

Entropy of Borax

Student Name:

Partner Name:

Date

Instructor Initials

Grade

Sample Data

Approximate Temperature	~30°C	~40°C	~50°C	~60°C	~70°C
Actual Temperature (°C)					
Volume of Borate Solution (mL)					

Titration Data

Exact [HCl] (M) =					
Initial Color =					
Final Color =					
Approximate Temperature	~30°C	~40°C	~50°C	~60°C	~70°C
Initial Volume (mL)					
Final Volume (mL)					
Volume HCl (mL)					
K _{SP}					

Show an example K_{SP} calculation.

Calculate the average K_{SP} .

Prepare a plot of $\ln(K)$ vs. $1/T$. Remember that your temperature units should be Kelvin. Fit a line to the data and report the equation of the line and R^2 . You will need to upload your spreadsheet to Canvas.

Calculate the change of enthalpy for the reaction. Is the dissolution of Borax endothermic or exoth

Calculate the change of entropy for the reaction.

Under what temperature conditions is the dissolution of Borax spontaneous?