Colligative properties are specific properties to a solution that independent of the identity of the solute, such as the size or ionic strength. Instead, colligative properties only depend on the number of solute particles present in the solution. Colligative properties can then be divided into four specific features: vapor pressure depression, boiling point elevation, melting point depression, and osmotic pressure. All colligative properties arise by altering the chemical potential of the solvent by the addition of the solute. The influence of the solute in the solution is not enthalpic, which is to say due to chemical reactions between the solute and solvent molecules. Instead, in an ideal-dilute solution, the solute particles increase the entropy of the solution. As solute particles increase, the entropy of the liquid phase of the solution is elevated past that of the pure solvent. This decreases the tendency of the solution to enter the gas phase by lowering the vapor pressure and resulting in an increased boiling point. The increased entropy of the solution also affects the freezing point by lowering the tendency freeze.

Ebulliscopy, the study of boiling point elevation of solutes, involves <write short 2-3 sentences about BP elevation>

This experiment studies the colligative properties of a benzoic acid-chloroform solution against pure chloroform. Additionally, the boiling point elevation of a naphthalene-chloroform solution is used to calibrate the ebulliscopic constant, Kb, given in the following equation: where *dTb* is the change in boiling point and *m* is the molality of the solution studied. Additionally, this experiment demonstrates the operation of a thermistor as a temperature sensor. Thermistors are resistors that demonstrate significant changes in resistance in response to changes in temperature. This experiment implements thermistors for an increased degree of precision and sensitivity in temperature measurements over a smaller temperature range than traditional thermometers or thermocouples.