

Reversible Reactions

Worksheet

Combined Science - Chemistry - Key Stage 4

The Rate and Extent of Chemical Change

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Multiple choice quiz



In an endothermic reaction, energy is...

A

Given out to the surroundings

B

Taken in from the surroundings

C

The same

D

Measured in °C



What happens to the temperature of the surrounding during an exothermic reaction?

A

Increases

B

Decreases

C

Stays the same

D

None of the above



What is a reversible reaction?

A

A reaction where energy is given out to the surroundings

C

A reaction where products can react to produce the original reactants

B

A reaction where energy is taken in from the surroundings

D

A reaction where both forward and reverse reactions happen at the same rate



If the forward reaction is exothermic, the reverse reaction is...

A

Endothermic

B

Exothermic

C

Neither endothermic or exothermic

D

Hard to tell



What is 'dynamic equilibrium'?

A

The point where forward and reverse reactions happen at the same time in a closed system

C

The point where forward and reverse reactions happen at the same temperature

B

The point where forward and reverse reactions happen at the same rate in a closed system

D

The point where forward and reverse reactions happen at the same rate in an open system



Multiple choice quiz answers



In an endothermic reaction, energy is...

B

Taken in from the surroundings



What happens to the temperature of the surrounding during an exothermic reaction?

A

Increases



What is a reversible reaction?

C

A reaction where products can react to produce the original reactants



If the forward reaction is exothermic, the reverse reaction is...

A

Endothermic



What is 'dynamic equilibrium'?

B

The point where forward and reverse reactions happen at the same rate in a closed system



Exam style questions



Exam style question 1

Ethanol is manufactured from ethene and water as shown below:

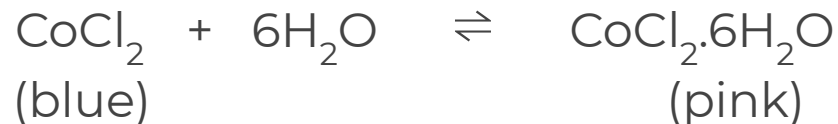


- 1) Write the correct symbol in the equation above to show that it is a reversible reaction.
- 2) The temperature of the reaction can be changed to increase the formation of ethanol at equilibrium. Explain what equilibrium means.
- 3) A catalyst can be added to increase the rate of reaction. Explain how the presence of catalysts increases the rate reaction.



Exam style question 2

Cobalt chloride paper contains anhydrous cobalt chloride, this is used to test for the presence of water. The following equation shows the reaction between anhydrous cobalt chloride and water:



- 1) What does the \rightleftharpoons symbol mean in this reaction?
- 2) Describe the colour change for cobalt chloride when water is added.
- 3) Unused cobalt chloride paper is kept in a closed jar. What does a 'closed system' mean?



Exam style question 1 answer

Ethanol is manufactured from ethene and water as shown below:

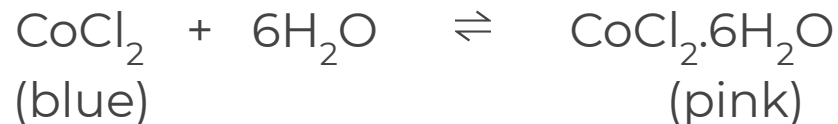


- 1) Write the correct symbol in the equation above to show that it is a reversible reaction.
- 2) *Equilibrium is reached when the forward and reverse reactions occur at exactly the same rate in a closed system.*
- 3) *A catalyst lowers the activation energy and provides an alternative pathway so less energy is needed for particles to react.*



Exam style question 2 answer

Cobalt chloride paper contains anhydrous cobalt chloride, this is used to test for the presence of water. The following equation shows the reaction between anhydrous cobalt chloride and water:



- 1) *The \rightleftharpoons symbol means the reaction is reversible.*
- 2) *Blue to pink.*
- 3) *A closed system is where none of the reactants or products can enter or escape.*

