

Technical Information

1. Abbreviations

ABS	Acrylonitrile Butadiene Styrene
AL	Aluminium
AS	Aseptic Manufacture
CA	Cellulose Acetate
Dia	Diameter
EO	Ethylene Oxide
ID	Internal Diameter
IRR	Irradiated for Sterility
G	Glass
M	Metal, Tin Plate
NS	Non Sterile
OD	Outer Diameter
OH	Overall Height
PE	Polyethylene
PES	Polyethersulfone
PETG	Polyethylene Tetrathalate
PMMA	Polymethyl Methacrylate
PP	Polypropylene
PS	Polystyrene
W	Wire, Epoxy Coated

2. Bags, Autoclave

(cat page 2)

Recommendations for use:

- Vessels containing liquid should not be plugged or capped
- Do not put sharp objects such as broken glassware into an autoclave bag
- Add some water to bags of solid waste. The water will vapourise into steam and will drive out residual air once sterilisation temperature has been reached inside the bag
- Do not tightly seal the bag as this will prevent air escaping during the sterilisation process
- Do not overload autoclave. Leave sufficient room for thorough steam circulation
- For the decontamination and inactivation of particularly resistant biological waste, use High Temperature bags and autoclave at 135°C



3. Bags, Metal Closure

(cat page 3)

Method of Use

- I. Tear off top of bag along perforation
- II. Use pull tabs to open bag
- III. Place sample in bag
- IV. Hold bag by wire ends and whirl three times to close (whirling the bag will form the tightest seal) or fold the tab over tightly three times to close (folding the tab should be used for larger bags)
- V. Bend wire ends onto bag to ensure bag remains closed
- VI. Sample contained in bag

To re-open the bag:

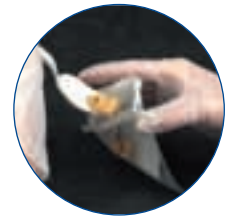
- Bend the wire ends away from the bag
- Unroll the tab
- Use pull tabs to open



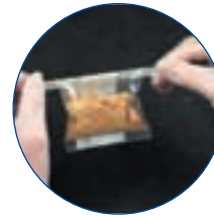
I.



II.



III.



IV.



V.



VI.

4. Cell Biology, Treated Products

(cat pages 72, 75, 76, 78)



The Iwaki TC treated products (flasks, dishes, multiwells) undergo a special tissue culture treatment to enable them to support cell growth on their surfaces. This is primarily a treatment that makes the surface of the vessel hydrophobic and thus enhances cell attachment.

5. Cell Biology, Working Volumes

The following volumes are a general guideline only.

Customers should decide the media volume required dependant on the cell line being used

	Recommended Working Media Volume (ml)
Culture Dishes	
35 mm	2.0 - 3.0
60 mm	4.0 - 6.0
100 mm	10.0 - 15.0
150 mm	40.0 - 50.0
Multi Well Plates	
6 wells	2.0 - 3.0
12 wells	1.5 - 2.2
24 wells	0.5 - 1.0
48 wells	0.5 - 0.8
96 wells	0.1 - 0.2
Culture Flasks	
25 cm ²	5.0 - 7.5
25 cm ² slim	5.0 - 7.5
75 cm ²	15 - 30
150 cm ²	40 - 50
225 cm ²	45 - 75

6. Cell Biology, Substrate Coated Products

(cat pages 80 & 81)

A problem that can occur when attempting to culture cells in-vivo is encouraging them to grow and proliferate on a plastic or glass base rather than on macromolecular connective tissue, which would bind them together in-vivo. This connective tissue, known as the extra cellular matrix, generally consists of proteins, polysaccharides and proteoglycans. To help combat this problem Iwaki have developed a range of tissue culture products coated with components of the extra cellular matrix. When placed in contact with these proteins, cells that are usually difficult to nurture in artificial environments:

- Show improved cell attachment and growth
- Exhibit lower requirements for serum
- Produce a monolayer of cells needed to show a cytopathic effect

This range also has significant other benefits over non-coated TC products or in-house coated product when the need to culture 'difficult' cells arises, namely:

- Saves time
- Ensures reproducibility
- Consistency in results

a) Collagen Type I

Collagen type I is found in most tissues and organs, but can be found mainly in dermis, bone and tendons. As an integral part of the overall framework that holds cells and tissues together it has been recognised as a useful matrix for enhancing cell culture. The in vitro use of

collagen can improve cell attachment and increase proliferation rates for a variety of normal and transformed mammalian cell types

Collagen source – pig tendon

Storage should be at room temperature (not higher than 25°C)

Avoid storage in areas of high humidity

Rapid temperature changes and exposure to UV irradiation may reduce the shelf life of the product.

Suitable cell types include:

- Endothelial Cells
 - Primary human umbilical vein endothelial cells (HUVEC)
 - Foetal bovine heart endothelial cells (FBHE)
 - Primary porcine aortic endothelial cells
- Hepatocytes
 - Primary rat hepatocytes
 - Primary human hepatocytes
 - HepG2 cells
- Muscle Cells
 - Chick embryo myocytes and myoblasts
 - Rat myocytes and myoblasts
 - Skeletal muscle cells
 - Rat smooth muscle cells
 - Quail myoblasts
 - Human smooth muscle cells
 - Rat primary cardiomyocytes
 - Transfected MM41 skeletal myoblasts
- Rat PC12 Cells
- Other Cell Types
 - Transfected CHO cells
 - MDA-MB 435 tumour cells

b) Fibronectin

Fibronectin exists in the plasma (as a dimer) and in the extracellular matrix and on cell surfaces (in multimeric form). Its main function is cell adhesion to the extracellular matrix that occurs through an interaction of its cell binding domain with fibronectin-specific cell surface receptors. Other domains of fibronectin also interact with collagen, heparin and cell surface glycosaminoglycans. It can promote the cell attachment, proliferation, differentiation and spreading of many cell types, especially fibroblasts.

Fibronectin source – foetal plasma

Storage should be at room temperature (not higher than 25°C)

Avoid storage in areas of high humidity

Rapid temperature changes and exposure to UV irradiation may reduce the shelf life of the product

Suitable cell types include:

- Fibroblasts
 - Hamster kidney cells, BHK-21
- Endothelial Cells
 - Capillary endothelial cells
 - Human umbilical vein endothelial cells
 - Microvascular endothelial cells
- Nerve Cells
 - Neuroblastoma cells
- Other Cell Types
 - Monocytes
 - 3T3 Preadipose cells
 - Human myeloma cell lines

c) Gelatin

Gelatin is derived through the hydrolysis of collagen to produce a heterogeneous mixture of water-soluble proteins. It can be used to enhance the attachment of a wide variety of both normal and transfected cell types

Gelatin source – pig skin

Storage should be at room temperature (not higher than 25°C).

Avoid storage in areas of high humidity

Rapid temperature changes and exposure to UV irradiation may reduce the shelf life of the product

Suitable cell types include:

- Vascular Endothelial Cells
 - Primary human umbilical vein endothelial cells (HUVEC)
- Embryonic Stem Cells
- Muscle Cells
- F9 Teratocarcinoma Cells

d) Poly-L-Lysine and Poly-Ethylene-Imine

These are chemically synthetic molecules used to enhance cell attachment by altering the charge on the surface of the tissue culture treated vessel from negative to positive. Poly-L-Lysine has been found to be especially effective when using serum free or serum reduced cultures where it also enhances the adsorption of serum or extracellular matrix proteins to the culture substrate. Both are suitable for the primary culture of nerve cells. Poly-Ethylene-Imine is especially suited for the primary culture of cells associated with the central nervous system.

Storage should be at room temperature (not higher than 25°C)

Avoid storage in areas of high humidity

Rapid temperature changes and exposure to UV irradiation may reduce the shelf life of the product

Suitable cell types include:

- Primary Neurons
 - Cerebellar granule
 - Cerebral cortex
 - Sympathetic neurons
 - Sciatic nerve
 - Cortical neurons
 - Spinal cord neurons
 - Septal neurons
 - Dorsal root ganglia
- Neuronal Cell Lines
- Glial Cells
- Transfected Cell Lines



Application	Collagen Type I	Fibronectin	Gelatin	PLL / PEI
Promotion of cell attachment and spreading	√	√	√	√
Cell adhesion assays	√	√		
Serum free/reduced serum culture	√	√		
Rapid expansion of cell populations	√	√		
Studies of effects of coating type on behaviour	√	√		
Improving survival of primary cells in culture	√	√		
Culture of normal and transfected F9 teratocarcinoma cells for gene expression			√	
Culture and promote proliferation of Human Umbilical Vein Endothelial Cells (HUVEC)	√	√	√	
Cell differentiation and neurite outgrowth				√
Attachment of fastidious transfected cell lines				√
Support survival of primary primary neurons in culture				√

7. CE Marking and the In Vitro Diagnostic Device Directive 98/79/EU

Many Sterilin products now carry a CE symbol in accordance with the European Directive 98/79/EU.

The Directive was introduced in 2003 to regulate the safety and performance of In Vitro Diagnostic Devices throughout the European Union. Manufacturers, such as Barloworld Scientific, are obliged by the Directive to adopt careful design, production and quality control of products that are classed as In Vitro Medical Devices. The latter includes Petri dishes, Specimen Containers and Multiwell Plates.

Sterilin branded products, which are covered by the Directive and CE marked, are clearly identified in this catalogue. Just look for the CE symbol against the catalogue entry.

It should be noted that the Directive does not apply to general laboratory products such as transfer pipettes. Hence these items are not CE marked.

For some products there is no clear distinction between In Vitro Diagnostic Devices and General Laboratory Products. In these cases Barloworld Scientific has chosen to adopt a responsible approach: it will not CE mark until it receives clarification from the European Commission.

For latest information please consult

www.barloworld-scientific.com and click onto Technical Centre where this information can be found under Technical Data.

8. Chemical Resistance and Physical Properties of Polymers

Excellent resistance, can withstand use over a long period of time without change

Good resistance, minor attack may occur over long periods of storage

Limited resistance, moderate attack, product can be used for brief mixing and measuring

Poor resistance, product becomes unstable on contact with chemical

TL Translucent

C Clear

	PS	PP	LDPE	HDPE	PETG
Acids-dilute	Green	Green	Green	Green	Green
Acids-concentrated	Orange	Green	Green	Green	Red
Alcohols	Green	Green	Green	Green	Green
Aldehydes	Red	Green	Yellow	Yellow	Red
Bases	Green	Green	Green	Green	Red
Chloroform	Red	Orange	Red	Orange	Red
Esters	Red	Yellow	Yellow	Yellow	Red
Formaldehyde	Red	Yellow	Yellow	Yellow	Red
Hydrocarbons-aliphatic	Red	Yellow	Orange	Yellow	Red
Hydrocarbons-aromatic	Red	Orange	Orange	Yellow	Red
Hydrocarbons-halogenated	Red	Orange	Red	Orange	Red
Ketones	Red	Yellow	Yellow	Yellow	Red
Oils, mineral	Green	Green	Orange	Yellow	Yellow
Oils, vegetable	Yellow	Yellow	Yellow	Yellow	Yellow
Oxidising agents	Red	Orange	Orange	Orange	Red

	PS	PP	LDPE	HDPE	PETG
Max Temp °C	70	135	80	120	60
Min Temp °C	-40	0	-50	-100	-80
Autoclavable	NO	YES	NO	NO	NO
Gamma Irradiation Sterilisation	YES	NO	YES	YES	YES
Transparency	C	TL	TL	TL	C
Gas Permeability N ₂	3	4.4	20	3	0.8
Gas Permeability CO ₂	75	92	280	45	4.5
Gas Permeability O ₂	15	28	60	10	1.1
Water Absorption %	0.05	<0.02	<0.01	<0.01	<0.1

mm cm³/cm² sec (cm Hg) x 10¹⁰

Key to abbreviations

(PS) Polystyrene

(PP) Polypropylene

(LDPE) Low density polyethylene

(HDPE) High density polyethylene

(PETG) Polyethylene Tetraphthalate

This chemical resistance chart and table of physical properties is intended for general guidance only.

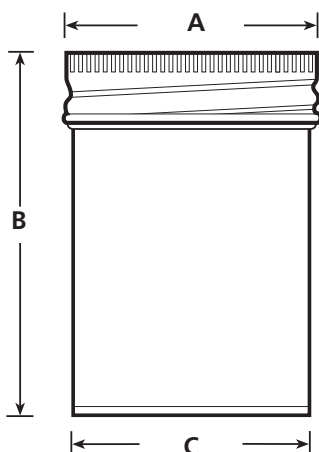
We recommend that users satisfy themselves as to the compatibility between containers and proposed contents before use.

9. Containers, Dimensions

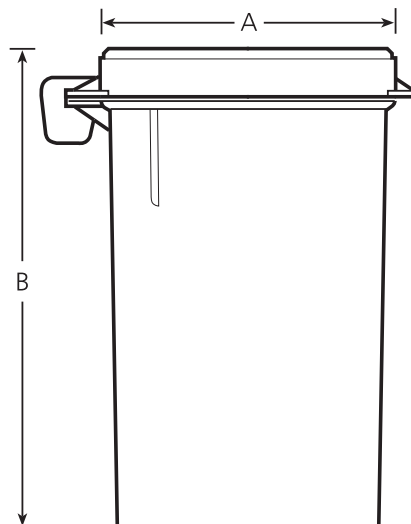
(cat page 9)

Dimensions given throughout the catalogue are nominal unless otherwise stated.

Barloworld Scientific Ltd reserves the right to alter specifications without the prior notice as part of the company's policy of ongoing product improvement.



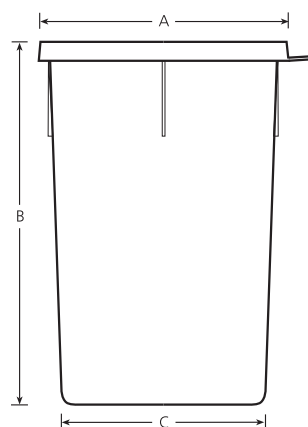
Container, Polypropylene, Hinged Lid



Product Code	A (mm)	B (mm)	Nominal Vol (ml)
52FLS / 52FLPLS	29	85	48
60FLS / 60FLPLS	31	78	53
100FLS / 100FLPLS	43	80	101
300FLS / 300FLPLS	75	88	296

Product	A (mm)	B (mm)	C (mm)
7ml Bijou, PS§	22.5	50.2	18.0
7ml Bijou, Glass	20.9	45.5	15.9
30ml Universal, PS	31.0	94.0	24.0
30ml Universal, PP	29.5	90.0	24.0
30ml Universal, Glass	26.6	84.8	21.4
40ml Container, PP	34.0	70.0	30.0
60ml Container, Plastic Cap, PS	35.0	61.0	39.2
60ml Container, Metal Cap, PS	44.5	61.0	39.2
60ml Container, Plastic Cap, PP	39.0	70.0	34.0
100ml Container, Plastic Cap, PS	51.0	78.0	44.0
100ml Container, Metal Cap, PS	49.5	77.0	44.0
125ml Container, Plastic Cap, PP	61.0	74.0	51.0
150ml Container, Metal Cap, PS	55.0	108.0	48.0
180ml Container, Plastic Cap, PP	61.0	102.0	51.0
250ml Container, Metal Cap, PS	65.5	119.5	58.0
250ml Container, Metal Cap, PP	65.0	118.0	58.0

Container, Polypropylene, Snap Cap



Product Code	A (mm)	B (mm)	C (mm)
202PPI	65	88	53
402PPI	85	100	70
1002PPI	105	130	88

10. Containers, Leak Test Standard

In many applications, particularly the healthcare sector, Sterilin containers will be used to contain both valuable and hazardous samples. Many of these samples will also be subjected to the rigours of hospital air transport systems. It is imperative that these products do not leak. As such, for the benefit and safety of both patients and clinicians, production samples of Sterilin containers are routinely leak tested in accordance with EN14254 Annexe D and BS5213

11. Containers, Double Bagged

(cat page 15)

Method of Use

Sterilin branded double bagged containers are available for use in hospital theatres and other sterile environments. The procedure for use is detailed below:

1. Each container is supplied double wrapped and irradiated. An irradiation dot is affixed to each inner bag confirming complete sterility



2. The outer bag can be opened in the non-sterile environment by carefully tearing along the line as directed. The inner bag can easily be pulled from the outer bag by staff within the sterile operating area ensuring a 'sterile' transfer from one area to the next



3. The container can then be removed from the second bag within the sterile operating environment

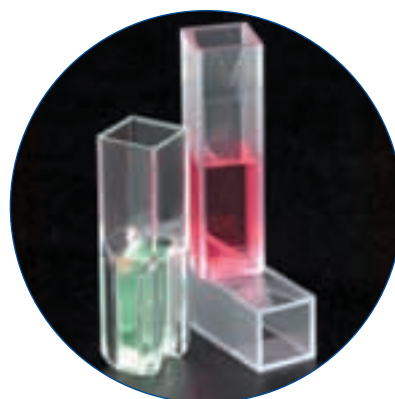


12. Cuvettes

(cat page 212)

Sterilin cuvettes are manufactured from both polystyrene (PS) and polymethyl methacrylate (PMMA). The table below indicates the chemical resistance of both polymers for 30 minute exposure.

	PS	PMMA
Ammonia	√	√
Hexane	x	√
Hydrochloric acid, 36%	√	√
Hydrofluoric acid, 10%	√	√
Isopropanol	√	√
Sodium hydroxide	√	√



Please note:

Cuvettes should not be used for long-term storage of samples. When using hydrochloric acid, as the instrument can come under attack from the acid fumes, it is recommended that sealing film is used on the cuvette.

What does "sorted by cavity number" mean?

A plastic injection mould with 8 separate cavities can produce 8 cuvettes at a time. To ensure best possible reproducibility, it is preferable to use product from the same cavity number. Cuvettes originating from each individual cavity are automatically packaged into the same carton. Therefore for best results, use cuvettes from one carton for each series of analyses

13. Microtitre Plates

(cat pages 30 & 73)

When selecting the type of microtitre plate required for a particular application, please use the table below for guidance:

Application	Type of Plate
DNA Libraries	Polystyrene, sterile with lid
High throughput screening of new and novel compounds	All types
EIA	Polystyrene
Luminescence	Polystyrene, white
Scintillation*	Polystyrene, white
Fluorescence	Polystyrene, black
Tissue culture growth studies	Polystyrene, TC treated, sterile with lid

* With scintillation applications it is recommended to use polystyrene friendly scintillation cocktails

Choice of well shape

'U' Well

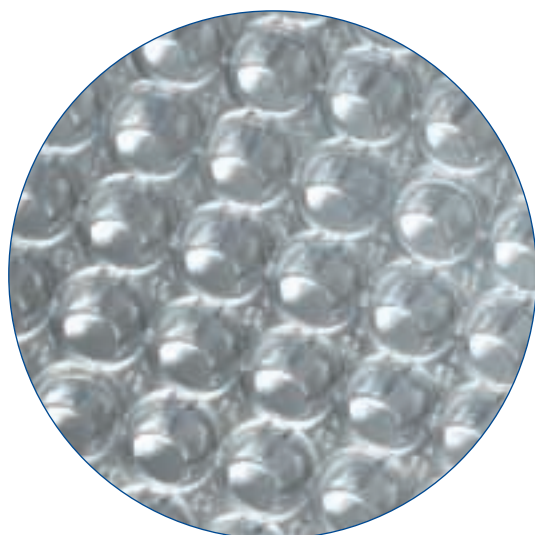
- Improves washing in ELISAs
- Enhances sensitivity in fluorescent applications
- Facilitates observation of agglutination reactions

Flat Well

- Provides optimal optical characteristics for polystyrene plates
- Suitable for reagent injection reactions

V' Well

- Ideal profile for centrifugation and sedimentation



14. Petri Dishes

(cat page 31)

Sterilin 90mm, 140mm and 100mm square Petri dishes are manufactured in accordance with the British Standard 611 part 2. With stringent dimensional controls, we can ensure product quality and consistency making them ideal for use with most automatic plate pourers

Basic criteria with associated benefits are as follows:

Specification	Benefit
Free from discolouration and weld marks	Good optical quality
Consistent dimensions without rough edges	Will fit plate pourers, safe to use
Minimum vent height	Adequate gas flow - consistent results
Rigidity to resist excessive deformation when handled	No distortion in use
Must not distort at 60°C	Pour with hot agar
Must resist fracture up to 19.61N	Reduced risk of breakage
Stability - incline stack to 12 degrees	Safe and easy to use
Free from loose particles greater than 100µm in diameter	No false positives when using automatic colony counters
Manufacture must be by aseptic means or the or the product must be terminally sterilised	Assured level of sterility
All packaging must be clearly marked with the manufacturers mark, BS611 and 'in vitro use only	Visible guarantee of a quality product



15. Pipette Tips, Compatibility Chart

(cat page 45)

Product Code	Description	Colour	Capacity (ul)	Eppendorf	Gilson	Finnpipette	Biohit	Elkay (Exelpette)	Jencons (Sealpette)	Nichiryo Socorex	Oxford	MLA
Standard												
BCT10	Pipette Tip, micro	Clear	0.5 – 10	✓	✓	✓	✓	✓	✓	✓		
BCT20	Pipette Tip, micro	Clear	0.5 – 10	✓	✓	✓	✓	✓	✓	✓	✓	
BCT25	Pipette Tip	Yellow	2 – 200	✓	✓	✓	✓	✓	✓	✓		
BCT30	Pipette Tip	Yellow	2 – 200	✓	✓	✓	✓	✓	✓	✓	✓	
BCT40	Pipette Tip	Clear	5 – 200								✓	
BCT50	Pipette Tip	Clear	5 – 200									✓
BCT60	Pipette Tip	Clear	5 – 300		✓	✓	✓					
BCT70	Pipette Tip	Blue	100 – 1000	✓	✓	✓	✓	✓	✓	✓	✓	
BCT70S	Pipette Tip	Blue	100 – 1000	✓	✓	✓	✓	✓	✓	✓	✓	
BCT80	Pipette Tip	Blue	50 – 1000								✓	
BCT90	Pipette Tip	Clear	50 – 1000									✓
BCT100	Pipette Tip, macro	Blue	1000 – 5000		✓						✓	✓
BCT110	Pipette Tip, macro	Clear	1000 - 5000	✓		✓	✓		✓	✓		
Bulk												
BCB25	Pipette Tip	Yellow	2 – 200	✓	✓	✓	✓	✓	✓	✓		
BCB30	Pipette Tip	Yellow	5 - 200	✓	✓	✓	✓	✓	✓	✓	✓	
BCB70	Pipette Tip	Blue	2 – 200	✓	✓	✓	✓	✓	✓	✓	✓	
Racked												
BCTR10	Racked Pipette Tip, micro	Clear	0.5 - 10	✓	✓	✓	✓	✓	✓	✓		
BCTR20	Racked Pipette Tip, micro	Clear	0.5 – 10	✓	✓	✓	✓	✓	✓	✓	✓	
BCTR25	Racked Pipette Tip	Yellow	5 – 200	✓	✓	✓	✓	✓	✓	✓		
BCTR30	Racked Pipette Tip	Yellow	5 – 200	✓	✓	✓	✓	✓	✓	✓	✓	
BCTR60	Racked Pipette Tip	Clear	5 – 300		✓	✓	✓					
BCTR70	Racked Pipette Tip	Blue	50 – 1000	✓	✓	✓	✓	✓	✓	✓	✓	

NB: Barloworld Scientific pipette tips are recommended for use with, but not limited to, the pipettors listed in this compatibility chart

16. Sterility, Aseptic Manufacture

The term 'aseptic' refers to methods and procedures designed to prevent the access of living or dead bacteria, fungi, viruses and other biological contamination, so that products or work areas are maintained in a biologically clean condition.

Petri dishes, containers and multiwell plates are examples of Sterilin products that are aseptically manufactured. During production, virgin polystyrene is subjected to temperatures in excess of 200°C and then injected into the mould at high pressure. These exacting conditions ensure a biologically clean product. Subsequent assembly and packaging is carried out by trained operators under cleanroom conditions (class 7, maintained as per BS EN ISO14644) to exclude any microbiological contamination. Stringent microbiological sampling of both the cleanroom environment and finished product ensures extremely clean product with a very high Sterility Assurance Level (SAL)



17. Sterility, Irradiation

Irradiation is a method of sterilisation which involves subjecting the finished product and its packaging to ionising radiation. The radiation breaks down DNA and so destroys living organisms.

Barloworld Scientific uses gamma irradiation for the sterilisation of products which are complex to manufacture under aseptic conditions. These include Sterilin pipettes and microtitration plates. Products that have been subjected to sterilisation via irradiation are usually denoted by a red indicator on the packaging.

18. Sterility, Sterility Assurance Level (SAL)

Sterility can be defined in terms of the "probability" of a micro-organism being present on the product.

For a medical device to be labelled "Sterile", the probability that a viable organism is present on the device must be less than or equal to 1×10^{-6} (1 colony per 1,000,000 product). This equates to a Sterility Assurance Level of 6.

For aseptically manufactured product the probability that a viable organism is present on the product is less than or equal to 10^{-3} (1 colony per 1,000 product). This equates to a Sterility Assurance Level of 3.

19. Swabs, Applicator Type

(cat page 49)



Depending on the area of the body where the sample is taken, one applicator may be more relevant than others.

- Plastic shaft (polystyrene), inert non-toxic material. Most common choice
- Twisted wire shaft due to its flexibility is designed specifically for nasopharyngeal sampling
- Aluminium shaft is generally used for ear, nose, eye and male urethral sampling. It is also excellent for paediatric use

20. Swabs, Tip Material

- Viscose (Rayon) – a derivative of cellulose. As it is non-toxic to organisms, it is the most common type for microbiology
- Polyester (Dacron) – a synthetic fibre. Essential for use with PCR or similar DNA tests where the DNA of viscose could interfere with the results

21. Swabs, Transport Medium

- As there is often a delay between sampling and the subsequent analysis, medium is added to preserve (not inhibit or enhance) the micro-organism that may be present on the swab
- Due to the broad spectrum use of swabs and differing environmental requirements it is important that the transport medium is suitable for all microorganisms
- Amies is the most common medium and is ideal for general-purpose use
- The transport media can be in gel or liquid form

a) Gel or Liquid

- Gel is generally the preferred option because it keeps air out of the medium and is less toxic to bacteria
- The main use of a liquid medium is for rapid tests - hence the use of gel may not be appropriate, i.e. microscopic slides

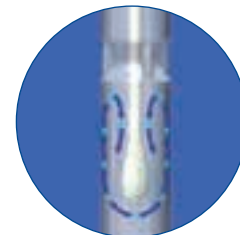
b) Charcoal or Without ?

- The property of charcoal is to absorb pollutants and other substances that could be toxic to bacteria. Advised for use with difficult bacteria, particularly *Neisseria gonorrhoea*

22. Swabs, Packaging

a) Venturi Design

- Barloworld Scientific's Transport Swab has been carefully designed and engineered to provide superior swab performance
- A carefully engineered neck constriction and moulded fins creates a deliberate Venturi effect when the swab is introduced
- The Venturi action works to immediately surround and seal in the swab tip, eliminating any bubbles, cracks and breaks that would normally occur in the agar, protecting bacteria from the harmful effects of atmospheric oxygen



b) Unique Swab Packaging System

- Barloworld Scientific's unique packaging for the Sterilin range of transport swabs combines an outer foil pack and an inner plastic pouch, both with a vacuum and nitrogen gassed assembly process
- The outer foil bag serves to reduce evaporation and dehydration of the media whilst also protecting the product from harmful effects of sunlight
- The inner plastic pouch has notable benefits over traditional porous paper-plastic film packaging;
 - Totally waterproof, protecting the product from accidental contamination
 - Prevents evaporation and dehydration, keeping the transport medium fresh until the moment the product is opened for maximum bacterial recovery
 - Airtight to prevent oxygen penetration and subsequent media oxidation
 - Simpler to recycle than traditional paper and plastic packaging and so more likely to be disposed of in the correct way

23. Swabs, M40

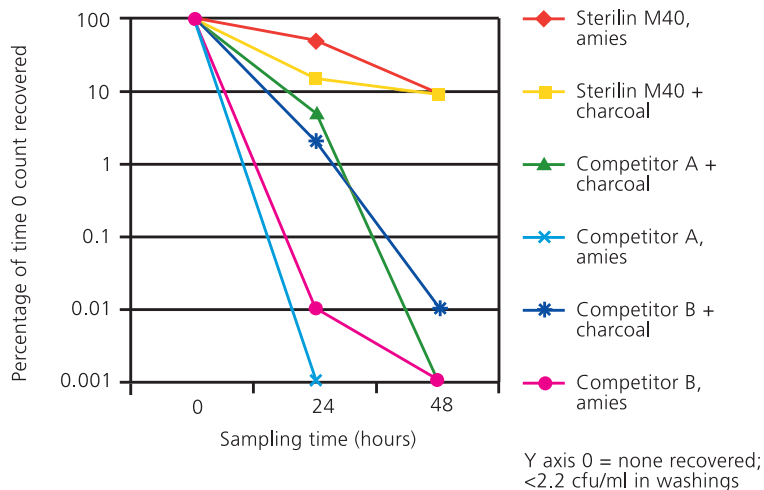
(cat page 51)

The culture swab is one of the most widely used devices for the transport and collection of patient specimens. The key to accurate diagnosis lies with the collection and maintenance of the initial patient sample where the organisms collected need to be kept alive until processed in the laboratory. To help improve overall patient care it was recognised that there should be a minimum acceptable performance for all swabs – as such, the M40 standard was formulated. The basic criteria of the standard are as follows:

- Must cover all extremes of the microbiology spectrum from aerobes to anaerobes and fastidious bacteria – all organisms under all conditions
- Compliant at room temperature (21°C) and + 4°C
- Length of time for bacterial survival – 48 hours
- Performance must be the same throughout the shelf life

Sterilin M40 swabs comply with the new NCCLS M40-A and German DIN 58942-A performance standards

For further information on independent studies please e-mail Sterilin@barloworld-scientific.com



24. Swabs, Swab Rinse Kits

(cat page 53)

a) Method of Use

- Peel open the swab rinse kit pouch and remove the sampling swab
- Swab the test site. If the surface is dry pre-moisten the swab in the rinse solution provided. If a template is being used swab the designated area
- After sampling, break the swab applicator into the tube of rinse solution (if using the alginate swab the tip will dissolve)
- Transport back to the laboratory as soon as possible
- Plate the required dilution into the appropriate media, preferably within 4 hours of swabbing. Where this is not possible refrigerate at 4°C and analyse within 24 hours of swabbing
- To calculate the number of colony forming units per cm² (CFU/cm²) when using the 10 x 10cm template use the following; (number of colonies x volume of rinse solution x serial dilution)/100



b) Swab Rinse Kit (SRK) Solution

Used in environmental monitoring situations, the SRK solution constituents are:

- Ringers balanced salt solution
- Tween 80
- Lecithin
- Sodium Thiosulphate
- Sodium Thioglycollate
- Sodium Disulphate
- Sodium Pyruvate
- Sodium Hexametaphosphate

25. Transport and Mailing Systems

(cat page 65)

It is often necessary to transport infectious samples by post. Consequently, recent UN regulations have been issued to govern the transport of such substances. Two of the most widely used sample/specimen collection devices are the 30ml Universal container and the blood collection tube. To help with the transport of these devices, Barloworld Scientific has developed two UN compliant Transport and Mailing systems – one for the 30ml Universal container and one for a 12ml blood tube.

Infectious substances can be divided into two categories:

Category A (Infectious Substance)

‘An infectious substance which is transported in a form that, when exposure occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals’

Category A infectious substances MUST be transported in UN approved packaging (Sterilin product codes UNIS4/MCE1 or UNIS4/MCE4)

There are four layers of packaging required for Category A infectious liquid and solid samples.

1. A watertight primary receptacle – holds the patient sample, solid or liquid
2. Watertight secondary packaging – contains the primary receptacle (inner container)
3. Absorbent material in sufficient quantity to absorb the entire contents placed between the primary and secondary receptacle
4. Rigid outer packaging. The smallest external dimension shall not be less than 100mm

The outer protective covering seen by the carrier should clearly exhibit the Infectious Substances triangle, a keep upright label and the relevant UN number and proper shipping name – Infectious Substances Affecting Humans (UN2814) or Infectious Substances Affecting Animals (UN2900)

If the health professional is not sure but suspects the sample is Category A, then he/she should send the sample in UN approved packaging and label it as a suspected infectious substance.



Category B (Diagnostic/Clinical Specimens)

'An infectious substance which does not meet the criteria for inclusion in Category A'.

Infectious substances in Category B should be assigned the UN number UN3373 and the proper shipping name of "Diagnostic Specimens" or "Clinical Specimens"

This requires a three layer packaging system:

1. The primary receptacle – holds the patient sample
2. Secondary packaging - to contain the primary receptacle
3. Outer packaging with suitable cushioning material

For transport, the UN number (UN3373) should be clearly visible in a diagnostic specimen diamond label on the outer packaging.

If Category B samples are to be transported by AIR, rigid outer packaging must be used (Sterilin product codes UNIS4/MCE1 or UNIS4/MCE4)

For more information and examples of infectious substances now included in category A, please refer to the relevant documentation on the WHO website:

http://www.who.int/csr/resources/publications/biosafety/en/WHO_CDS_CSR_LYO_2004_9Final.pdf

26. Tubes, Dimensional Information

(cat page 55)

Dimensions provided in this table are given for guidance purposes only.

Barloworld Scientific reserves the right to make modifications without prior notice.

Product Code	Diameter at Base (mm)	Height incl Cap (mm)	Diameter over Thread (mm)	ID (mm)	OD at Top (mm)
505	14.5	58	N/A (internal cap)	12.5	15.0
S31	26.5	60	21.4	17.0	26.5
38091	27.0	60	21.6	16.0	27.0
142B	14.5	100 (no cap)	N/A	14.0	17.8
142AS	14.5	101.5	17.7	14.0	15.7
144B	14.5	109.5 (no cap)	N/A	14.0	17.8
144AS	14.5	114	17.7	14.0	15.7
36100	14.5	114	17.7	14.0	15.7
15PPR	15.5	120	19.0	15.5	17.5
15PSR	15.5	120	19.0	15.5	17.5
36050NPG	28.0	118	31.5	27.5	29.5

27. Tubes, Centrifuge

RCF values and calculation

This catalogue lists a number of centrifuge tubes and other containers that are routinely used in centrifugation procedures. For reasons of safety, care must be taken not to exceed the maximum Relative Centrifugal Force (RCF) advised for the tube.

The following table and nomogram have been provided to give assistance in this respect.

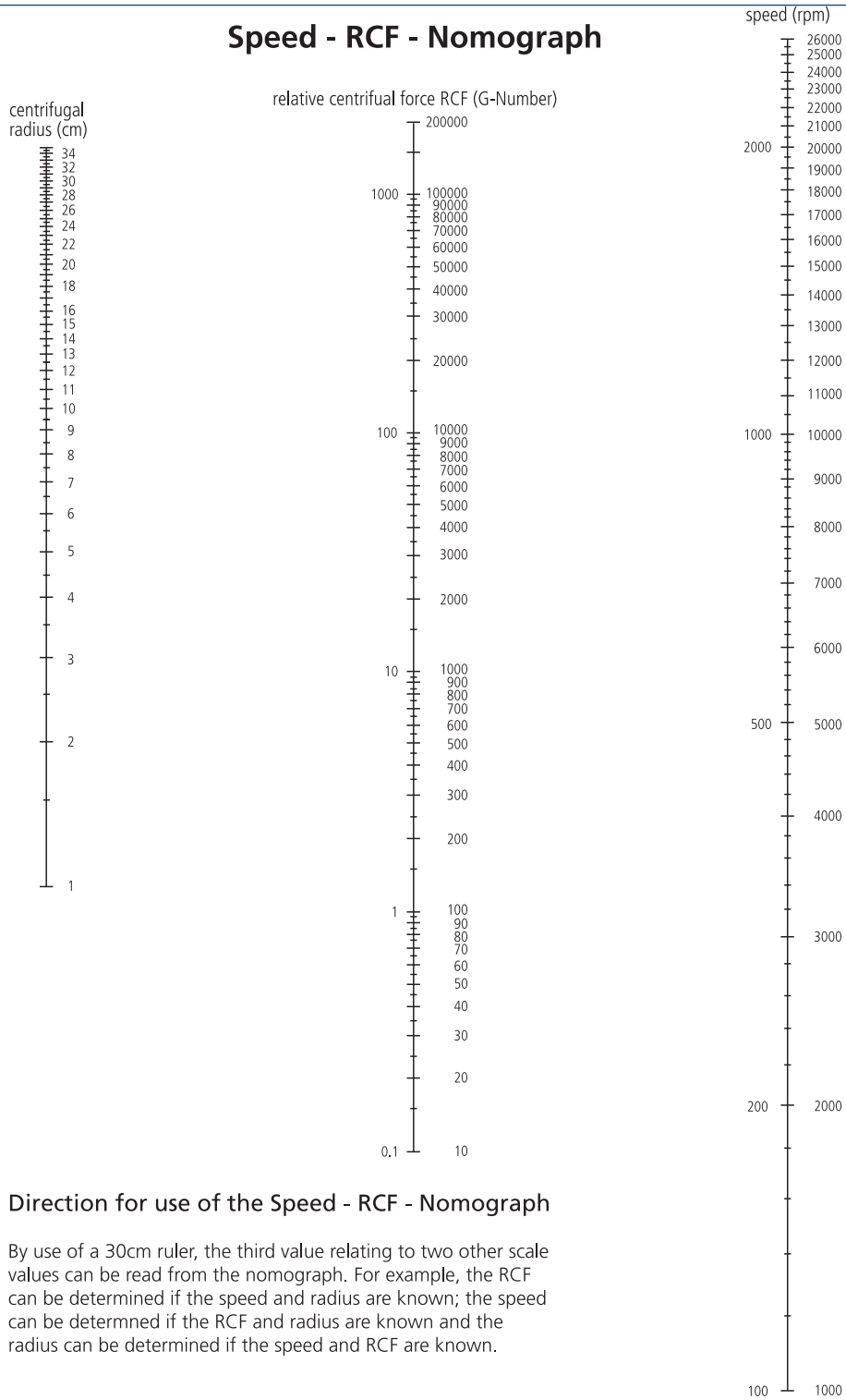
Do note that the values are for tubes in good condition, used with balanced rotors, correct adaptors and the appropriate size buckets.

Product Code	Description	Capacity (ml)	Material	Maximum Recommended RCF x g
142B	Round base tube	13.5	PS	3200
142AS	Round base tube, screw cap	13.5	PS	3200
142ASR	Round base tube, wadded screw cap	13.5	PS	3200
144B	Conical base tube	13.5	PS	3200
144AS	Conical base tube, screw cap	13.5	PS	3200
36100	Conical base tube, wadded screw cap	13.5	PS	3200
15PPR	Centrifuge tube	15.0	PP	6300
15PPB	Centrifuge tube	15.0	PP	6300
15PSR	Centrifuge tube	15.0	PS	3800
15PSB	Centrifuge tube	15.0	PS	3800
36050NPG	Centrifuge tube	50.0	PP	7200
36050CPG	Centrifuge tube	50.0	PP	9200
112	Round base tube, 40x11mm	2.3	PS	4600
RT25	Round base tube, 65x10mm	2.7	PS	2600
RT30	Round base tube, 75x12mm	4.9	PS	5400
128	Universal container	30.0	PS	3800
129	Bijou	7.0	PS	7200



See opposite page for nomogram and working examples

Speed - RCF - Nomograph



Direction for use of the Speed - RCF - Nomograph

By use of a 30cm ruler, the third value relating to two other scale values can be read from the nomograph. For example, the RCF can be determined if the speed and radius are known; the speed can be determined if the RCF and radius are known and the radius can be determined if the speed and RCF are known.

Example 1

If the centrifugal radius is 14 cm, and the relative centrifugal force is 10,000 x g, using a 30 cm ruler, the centrifuge speed is calculated as 8,000 rpm.

Example 2

If the centrifugal radius is 23 cm, the relative centrifugal force is 300 x g, using a 30 cm ruler, the centrifuge speed is calculated as 1,100 rpm.