

Name _____

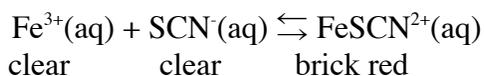
Period _____

Partner _____

Date _____

Le Chateliers Principle Lab Investigating Chemical Equilibrium

Throughout this experiment you will be studying the following equilibrium situation:



Prelab Questions

- 1) What is the formula of the thiocyanate ion?
- 2) What is the formula of the iron (III) ion?
- 3) What ions (and how many of each) are present in K_2CO_3 ?
- 4) What ions (and how many of each) are present in FeCl_3 ?
- 5) What ions (and how many of each) are present in NaSCN ?
- 6) What are the names of the following ions?



Procedure

- 1) To a 50-mL beaker, add some drops of iron (III) chloride and some drops of potassium thiocyanate.
- 2) Add enough distilled water (around 30 mL) to the beaker so that the red color is less intense. If the solutions color is too dilute to notice keep adding the two solutions until you have a good light shade of red.
- 3) Add a few mLs of the diluted solution to each of 12 wells on the microplate. Leave two or three wells empty between each filled well in order to visually isolate each reaction. Let one of the wells closest to the center of the microplate be your control.
- 4) Add one or two drops of the first solution listed on your data table to one of the wells on the plate where you added the stock solution. Record the result as lighter, darker, or no change. A white sheet of paper under the microplate will help you see the color changes more easily.
- 5) Repeat the previous step for each of the remaining solutions.
- 6) Dispose of the solutions down the sink.
- 7) Before leaving the laboratory, clean up all materials and wash your hands thoroughly.

Data:

Color of the original mixture: _____

Well #	Solution Added	What two ions are in this solution?	Did it get darker or lighter?	How does the $[\text{FeSCN}^{2+}]$ Change?
	FeCl_3			
	KSCN			
	NaSCN			
	NaCl			
	$\text{Fe}(\text{NO}_3)_3$			
	NH_4NO_3			
	Na_2CO_3			
	KBr			
	NH_4SCN			
	NaOH			
	CaCl_2			

Post Lab Questions

Fill in the following table based upon the what you observed during the lab.

Solution Added	What two ions are in this solution?	Will it get darker or lighter?	How will the $[\text{FeSCN}^{2+}]$ Change?
Potassium carbonate			
Calcium thiocyanate			
Sodium bromide			
Potassium hydroxide			
Potassium nitrate			
Iron (III) bromide			
Ammonium bromide			

- 1) Give the formulas for all the spectator ions in this experiment.
- 2) Give the formulas for ions that increase the concentration of FeSCN^{2+} .
- 3) Give the formulas for all the ions which decrease the concentration of FeSCN^{2+} .