The milk solution should be placed in a properly labelled waste container with UI# 202525 and all other solutions may be poured down the drain with excess water.

Waste bottle: Barium chloride, phenolphthalein, sulfuric acid, water; **UI# 202525**