

# Protect

## Microorganism Preservation System

Store it, preserve it,  
protect it



**Technical Service**  
Consultants Ltd

# 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 L.J. 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.



**Technical Service**  
Consultants Ltd

## Performance Characteristics

Refer to the table below for examples of Protect performance.

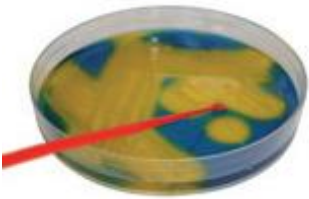
Further recovery data is available on request.

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>P.aeruginosa</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.

[www.tscswabs.co.uk](http://www.tscswabs.co.uk)

# 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).

**Technical Service Consultants Ltd** Microbiology House, Fir Street, Heywood, OL10 1NW, Lancashire, UK  
T : +44 (0)1706 620600 F : +44 (0)1706 620445 E : sales@tscswabs.co.uk W : www.tscswabs.co.uk