



CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

Name(s) Timothy D. Tang	Project Number J0535
Project Title Boiling Point Elevation	
Abstract Objectives/Goals This science experiment is being done on boiling point elevation, or the law that says adding solutes to solvent increases its boiling point. In this experiment, various amounts of different solutes will be added to water and the change in boiling point will be observed. The data will then be graphed and examined for the study of the pattern of this change. Methods/Materials Materials: 200g Sodium Chloride, 250g Potassium Chloride, 500g Potassium Carbonate, 1 Precision Thermometer, 1 scale, stove, 3 Litres Distilled Water, 1 Boiling Flask, 1 Stirring Stick, 5 Plastic Measuring Cups, 1 Potholder Procedures: Add solutes one mole (unit to describe amount of substance) at a time to water and boil the solution each time. Measure this and record results. Graph data, observe, and form conclusions. Results Adding solutes did raise the boiling point, and the more added, the higher the temperature change. Also, the boiling point elevation equation, which explains the change in temperature of a solvent when solutes are added, was proven true. Conclusions/Discussion 1. Added solutes increase the boiling point of a solvent. The hypothesis compared well with the results of the experiment. The added solutes did elevate the boiling point, as shown in the experimental data. 2. The boiling point elevation equation is true. The equation was roughly accurate in comparison to the results of the experiment, but a few of the temperatures were off by a few tenths of a degree, especially when the concentration of the solute grew. The reason could be because of impurities in solute, instrumental error, human error, etc. There is another suspected factor when the moles of solute are no longer small compared with the moles of solvent present. See details in the future research section. 3. The type of solute added does not matter. The experiment also showed that the type of solute added to the solvent did not matter. It is the molality of the substance that determines the change in boiling point. All in all, the hypothesis was fairly accurate compared to the results of the experiment	
Summary Statement This project is on boiling point elevation, which says that adding solutes to a solvent will raise its boiling point.	
Help Received Dad helped run experiment and proofread notebook. Mr. Cady, my teacher, taught me how to make a science project.	