

Preguntas Conceptuales (Preguntas o Clickers) sobre Concentración

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Traducción al español:

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Curso:

Analizar que variables (y de qué forma) afectan la concentración y la cantidad de moles del soluto en una sustancia.

Objetivo de Aprendizaje:

Preparatoria o cursos introductorios a la química en Universidad

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¿Qué acciones **incrementarán** la concentración de la solución?

- 1) Agregar más $\text{Co}(\text{NO}_3)_2$
- 2) Evaporar el agua
- 3) Abrir la llave de abajo

- A. Solo 1)
B. 1) y 2)
C. 2) y 3)
D. 1) y 3)
E. Todos ellos

The image shows a PhET simulation interface for a solution concentration experiment. It features a beaker with a volume scale from 0 to 1 L, currently containing 0.5 L of a pink solution. A faucet on the right side of the beaker is open, and a purple pipette is shown adding more solute. Above the beaker, a grey container labeled $\text{Co}(\text{NO}_3)_2$ is shown. To the right, a control panel displays 'Soluta: Nitrato de Cobalto (II)' with a dropdown arrow, and two radio buttons for 'Sólido' (selected) and 'Solución'. Below the beaker, there is a slider for 'Evaporación:' ranging from 'Nada' to 'Mucho', a yellow button labeled 'Remover Soluta', and a circular refresh icon. A purple box on the right indicates the current 'Concentración' is '0.500 mol/L'.

¿Qué acciones cambiarán el número de moles del soluto dentro del contenedor?

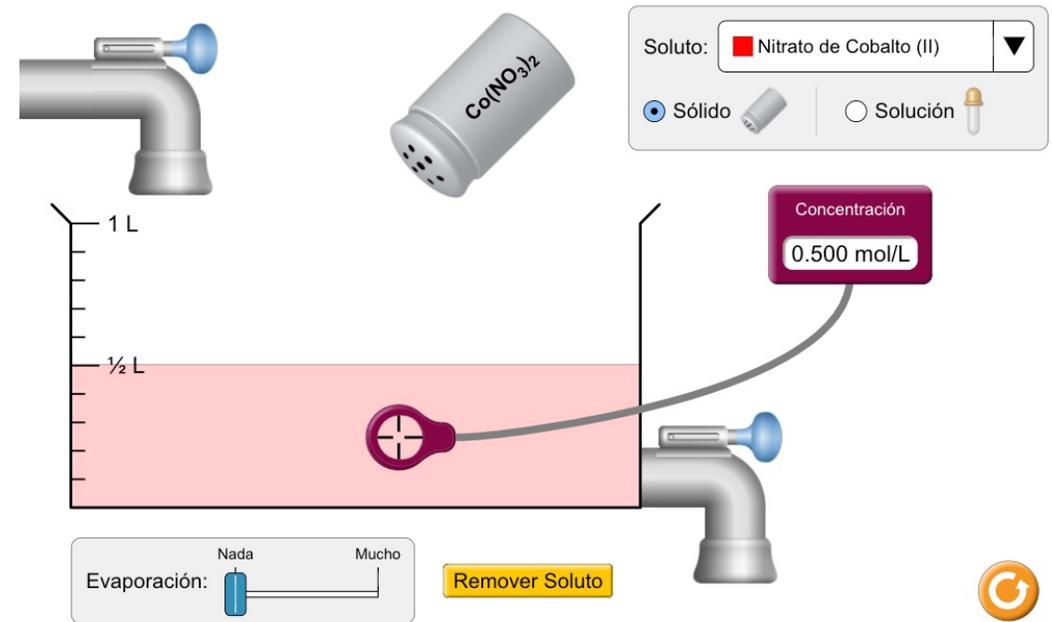
- 1) Agregar más $\text{Co}(\text{NO}_3)_2$
- 2) Evaporar el agua
- 3) Abrir la llave de abajo

- A. Solo 1)
- B. Solo 2)
- C. Solo 3)
- D. 1) y 2)
- E. 2) y 3)

The image shows a screenshot of a PhET simulation interface for a solution container. The container is a rectangular tank with a scale on the left side, marked at 1 L and 1/2 L. The tank is partially filled with a pink liquid. A blue faucet is on the top left, and another blue faucet is on the bottom right. A purple dial is on the front of the tank. Above the tank, there is a grey container labeled $\text{Co}(\text{NO}_3)_2$. To the right of the tank, there is a control panel with a dropdown menu for 'Solute' set to 'Nitrato de Cobalto (II)' (Cobalt(II) Nitrate), a radio button for 'Sólido' (Solid) which is selected, and a radio button for 'Solución' (Solution). Below the control panel, there is a purple box labeled 'Concentración' (Concentration) showing '0.500 mol/L'. At the bottom left, there is a slider for 'Evaporación' (Evaporation) ranging from 'Nada' (Nothing) to 'Mucho' (Much), with the slider currently at 'Nada'. To the right of the slider is a yellow button labeled 'Remover Solute' (Remove Solute). At the bottom right, there is a circular orange button with a refresh symbol.

¿Qué le pasará a la concentración y al número de moles si se agrega agua?

- | | <u>Concentración</u> | <u>Numero de moles</u> |
|----|----------------------|------------------------|
| A. | Incrementa | Decrece |
| B. | Incrementa | Incrementa |
| C. | No cambia | No cambia |
| D. | Decrece | Decrece |
| E. | Decrece | No cambia |



¿Cuántas moles de soluto hay en el contenedor?

- A. 0.05 moles
- B. 0.50 moles
- C. 1.00 moles
- D. 1.5 moles
- E. Ninguna de las anteriores

The image shows a simulation interface for a solution container. At the top left, there is a faucet icon. To its right is a container of solute labeled $\text{Co}(\text{NO}_3)_2$. On the right side, there is a control panel with a dropdown menu for 'Soluto:' set to 'Nitrato de Cobalto (II)' (Cobalt(II) Nitrate), and radio buttons for 'Sólido' (Solid) and 'Solución' (Solution). Below this, a 'Concentración' (Concentration) box displays '0.500 mol/L'. The main container is a rectangular tank with a scale on the left side showing '1 L' and '1/2 L'. The tank is partially filled with a pink liquid. A purple circular icon with a crosshair is positioned in the liquid. At the bottom left, there is a slider for 'Evaporación:' (Evaporation) ranging from 'Nada' (Nothing) to 'Mucho' (Much). To the right of the slider is a yellow button labeled 'Remove Soluto' (Remove Solute). In the bottom right corner, there is a circular orange refresh button.

Tienes 200 mL de una solución con una concentración de 0.4 mol/L de KMnO_4 .

Si se agrega agua hasta tener un volumen de 800 mL ¿Cuál va a ser la concentración final de la solución?

- A. 0.080
- B. 0.10
- C. 0.20
- D. 0.40
- E. 1.6

Solute: Permanganato de Potasio

Sólido Solución

Concentración: 0.400 mol/L

Evaporación: Nada Mucho

Remover Solute



Inicias con 0.1L de una solución con NiCl_2 con concentración de 5.00 mol/L y planeas diluirla (agregando agua) hasta convertirla en una solución con concentración de 0.625 mol/L ¿Hasta donde debes llenar el recipiente para lograrlo?

- A. 200 mL
- B. 400 mL
- C. 600 mL
- D. 800 mL
- E. 1 L

The image shows a PhET simulation interface for diluting a solution. At the top, there is a control panel with a dropdown menu for the solute set to "Cloruro de Niquel (II)" (Nickel(II) Chloride). Below this, there are radio buttons for "Sólido" (Solid) and "Solución" (Solution), with "Solución" selected. To the left of the simulation area, there is a faucet icon and a pipette icon labeled NiCl_2 . The main simulation area features a graduated cylinder with a scale from 0 to 1 L, with a major tick at 1/2 L. The cylinder is partially filled with a green liquid. A purple ring is positioned on the cylinder's side, and a grey tube connects it to a faucet on the right. A purple box labeled "Concentración" (Concentration) displays "5.000 mol/L". Below the cylinder, there is a slider for "Evaporación" (Evaporation) ranging from "Nada" (Nothing) to "Mucho" (Much), currently set to "Nada". A yellow button labeled "Remover Solute" is located below the slider. In the bottom right corner, there is an orange circular refresh button.