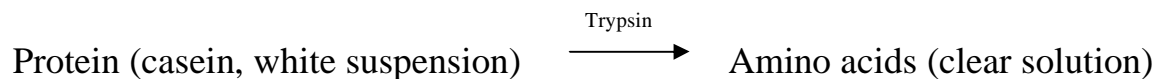


ENZYME ACTION

NAME: Trypsin

DESCRIPTION: Off white powder, MC23.1

ACTION: The enzyme Trypsin acts on a protein in milk called casein and breaks it down into amino acids.



STORAGE: Store in the refrigerator at 4°C.

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

TIPS FOR TEACHERS:

Suggested pracs:

Prepare a suspension of skim milk powder (MC41.3) by adding 100mL of “just boiled” water to 4.0g of milk powder. Stir to homogenise the suspension then allow to cool to 40°C in a water bath. Prepare a 0.5% solution of trypsin in distilled water at room temperature, then warm to 40°C in a water bath. Combine 5mL of milk suspension with 5mL of 0.5% trypsin solution and maintain the mixture at 40 °C. The action of trypsin on the milk suspension results in a clear transparent solution.

Run a control along side your experiment by substituting distilled water for the 0.5% solution of trypsin.

Comments and further ideas:

Trypsin is one of several enzymes that break proteins down to amino acids as part of the digestive process.

Record the time it takes for the solution to become clear and compare the rate at different temperatures and concentrations.

Use a data logger with a light sensor (or better still, a colorimeter) to monitor the rate of reaction by recording the rise in light transmission as the reaction proceeds.

The exercise described above used a low fat milk powder, MC41.3. Compare the action of trypsin on full cream milk powder and explain the difference.

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