

## AP LAB 06b: Le Chatelier's Principle Simulation






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 <sub>3</sub> 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 |                      |             |



### **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 <sub>2</sub> HPO <sub>4</sub> solution  |                      |             |
| Adding Fe(NO <sub>3</sub> ) <sub>3</sub> solution |                      |             |

