

# Protect

## Microorganism Preservation System

Store it, preserve it,  
protect it



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# Principle

**Protect is a cryopreservation system intended for long-term storage of microorganisms at low temperatures and is FDA approved for assured quality and traceability.**

Microbial preservation is provided by the protective properties of glycerol, which prevents cell lysis whilst frozen<sup>1-3</sup>. The balanced nutrition of the cryopreservative fluid (along with glycerol), minimises cell stress whilst sustaining excellent recovery to the last bead. Each bead acts as a mini retrieval reservoir, allowing rapid organism removal without needing full vial defrost, helping to maintain high transfer and survival rates even under freeze-thaw conditions<sup>4</sup>. The Protect range now offers several specific formulations designed for particular microorganism groups or applications.

**Protect - Multipurpose** supports long-term storage of a wide range of bacteria, yeasts and fungi. It's ideal for frequent users to guarantee consistent and reliable performance control.

**Protect Select - Anaerobe** offers enhanced survival of anaerobic microorganisms, using increased viscosity and oxygen removal.

**Protect Select - Yeasts & Moulds** offers easy suspension of hydrophobic spores whilst enhancing survival rates and cell viability.

**Protect Select - Dairy** is based on BSI and ISO recommendations and enables prolonged storage of microorganisms isolated from milk, dairy products, rinse waters and environmental samples.

**Protect Select - Meat Free** is suitable for pharmaceutical and bio-fermentation applications due to the exclusion of animal origin components, alleviating TSE/BSE concerns.

# Precautions

## Precautions and Limitations

1. Protect is intended for in-vitro laboratory use only.
2. For best results use a fresh culture.
3. Storage temperature can affect growth characteristics and viability.
4. Protect should not be used if there is:
  - a) Any evidence of damage or leakage to the vial.
  - b) Turbidity in cryopreservative fluid suggests possible contamination.
5. Use aseptic techniques throughout the procedures of culture preparation and recovery.
6. Take biohazard precautions when disposing of infected material.

## References:

1. Belkacemi L., Burton R.C., Evans E.G. Cryopreservation of *Aspergillus fumigatus* stock cultures with a commercial bead system. 1997. Mycoses. 40: 103-104.
2. Feltham RKA, Power A K, Pell PA, Sneath PHA. A simple method for storage of bacteria at -70°C. Journal of Applied Bacteriology. 1978. 44: 313-316.
3. Nagel JG, Kunz LJ. Simplified Storage and Retrieval of Stock Cultures. Applied Microbiology 1972. 23 (4): 837-838.
4. White DJ, Sands RL. Storage of bacteria at -70°C. Medical Laboratory Sciences 1985. 42: 289-290.



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# Performance Characteristics

Refer to the table below for examples of Protect performance.

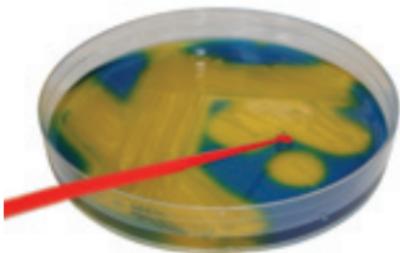
Further recovery data is available on request.

Protect Product	Test Organism	Storage Temperature (°C)	Storage Period* (months)
Protect: Multipurpose	<i>N.gonorrhoeae</i> ATCC49226	-20	24
	<i>H.influenzae</i> ATCC49247	-20	24
	<i>E.coli</i> NCTC13148	-20	24
	<i>P.aeruginosa</i> ATCC27853	-20	24
Protect Select: Anaerobes	<i>C.perfringens</i> ATCC 13124	-20	24
	<i>B.fragilis</i> ATCC 25285	-20	24
Protect Select: Dairy	<i>E.coli</i> O157	-20	12
	<i>L.brevis</i> ATCC 8287	-20	12
	<i>S.marcescens</i> ATCC8100	-20	12
	<i>S.pyogenes</i> ATCC19615	-20	12
Protect Select: Meat Free	<i>E.coli</i> NCIMB 11943	-20	12
	<i>Paeruginosa</i> ATCC 27853	-20	12
	<i>S.aureus</i> ATCC 25923	-20	12
	<i>B.subtilis</i> ATCC 6633	-20	12
Protect Select: Yeasts & Moulds	<i>C.albicans</i> ATCC 10231	-20	24
	<i>A.niger</i> ATCC 16404	-20	24

\*Tested storage period with successful recovery.

# Simple to set up

- 1: Make a suspension of the organism in the vial liquid.



- 3: Remove vial liquid using pastette.



- 2: Shake vial to coat the beads.  
Stand at least 30 seconds.



- 4: Place in freezer. Done!



# Easy to recover

1: Remove one bead using a sterile needle.



2: Roll bead directly onto medium or place in broth and incubate.



## Storage Conditions and Shelf Life

Gamma Irradiated to Sterility Assurance Level (SAL)  $10^{-6}$  for guaranteed sterility.

Unopened Protect vials may be stored above 4°C or at room temperature, in a dry and ventilated area, protected from light, heat, moisture and in its original packaging.

Shelf life: 2 years from date of manufacture.

In use, Protect vials should be stored in the freezer (-20, -70, -80°C) or in liquid nitrogen.

# Contents

**Protect is presented as a sterile vial, containing ceramic beads in different cryopreservative media. Protect is FDA approved for assured quality and traceability.**

Protect Multipurpose	Protect Plus	Qty	Colour
Reliable Fiberboard freezer box with numbered lid and base for easy reference. Moisture-resistant Includes 9 x 9 internal divider.			
TS/80-BL TS/80-YE TS/80-GN TS/80-RD TS/80-WH TS/80-MX		80 80 80 80 80 80	Blue caps & beads Yellow caps & beads Green caps & beads Red caps & beads White caps & beads 16 of each colour
Durable Polypropylene tray with numbered base for easy reference.			
TS/71-BL TS/71-YE TS/71-GN TS/71-RD TS/71-WH TS/71-MX	TS/71-BL Plus - includes loops and needles TS/71-YE Plus - includes loops and needles TS/71-GN Plus - includes loops and needles TS/71-RD Plus - includes loops and needles TS/71-WH Plus - includes loops and needles TS/71-MX Plus - includes loops and needles	100 100 100 100 100 100	Blue caps & beads Yellow caps & beads Green caps & beads Red caps & beads White caps & beads 20 of each colour
Protect Select	Description	Qty	Colour
TS/73-AN80 TS/73-AN25	<b>Anaerobe</b> - Enhanced survival. Increased viscosity and oxygen removal.	80 25	Orange caps & beads
TS/73-MF80 TS/73-MF25	<b>Meat Free</b> - No animal origin components - TSE/BSE free. Suitable for pharmaceutical and bio-fermentation.	80 25	Clear cap & black beads
TS/73-YM80 TS/73-YM25	<b>Yeasts &amp; Moulds</b> - Enhanced survival and cell viability. Easy suspension of hydrophobic spores.	80 25	Grey cap & beads
TS/73-DY80 TS/73-DY25	<b>Dairy</b> - Enhanced survival of isolates from dairy products, rinse waters and environmental samples	80 25	Lilac cap & beads

# Protect Accessories

Code	Product	Description	Pack Size
TS70-H	Cryoblock	5 Wells Aluminium/Rubber	1
TS70-P	Freezer Storage Tray	For 100 vials - Polystyrene	1
TS70-L	Freezer Storage Box	For 100 Vials Polypropylene	1
TS30-E	Sterile Culture Loops 5µl	Red Soft 50 per Bag	1000
TS30-G	Sterile Culture Loops 5µl	Red Soft Single in Peel Pouch	1000
TS3-C	Sterile Needles	Clear Firm Single in Peel Pouch	1000
TS126-H	Sterile Pastette Fine Tip	Blown Plastic Single in Peel Pouch	500
TS30-A	Sterile L-shaped Spreader	Clear Firm 5 per bag	1000
TS11	"Orange stick" Wood Stick	Suitable for Colony Picking in 100s	5000

## Re-order Codes

### Protect Multipurpose:

TS/80-MX (mixed); TS/80-BL (blue);  
TS/80-GN (green); TS/80-WH (white);  
TS/80-RD (red); TS/80-YE (yellow) - 80 vials  
TS/71-MX (mixed); TS/71-BL (blue);  
TS/71-GN (green); TS/71-WH (white);  
TS/71-RD (red); TS/71-YE (yellow) - 100 vials

### Protect Starter Kit:

TS/69-MX10 (multipurpose); TS/69-AN10 (anaerobes);  
TS/69-DY10 (dairy); TS/69-MF10 (meat free);  
TS/69-YM10 (yeasts & moulds)

### Protect Plus – Includes loops and needles:

TS/71-MX Plus (mixed); TS/71-BL Plus (blue);  
TS/71-GN Plus (green); TS/71-WH Plus (white);  
TS/71-RD Plus (red); TS/71-YE Plus (yellow).

### Protect Select

TS/73-AN25/80 (anaerobes);  
TS/73-DY25/80 (dairy);  
TS/73-MF25/80 (meat free);  
TS/73-YM25/80 (yeasts & moulds).

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