**Equilibrium Experiment**

**(This sheet accompanies the video experiment)**

**Aim:** To investigate equilibrium systems using Le Chatelier’s Principle.

**Background**

LCP: A system at equilibrium will oppose any change.

**Part A**: N2O4(g) ⇌ 2NO2(g)

**Temperature**

1. Summarise the impact of a **temperature change** on this system

Temperature up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Temperature down \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. Explain very carefully if this reaction is endothermic or exothermic.

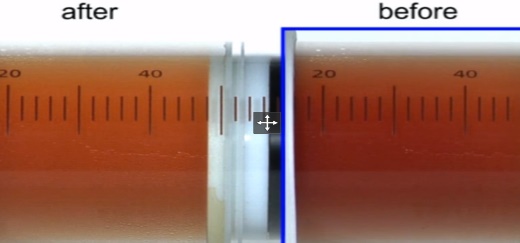
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**Volume**

3. a. Why did the brown intensity initially increase?

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b. Why did the brown intensity then decrease?

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c. How does the final concentration of NO2 compare to the initial concentration before the

syringe was pushed in? Be careful to think this through.

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Q. 4 Has the value of K changed when the syringe was pushed in?

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**Part B:**  **Co2+(aq) + 4Cl-(aq) ⇌ CoCl42-(aq)**



Q. 5 a. Describe what happened when the solution was heated.

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b. Is the reaction exothermic or endothermic?

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Q.6 a. Describe what happened when HCl was added to the mixture?

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b. Explain clearly why this happened.

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Q.7 a. Describe what happened when water was added to the mixture.

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b. Explain why this happened.

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