

Revised August 2012



HONORS LAB 11b: Le Chatelier's Principle Simulation I



Use the following URL to answer the questions that follow;

<http://bit.ly/x1CoHc>

Experiment 1:

Click on the cobalt system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a purple solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

- (i) Why is the solution purple at the beginning?
- (ii) For each action, consider the changes that are observed and explain why they took place;

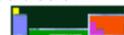
	Observation (change)	Explanation
Heating		
Cooling		
Adding KCl solution		
Adding water		
Adding AgNO ₃ solution		

Experiment 2:

Click on the chromate system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of an orange solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

- (iii) Why is the solution orange at the beginning?
- (iv) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	Explanation
Adding HCl		
Adding NaOH		



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Experiment 3:

Click on the nitrogen dioxide system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a pale brown gas surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

- (v) Why is the gas pale brown at the beginning?
- (vi) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	Explanation
Heating		
Cooling		

Experiment 4:

Click on the iron thiocyanate system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a pale orange solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

- (vii) Why is the solution pale orange at the beginning?
- (viii) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	Explanation
Heating		
Adding KSCN solution		
Adding Na ₂ HPO ₄ solution		
Adding Fe(NO ₃) ₃ solution		