MONOMER-DIMER EQUILIBRIUM

(Last Revision: January 31, 1997)

- ABSTRACT:

Due to hydrogen bonding a dimer can form between two molecules of salicylic acid. In this experiment the monomer-dimer equilibrium of salicylic acid is investigated at room temperature.

- TEXT REFERENCE:

Sime, Rodney J., "Physical Chemistry - Methods, Techniques and Experiments," Saunders Pub., Philadelphia, PA, 1990. p. 545-548.

- OTHER REFERENCES:
- GENERAL DESCRIPTION AND THEORY:

In this experiment information about the dimerization equilibrium in an organic solvent is studied by means of a distribution between the organic solvent and water. Since the total concentration of salicylic acid can be found for both the organic and aqueous phase, it is possible to determine the equilibrium constant for the dimerization.

- EQUIPMENT:

Thermostat at 25 deg C, flasks, pipets, volumetric flasks and separatory funnels.

- CHEMICALS:

Toluene, salicylic acid, 0.1 M NaOH and phenolphthalein.

- LABORATORY PROCEDURE:

Follow the procedure described by Sime. Be sure to shake the separatory funnels and allow enough time for equilibrium to occur. After equilibrium is attained remember to wait to allow complete separation of the phases.

- CALCULATIONS:

The calculations are those described by Sime.

- LITERATURE VALUES: