

ENZYME ACTION

NAME: Urease

DESCRIPTION: Cream coloured powdered, MC23.92P

ACTION: The enzyme Urease acts upon urea to break it down into ammonia and carbon dioxide.



STORAGE: Store in the refrigerator at 4°C. Best results are obtained if a fresh solution is made up just before use.

SAFETY: Enzymes are biologically active proteins and should be handled with care. Avoid direct contact or inhalation.

TIPS FOR TEACHERS:

Suggested pracs:

Prepare a urease solution of approximately 1% by adding 1g of urease to 100mL of distilled water in a flask. Stopper and agitate for 5 minutes, then allow the sediment to settle. Pour off the clear supernatant liquid. This will be your urease solution.

Place 5mL of 1% urea solution into a test tube and add 10 drops of universal indicator. Then add 3mL of urease solution to the mixture in the test tube. As a control, repeat this process using 3mL of distilled water instead of urease solution. Note the change in colour of the solution as the enzyme reaction causes the pH to increase due to the formation of ammonia.

Comments and further Ideas:

Urease is found in many plants, fungi and bacteria. It facilitates the breakdown of urea so the organism can use it as a source of nitrogen. In some environments, urease in soil bacteria can be a problem for farmers because it reduces the effectiveness of urea fertilizer by releasing the nitrogen before the crop plants can absorb it.

Please note: Variations in substrate composition and enzyme activity can mean that the suggested experiment might not work exactly as described in every situation.