

AP CHEMISTRY LAB
CALORIMETRY – DETERMINATION OF THE CALORIMETER CONSTANT

Prelab Questions:

1. A calorimeter is to be calculated: 51.203g of water at 55.2°C is added to a calorimeter containing 49.783 g of water at 23.5°C. After stirring and waiting for the system to equilibrate, the final reached is 37.6°C. Calculate the calorimeter constant.

Analysis: (show calculations for trial 1)

Determination of a Calorimeter Constant	Trial 1	Trial 2	Trial 3
Mass (volume) of cold water:			
Temperature of cold water:			
Mass (volume) of hot water:			
Temperature of hot water:			
Final temperature reached:			
Temperature change, hot, ΔT :			
Temperature change, cold, ΔT :			
Heat lost by hot water:			
Heat gained by cold water:			
Heat gained by calorimeter:			
Calorimeter constant:			
Mean value of calorimeter constant:			

Conclusion:

1. What effect on the calorimeter constant would be observed if the calorimeter cup were made of a conducting material such as metal rather than plastic foam?
2. Why is water typically used as the heat-absorbing liquid in calorimeters?
3. What is the significance of the minus sign in equation 15-2 in the Introduction of Choice 1 of this experiment?
4. Convert your calorimeter constant from Joules to calories.