

Virtual Experiment Activity

"Equilibrium"

Effects of changing concentration in the position of Equilibrium

How to Access Virtual Laboratory

- 1 Open browser on your device (use laptop or tablet for best experience).
- 2 Go to the VLab website: bit.ly/VLabEquilibra or scan the barcode below.



preview of the VLab website



Virtual Experiment Procedure

- You can select the test solution from the 'Select the test solution' drop down list. Please select **Cobalt Complex and Chloride Ions**.
- You can select the control tube from the 'Select the control tube' drop down list. Please select **Tube A** for control tube.
- Drag the dropper containing the reagent towards any one of the test tube to pour the reagent into it.

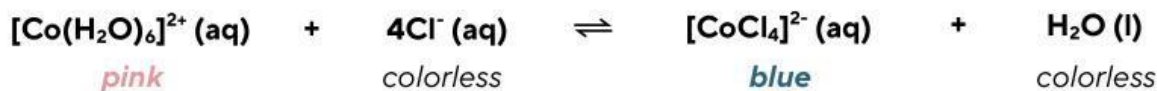
Tube B : $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ (Complex cobalt)

Tube C : HCl (Chloride Acid)

Tube D : H_2O (Water)

- You can see the inference of different tests by clicking on the inference icon.
- The chemical reaction and equilibrium constant can be seen on the side menu.
- You can redo the experiment by clicking on the 'Reset' button.
- Record your observation result on the **table** in **page 2**.

Equilibrium Equation



Observation Table

Test Tube	Substances added at equilibrium	Change in colour	Effect on the concentration of CoCl_4	Shift of Equilibrium
A	<i>Control tube</i>			
B	$[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ <i>Complex cobalt</i>			
C	HCl <i>Chloride acid</i>			
D	H₂O <i>Water</i>			

Questions

Now that you have completed the observation table, please answer the following questions below.

- 1 Describe in detail the color changes that occur in **Tube B, C, and D!**

Answer:

- 2 Find about Le Chatelier Principle and then connect it with your observation!

Answer:

- 3 Write your final short conclusion!

Answer: