Solubility Product Constant
Part I – Calibration Curve for K_2CrO_4

Procedure:

1. Prepare the following known solutions:

   Solution X Take 0.388 g of K_2CrO_4 and add deionized water to make 100 mL.
   Note: This solution will also be used in the next lab to determine the Solubility Product Constant (*Ksp*) of Ag_2CrO_4. Solutions A thru E will be used to construct the calibration curve for K_2CrO_4.

   Solution A Take 1 mL of solution X and add deionized water to make 100 mL.
   Solution B Take 20 mL of solution A and add 10 mL of deionized water.
   Solution C Take 15 mL of solution A and add 10 ml of deionized water.
   Solution D Take 10 ml of solution A and add 10 mL of deionized water.
   Solution E Take 5 mL of solution A and add 10 mL deionized water.

2. Measure the absorbance of each solution (A thru E) at 375 nm. Rinse the measuring cell twice with small volumes of each solution before filling and taking the reading.

Data:

Mass of K_2CrO_4 in 100 ml of solution X _____ g

	Concentration of Chromate ion (M)	Absorbance 375 nm
Solution A	2.0×10^{-4}	0.752
Solution B (2/3 of A)	1.3×10^{-4}	0.525
Solution C (3/5 of A)	1.2×10^{-4}	0.448
Solution D (1/2 of A)	1.0×10^{-4}	0.40
Solution E (1/3 of A)	0.65×10^{-4}	0.254

Results:

Plot a calibration curve for Concentration (x-axis) vs. Absorbance (y-axis).

Note: Save solution X for Solubility Product Constant determination in next lab.

	Conc. CrO_4^{-2}, g/mL	Abs.
1)	$0.65 \cdot 10^{-4}$	0.254
2)	$1 \cdot 10^{-4}$	0.40
3)	$1.2 \cdot 10^{-4}$	0.448
4)	$1.3 \cdot 10^{-4}$	0.521
5)	$2.0 \cdot 10^{-4}$	0.752