

ENZYME SET

PANCREATIN

Pancreatin is a mixed enzyme extracted from porcine pancreas containing proteases, lipases and amylases.

INSTRUCTIONS FOR USE

Use as a 1 to 2% solution in water.

CONDITIONS FOR USE

Use in the pH range 6.0 to 10 and in the temperature range 30 to 50°C.

SUBSTRATES

Various depending on which type of enzyme activity is to be followed, eg for Amylase activity use starch solutions, etc.

PRODUCTS

Dependant on substrate.

LIPASE

Lipase is an enzyme extracted from porcine pancreas which hydrolyses fats.

INSTRUCTIONS FOR USE

Use as a 5% solution in water.

CONDITIONS FOR USE

Use in the pH range 6.0 to 9.0 and in the temperature range 30 to 50°C.

SUBSTRATES

Whole milk or a suspension of glycerol tristearate in water.

PRODUCTS

Glycerine and free fatty acids. Fatty acids can be detected by adding phenolphthalein to the substrate and adjusting the pH using sodium carbonate solution until a feint pink colour is produced. Production of fatty acids will cause the colour to be discharged

DIASTASE

Diastase is a mixture of α and β amylases obtained from malt. This product is stabilised with about 20% reducing sugars.

INSTRUCTIONS FOR USE

Use as a 1 to 2% solution in water.

CONDITIONS FOR USE

Use in the pH range 4.5 to 7.0 and in the temperature range 35 to 50°C.

SUBSTRATE

2% w/v starch solution. This solution must be boiled for at least 5 minutes to break down the starch granules.

PRODUCTS

Mainly Maltose and dextrins. Dextrins can be detected with iodine solution (blue colour – negative test, red colour – positive).

UREASE

Urease is an enzyme extracted from Jack beans which hydrolyses urea.

INSTRUCTIONS FOR USE

Either prepare a 5% solution by shaking 5g of the urease in 100ml of distilled water for 5 minutes, leave to settle for 10 minutes and decant off the liquid layer or add a small spatula full of the powder to the substrate.

CONDITIONS FOR USE

Use at pH range 7 and in temperature range 25 to 30°C.

SUBSTRATES

2 to 5% Urea solution.

PRODUCTS

Ammonia and Carbon dioxide. Ammonia can be detected by adding phenol red solution to the substrate and adjusting the pH so that the solution just becomes yellow (approx. pH 6.4). The production of ammonia will change the colour of the solution to red.

SAFETY

Enzymes are biologically active proteins and should be handled with care. Proteolytic enzymes in particular may irritate the skin, eyes or mucous membranes.

1. Avoid direct contact or inhalation.
2. Clean up spillages immediately – **DO NOT** allow them to dry and generate dust.

ENZYME SET

INVERTASE CONCENTRATE

Invertase is an enzyme extracted from yeast which hydrolyses sucrose.

INSTRUCTIONS FOR USE

Use as a 1 to 2% solution in water.
(Treat the concentrate as a 100% solution).

CONDITIONS FOR USE

Use in the pH range 3.5 to 5.5 and in the temperature range 40 to 50°C.

SUBSTRATE

5% w/v sucrose solution.

PRODUCTS

Glucose and fructose. These can be detected using Benedicts solution.

FUNGAL α AMYLASE

Fungal α Amylase is an enzyme obtained from *Aspergillus* spp. which breaks down starch.

INSTRUCTIONS FOR USE

Use as a 0.5 to 2% solution in water.

CONDITIONS FOR USE

Use in the pH range 4.0 to 7.0 and in the temperature range 40 to 60°C.

SUBSTRATE

2% w/v starch solution.

PRODUCTS

Mainly Maltose. The reaction may also be followed by the drop in viscosity of the starch solution with time.

NOTE: This is a commercial product which contains reducing sugars.

TRYPSIN

Trypsin is a protease extracted from bovine pancreas.

INSTRUCTIONS FOR USE

Use as a 0.5 to 2% solution in water.

CONDITIONS FOR USE

Use in the pH range 6 to 8.0 and in the temperature range 25 to 40°C.

SUBSTRATE

Protein solutions such as reconstituted fat free skimmed milk powder.

PRODUCTS

Amino acids and Peptides.

PEPSIN

Pepsin is a protease extracted from porcine stomach.

INSTRUCTIONS FOR USE

Use as a 1% solution in water.

CONDITIONS FOR USE

Use in the pH range 2.0 to 5.5 and in the temperature range 35 to 60°C.

SUBSTRATES

Exposed film, skimmed milk or other protein suspensions or solutions.

PRODUCTS

Peptides and Amino acids.

SAFETY

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2. Clean up spillages immediately – **DO NOT** allow them to dry and generate dust.