

The notes for experiments S and T.

By 5 p.m. on November 26 have completed:

Report submitted to Crowdmark (**10 marks**). Include report pages (T- 11 to T-14), Observation sheets for Experiment S (S-13 and S-15), observations for Experiment T (T-9). Attach two plots. Graphs must include: descriptive title, axis labels (with units, where appropriate, and linear trendline and equation of the line.

Quiz for Experiments S and T on Blackboard (**10 marks**)

To do well on the laboratory report (focuses on experiment T)

See the “Prelab slides for experiment T”!

Part III, questions 7&8

$$E_{\text{cell}} = E_{\text{cell}}^{\circ} - \frac{0.0592}{n} \log Q. \quad \text{For the concentration cell, } Q = \frac{[Ag^+]_{\text{anode}}}{[Ag^+]_{\text{cathode}}} = \frac{[Ag^+]_{\text{test}}}{[Ag^+]_{\text{cathode}}}$$

$$0.320 \text{ (use your value)} = (0.800 - 0.800) - \frac{0.05916}{1} \log \left(\frac{[Ag^+]_{\text{test}}}{[1.00]} \right) \quad \text{and}$$

$$- \frac{0.320}{0.0592} = \log [Ag^+]_{\text{test}}$$

$$10^{-5.41} = [Ag^+]_{\text{test}} = \mathbf{3.9 \cdot 10^{-6} \text{ mol/L}}$$

	$2Ag^+(aq)$	+	$CO_3^{2-}(aq)$	$\rightleftharpoons$	$Ag_2CO_3(s)$
Initial, M	Calculate $[Ag^+]_i$ by using $C_1V_1=C_2V_2$		Calculate $[CO_3^{2-}]_i$ by using $C_1V_1=C_2V_2$		s
Change, M	$-2x$		$-x$		s
Equilibrium	$3.9 \cdot 10^{-6}!!!$		$[CO_3^{2-}]_i - x$		s

Solve for $[CO_3^{2-}]_{eq}$

Question 9: $K_{sp} = 1/K$ for the above reaction

To do well on observations page S-15

Use “Experiment S slide” document and your observations to fill in the table. You can also read part II on S-3 and S-4.

Aqueous mixture	CH ₂ Cl ₂ colour	Halogen present	Did reaction occur?	Write the balanced net ionic reactions for the spontaneous reactions
Cl ₂ + Br ⁻	Yellow-orange	Br ₂	Yes	$\text{Cl}_2(\text{aq}) + 2\text{Br}^-(\text{aq}) \rightleftharpoons \text{Br}_2(\text{aq}) + 2\text{Cl}^-(\text{aq})$

To do well on the quiz (focuses on experiment S)

Study “Voltaic Cells and Redox Reactions. Answers” document, page 8&9 in the Review. Know the colors of the halogens in dichloromethane layer.