



Answer all the questions below then check your answers.

Fill in the gaps in the sentences below:

1. The reaction between a carboxylic acid and an alcohol to form an ester is called an _____ reaction
2. Esters are often used as artificial _____ in foods.
 - b. The small molecule produced alongside an ester in an esterification reaction is _____.
 - c. What are the two reactants needed to make an ester?
 - d. Explain why sulfuric acid is often used in esterification reactions.
3. Name the ester formed when ethanoic acid reacts with methanol. Write the word equation for this reaction.
4. Give two uses of esters besides flavourings.
5. Draw the structural formula of the ester formed when propanoic acid reacts with ethanol. Write the balanced chemical equation for this reaction.

- b. Write a balanced symbolic equation for the esterification reaction between butanol and ethanoic acid.
6. Which of the following is NOT a property of esters?
- a) Pleasant fruity smells
 - b) Soluble in water
 - c) Volatile liquids
 - d) Used as solvents
7. Which of the following is the correct name for the ester $\text{CH}_3\text{COOCH}_2\text{CH}_2\text{CH}_3$?
- a) Propyl methanoate
 - b) Methyl propanoate
 - c) Propyl ethanoate
 - d) Ethyl propanoate
8. Which of the following is a catalyst used in an esterification reactions?
- a) Sodium hydroxide
 - b) Hydrochloric acid
 - c) Sulfuric acid
 - d) Potassium carbonate

Answers

Fill in the gaps in the sentences below:

1. The reaction between a carboxylic acid and an alcohol to form an ester is called an _____ reaction

Answer: esterification

2. Esters are often used as artificial _____ in foods.

Answer: flavourings

- b. The small molecule produced alongside an ester in an esterification reaction is _____.

Answer: water

- c. What are the two reactants needed to make an ester?

Carboxylic acid and alcohol

- d. Explain why sulfuric acid is often used in esterification reactions.

Sulfuric acid acts as a catalyst, speeding up the reaction, and also as a dehydrating agent, removing water and driving the reaction towards the products.

3. Name the ester formed when ethanoic acid reacts with methanol. Write the word equation for this reaction.

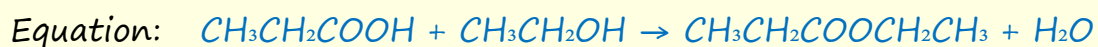
Name is methyl ethanoate

Word equation: Ethanoic acid + Methanol → Methyl ethanoate + Water

4. Give two uses of esters besides flavourings.

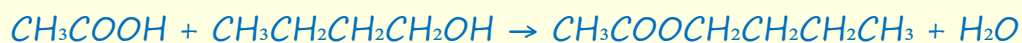
Any two of the following: Perfumes, solvents, plasticisers

5. Draw the structural formula of the ester formed when propanoic acid reacts with ethanol. Write the balanced chemical equation for this reaction.



ethyl propanoate

b. Write a balanced symbolic equation for the esterification reaction between butanol and ethanoic acid.



6. Which of the following is NOT a property of esters?

a) Pleasant fruity smells

b) Soluble in water

c) Volatile liquids

d) Used as solvents

Answer: b) Soluble in water

7. Which of the following is the correct name for the ester $\text{CH}_3\text{COOCH}_2\text{CH}_2\text{CH}_3$?
- a) Propyl methanoate
 - b) Methyl propanoate
 - c) Propyl ethanoate
 - d) Ethyl propanoate

Answer: c) Propyl ethanoate

8. Which of the following is a catalyst used in an esterification reactions?
- a) Sodium hydroxide
 - b) Hydrochloric acid
 - c) Sulfuric acid
 - d) Potassium carbonate

Answer: c) Sulfuric acid