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Fisherbrand Focus

Whatever your application Fisherbrand has a solution for you

CHROMATOGRAPHY
Focus on vials, closures & chemicals

Delivering convenience, quality and choice to help chromatographers achieve more reliable and efficient sample analysis

Fisher Scientific

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Fisher Scientific's trusted, well established and proprietary product range, Fisherbrand, is committed to providing quality products at affordable prices. Fisherbrand offers a broad selection of laboratory supplies and consumables covering a diverse range of applications such as chromatography, liquid handling, electrophoresis, pH and electrochemistry. It's the smart way to achieve cost savings over branded products without having to compromise on quality.

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This application brochure is dedicated to providing you with a comprehensive selection of key Fisherbrand items from our extensive chromatography consumables portfolio as well as highlighting supplementary products from the wider Fisherbrand family. It features a range of vials, closures and crimpers for GC, HPLC and headspace analysis as well as essential solvents, blends and reagents from Fisher Chemical. In addition, it also contains useful product resources such as FAQ's and compatibility charts, making it a great companion to keep by your side in the lab.

Frequently asked questions (FAQ's)

This brochure features some of the most frequently asked questions about our chromatography range as received by our Product Support Advisors, together with the answers they provided. However, if you are unable to find the answer to your question, are stuck and need help or are simply confused and unsure of which product best suits your research needs, the Product Support Team are here and ready to respond to your enquiries.

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Laboratory Reagents Handbook

For a fuller range of Fisher Chemical and Fisher BioReagents, please refer to our Laboratory Reagents handbook. This handbook features...

For the analytical chemist:

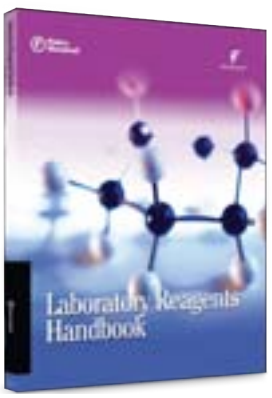
- Over 4400 Fisher Chemical products dedicated to many analytical applications, including Optima LC/MS grade solvents and high purity acids for trace elemental analysis
  - Colour coded applications
  - Physical & chemical data
  - Hazard, packaging and storage information
  - Detailed specifications

Fisher Chemical

For the life scientist:

- A dedicated section relating to four key application areas
  - Protein chemistry
  - Molecular biology
  - Cell biology
  - Core bioreagents

Fisher BioReagents™



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FOCUS ON CHROMATOGRAPHY WORKFLOW

Depend on Fisherbrand and Fisher Chemical to provide products for every step of your chromatography workflow.

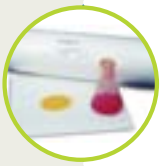
Sample Collection

Bags
Bottles
Labelling
Sealing tapes and mats
Storage
- Refrigerators
- Shelves
- Racks

Tubes
Tubing
Vials
- Headspace
- MS certified
Well plates

Sample Preparation

Evaporators
Flash cartridges
Filtration
Glassware
Labelling
Pipettes
Pipettors and tips
Sample concentration
Soxhlet systems
SPE (cartridges, plates)
Stirrers and hotplates
Syringes
Syringe filters
Vacuum manifolds



Safety

Fume hoods
Storage cabinets
Storage carriers
Spill containment
Waste storage

Personal Protection

Aprons
Coats
Facemasks
Glasses/goggles
Gloves
Respirators

The products featured within this workflow are all supplied by Fisher Scientific and are available as part of the Fisherbrand™ range, the Fisher Chemical range or one of our partners.

Fisherbrand™ Fisher Chemical

Complementary Products

Flowmeters
Leak detectors
Regulators
Storage racks and bins
Syringes (digital, manual, autosampler)
Tubing

Chemicals

- Buffers
- Chromatography grade solvents, reagents and blends
  - Optima UHPLC-MS
  - Optima LC-MS
  - LC-MS
  - UHPLC
  - HPLC Gradient
  - HPLC
- Chromatography standards
- Derivatisation products
- General chemicals
  - Extra dry solvents
  - High purity acids/bases
- Silica gel
- Sorbent media
- Ultrasonic degaser

High Performance Liquid Chromatography

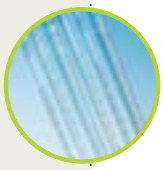
Columns
Chemicals
Connectors
Diluters
Tubing

Gas Chromatography

Chemicals
Diluters
Gas detection
Gas generator
GC columns
GC septa and ferrules
GC supplies
Nuts and ferrules

Thin Layer Chromatography

Developing tanks
Filtered fume hoods
Reagent sprayers
Sample spotters
TLC plates
TLC consumables
Transfer pipettes
Viewing cabinets



GENERAL INTRODUCTION TO CHROMATOGRAPHY

The term 'chromatography' is derived linguistically from the Greek roots *chroma* and *graphe*, and literally means "colour writing". It was invented by a Russian botanist, Mikhail Tsvet in the early 1900's, who used it for separating the pigments that make up plant dyes. Most people will probably remember their first introduction to chromatography at school with a marker pen and a piece of filter paper. In this experiment, the marker pen is used to draw a line or a spot on the filter paper which is then dipped in water or another solvent. The solvent then slowly creeps over the surface of the paper separating out the different coloured component dyes as it does so (refer to Fig. 1).

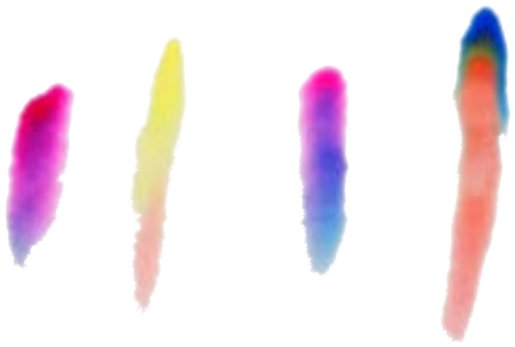


Fig. 1 Using chromatography to separate the components of coloured marker pens

There are many different types of chromatography, though all of them work on the same principle, that is, the mixture to be separated is dissolved or dispersed in a carrying medium (a liquid or gas) which is then made to travel through or over a static medium (which can be either a solid or coated solid) in order to effect its separation. The carrying medium is referred to as the mobile phase, whereas the static medium is called the stationary phase. The components of the sample are separated out by virtue of their differing degrees of chemical or physical interactions or affinities with the mobile and stationary phases.

Chromatography can be analytical or preparative. Analytical chromatography is used to determine the existence and possibly also the concentration of components of complex mixtures. Preparative chromatography, however, is used to purify sufficient quantities of a substance for further use, rather than primarily for the purposes of its analysis. As such preparative chromatography can be considered a specialised form of purification.

Chromatography can also be differentiated by virtue of the bed shape or configuration of the stationary phase, i.e. planar, or else columnar in a column or tube.

Planar chromatography is a separation technique in which the stationary phase is presented as a plane. The plane can be paper (plain or impregnated) as in paper chromatography, or else a layer of solid particles spread on a support such as a glass plate as in Thin Layer Chromatography (TLC). Different analytes or compounds in the sample mixture travel different distances through the plane according to how strongly they interact with the stationary phase as compared to the mobile phase. Paper chromatography is still a powerful teaching technique, whereas TLC is still valuable as a quick and simple tool for the analysis of sample mixtures, especially pigmented ones.

Column chromatography, on the other hand, is a separation technique in which the stationary bed is held within a tube or column. Particles of a solid stationary phase (or a support coated with a liquid stationary phase) may fill the whole inside volume of the tube (packed column) or be distributed as a hollow cylinder just inside the column walls, leaving an open, unrestricted path for the mobile phase in the central core of the tube (open tubular column). Column chromatography can be used as a separation technique for qualification, quantification or purification. There are several different types of liquid column chromatography. Gel filtration, or size exclusion chromatography, is commonly used to separate proteins, peptides or oligonucleotides on the basis of their size, and is used for analysis of molecular weight, for compound separation or for salt removal or buffer exchange. Ion-exchange chromatography, on the other hand, relies on charge-charge interactions between the sample components in the mobile phase and with charges immobilised on a stationary resin, and is also used typically for protein purification. Affinity chromatography, is a separation method based on a highly specific interaction between an immobilised ligand and a binding site, for example, antigen/antibody, enzyme/substrate, or receptor/ligand pairings. It is also used principally for protein purifications. Finally, High Performance Liquid Chromatography (HPLC) is a technical refinement in which the mobile phase is pumped into the column at a defined, high pressure.

HPLC columns are packed with a stationary phase composed of irregularly or spherically shaped particles, a porous monolithic layer, or a porous membrane. Liquid Chromatography-Mass Spectrometry (LC-MS) is simply an HPLC system combined with a mass spectrometry detector, an excellent technique for the assessment of purity.

Gas Chromatography (GC) is an analytical separation technique used to analyse volatile substances in a gas mobile phase. In gas chromatography, the sample is first dissolved into a liquid solvent which is then vapourised into a mobile, inert carrier gas phase (normally helium or nitrogen). Sample separation is achieved by virtue of component distribution between the mobile carrier gas and a stationary phase used to pack the heated column. Gas chromatography is one of the only forms of chromatography that does not utilise the mobile phase for interacting with the compound. The stationary phase is either a solid adsorbent, designated gas-solid chromatography (GSC), or a liquid on an inert support, designated gas-liquid chromatography (GLC). GC is therefore an ideal tool for the analysis of gas and liquid samples containing many hundreds or even thousands of different molecules, allowing the identification of both the types of molecular species present and their concentrations. The technique can be used forensically in drugs or explosives detection and analysis, and is invaluable in the analysis of pharmaceuticals and their intermediates, blood alcohols and other metabolites, essential oils and a variety of other food products.

Therefore, to summarise, chromatography is a powerful method used for separating complex mixtures with great precision so that they can be purified, analysed and studied such that even very similar components, such as proteins that may only vary by a single amino acid, can be resolved. In fact, chromatography can be used to analyse basically any soluble or volatile substance if the right adsorbent material, carrier fluid, and operating conditions are employed. The conditions under which chromatography are performed are also not normally particularly severe so it can even be used to separate sensitive samples. Furthermore, chromatography is a technique which is able to utilise small samples and low concentrations. It is for all these reasons that chromatography is one of the most powerful analytical tools we have at our disposal in the laboratory, and has therefore found widespread use in a variety of applications such as forensic testing, food regulation, pollution monitoring and for studying complex mixtures in products such as perfume, petrochemicals and pharmaceuticals.

The Fisherbrand range of chromatography products featured in this brochure are focused **specifically** around our comprehensive portfolio of vials and closures, especially with a view to their compatibility with all autosampler makes and models. We also feature our specialty high purity solvent range, critical ancillary chemicals, and a Fisherbrand supplement of other general laboratory consumables and apparatus essential to your chromatography work. Although our primary focus here is **not** on our equally extensive range of LC, HPLC and GC columns *per se*, do not hesitate to contact your local Product Support Advisors who will be only to pleased to assist if this is your specific area of interest.

Vials featured in the following section are packed in a cleanroom environment, providing the highest possible standard of cleanliness for dependable and reliable results. In fact, all Fisherbrand products and Fisher Chemicals are always manufactured to the highest possible standards and undergo rigorous quality assurance and testing procedures to ensure that they deliver on our promise of quality, reliability and value time after time.

CHROMATOGRAPHY VIALS AND CLOSURES OVERVIEW

Chromatography vials - an overview

In chromatography, a broad variety of glass or plastic vials are used as containers for sample analysis, collection or storage. Since many vials are used with GC or LC autosamplers or other automated instruments, not only are their physical specifications and dimensions crucial for trouble-free operation, but they also have to fulfill strict requirements regarding inertness and cleanliness such that contamination is minimised and analytical results are not compromised. The range of Fisherbrand vials featured in this brochure (refer to pages 28 to 68) meet all these stringent demands in a number of ways.

Firstly, almost all vials are made out of 1st hydrolytic class glass. Hydrolytic class glass is very hard and has a low expansion coefficient even at high temperature variations. It shows excellent chemical resistance to acidic and neutral solutions, and even to alkaline solutions due to its own relatively low alkali content. The higher density of the glass surface also offers a higher hydrolytic resistance. Clear glass of 1st hydrolytic class is differentiated into two types by virtue of their expansion coefficient, namely 33 expansion (Type 1, Class A) and 51 expansion (Type 1, Class B), whereas amber is generally only available as 51 expansion. The lower expansion coefficient of 33 implies that this harder clear glass has to be processed at higher temperatures during its manufacture, i.e. approx. 1,200°C as opposed to only 1,000°C for 51 expansion glass. Typically, in the USA, clear 33 expansion and amber 51 expansion is used, whereas in Europe, only 51 expansion glass is processed, although from a quality point of view both types are equally suitable for usage in chromatography. Unless otherwise stated, all autosampler vials offered in this brochure (clear and amber glass) are classified as Type I in accordance with the U.S.Ph. 33th ed. and the European Ph. 7th ed, as well as other Pharmacopoeias or E.P. definitions of type 1 hydrolytic class glass including, for example, the Japanese, Italian and DAB Pharmacopoeias.

Secondly, all vials that carry a CleanPack label on the front side of the polypropylene box have been packed in a certified cleanroom after having passed the annealing oven at approx. 600°C. These exceptionally clean conditions represent established pharmaceutical criteria, but do signify a new standard for chromatography vials, such that a 'CleanPack' label on the box is your guarantee of clean, uncontaminated items for reliable and accurate analyses. Furthermore, vial boxes are packed in tamper-proof shrink-wrapping, with resealable openings to minimise contamination of the contents during usage.

Many vial types are available, and it is important to be able to distinguish them based on the design of their neck and the design of their base (refer to Fig. 2 and Fig. 3).

Fig. 2 Neck design

Headspace neck* (bevelled neck)

DIN crimp neck (flat crimp neck)

Special neck for SPME vials (thicker crimp neck)

Snap ring neck (can be used with snap ring caps ND11 or crimp caps ND11)

Fire-polished neck (shell vials)

Standard screw neck (threads run down to the shoulder of the vial)

Short thread ND9 (thread ends in the middle of the neck, so that there is still some space between the edge of the cap and shoulder of the vial for robotic arms)

Short thread ND9 (vials with sure screw-stop-function)

Precision thread ND18 for headspace and SPME

*A headspace neck or headspace vial with bevelled top has a crimp neck whose outer edges are bevelled. In contrast to a flat DIN crimp neck, the liner only has a very small surface to sit on which is a disadvantage regarding tightness (except for Pharma-Fix septa). Headspace necks or bevelled crimp necks are only necessary when using the patented PerkinElmer Pressure Release Seal consisting of an aluminium cap with a slit, a metal star washer plate and a liner with ears. This system only releases excess pressure reliably when using a vial with such a top.

Fig. 3 Base design

Flat bottom | Rounded bottom (HS-bottom) | Round bottom | Conical bottom | Solid glass bottom of a microlitre vial with inner cone | Conical bottom (maximum recovery)

Besides standard glass vials, Fisherbrand can also supply some pre-silanised versions which reduce the adsorption of polar compounds onto the surface, especially important, for example, during critical protein analyses. Other compounds such as amino acids and phenolics can also react with a glass interface, a problem that is minimised when the surface is silanised.

Apart from glass, some specific applications such as atomic absorption, water and protein analysis and capillary electrophoresis require the use of plastic vials. Fisherbrand also offer a broad range of plastic vials and plastic microvials of different materials (PP, TPX).

Finally, if your application demands delivery of pre-sealed vials (i.e., vials that are either already crimped or screw capped), Fisherbrand can supply any type of vial and closure pre-assembled to your requirements, although it should be noted that all components need to be removed from their CleanPack packaging for us to perform this assembly process and thus can no longer be formally designated as 'cleanroom packed'.

EPA vials can be supplied with or without certificate of cleanliness depending on the requirements. Furthermore, EPA vials can also be supplied pre-assembled with their seals.

Chromatography closures - an overview

Vial closures, also referred to as seals, are the assembled combination of a cap and a septa. To ensure reliable analyses, it is therefore important that all closures are inert and uncontaminated as well as the vial itself. Therefore, Fisherbrand assemble and pack their seals using a fully automated process adhering to stringent manufacturing conditions, thus eliminating potential contamination by any manual human intervention. During this automated sequence, photocells check the placement and orientation of the liner to ensure that the PTFE lamination always faces inwards towards the actual sample. A gauge control also ensures that only one septum is installed (i.e. no more and no less). Seals and their components are also automatically counted during assembly – and not weighed – to ensure that everything tallies. All closures are packed in transparent, PE tamper-evident zip-lock bags for readily visible identification of their contents. The zip-locks are fully resealable, minimising contamination after opening. Closure batch numbers are also clearly printed on the bags for full traceability.

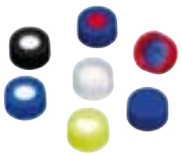
UltraBond seals are specialised closures where the cap and the septa form an inseparable unit without the use of any glue or adhesive which may pose a contamination risk. Instead, this bond is achieved by means of a patented process which actually changes the molecular interface of the cap and the septa surface so that they form a cohesive unit. UltraBond seals also ensure that the septa is not pushed into the vial during needle penetration, even if the needle is very thick and blunt. UltraBond seals come, for example, as 24mm screw thread types for EPA vials or as 9mm short thread versions.

Types of caps

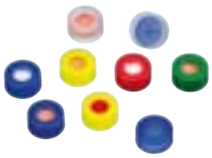
Different closure techniques and/or application requirements necessitate specific cap styles and types. To help you visualise the many different types of cap available, see Figure 4 below.

Fig. 4 Types of caps

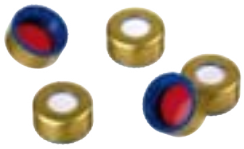
Screw caps
(open top/closed top)



Short thread caps
(open top/closed top)



Snap ring caps
(only as open top, hard or soft PE Cap available)

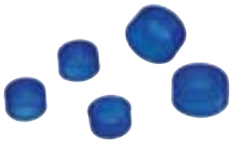


Magnetic short thread caps
(only as open top)

Various UltraBond seals ND9 + ND24

PE plugs
(for shell vials; micro-inserts can be installed in the plug)

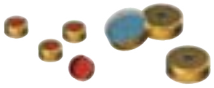
Snap caps
(for sample storage containers)



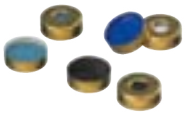
PE push-on caps
ND8 + ND11

PE caps
(for crimp necks ND8, ND11 + ND20)

Aluminium caps, centre hole



Magnetic crimp caps
(5mm centre hole)



Magnetic crimp caps
(8mm centre hole)

Magnetic screw caps
(8mm centre hole/closed top)

Magnetic bimetal crimp cap
(8mm centre hole)

Headspace caps*
(pressure release caps)

Centre tear-off caps

Complete tear-off caps

Crimp caps with roll groove

*A headspace cap is a safety cap for headspace analysis, which should avoid explosion of the vial in case of too much internal pressure. The headspace cap has special score-lines with bridges that break open at an inner pressure of 3.0 ± 0.5 bar. Thus the excess pressure escapes and the risk of vial explosion is avoided.

Types of septa

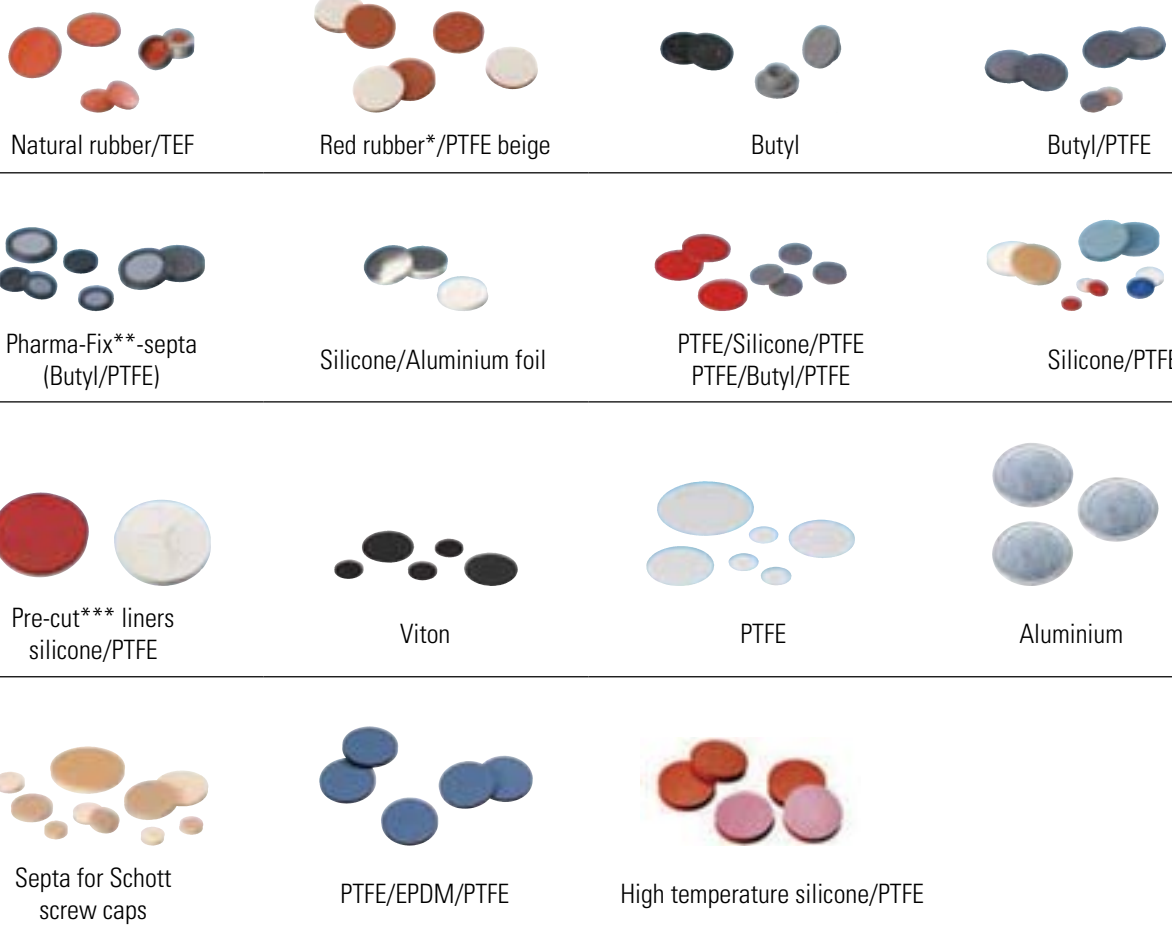
The right choice of septa depends on the application. Almost all septa are laminated on one side with PTFE, which has a high chemical resistance and forms an inert barrier between sample and carrier material of the septa. The carrier materials have different physical and chemical properties, such as temperature resistance, resealability properties, cleanliness, hardness, thickness, etc.

The guide below will help you to identify the best septa for your particular application.

Multiple injections?	Temperature?			Thin, fragile needle?	Blunt, thick needle?	Critical analysis?	Low coring?
↓	↓	↓	↓	↓	↓	↓	↓
Good resealability properties necessary	-40°C up to 120°C	-40°C up to 110°C	-60°C up to 200°C	Soft and thin septa required	Slitted/ pre-cut liner as penetration aid (HPLC)	Very clean liner required	Double sided PTFE laminated liners required
↓	↓	↓	↓	↓	↓	↓	↓
Natural rubber/TEF	**Natural rubber/TFE Butyl/PTFE**	**Red rubber/ PTFE**	**Silicone/ PTFE**	**e.g. Silicone/PTFE**	**e.g.** 11841653	UltraClean **Silicone/PTFE septa**	**PTFE/Silicone/PTFE PTFE/Butyl/PTFE**

In order to help you visualise the most common septum material combinations available, refer to Fig. 5, below. Please note, however, that their colours do not necessarily provide an indication of the actual liner material itself.

Fig. 5 Types of liners



*Red rubber/PTFE is a synthetic rubber which is softer than natural rubber/TEF and also shows less fragmentation. Furthermore it has a better cleanliness, even though it is not compatible with the analytical purity of silicone. Red rubber is a cost effective septa material for routine analysis in GC and HPLC with a temperature resistance of -40°C up to 110°C. However due to a different molecular structure it doesn't have the outstanding resealability properties like natural rubber for multiple injections.

**A Pharma-Fix septa is a moulded butyl/PTFE liner. Its PTFE lamination is only in the centre of the liner where the sample can get into contact with it. However, on the glass rims the very elastic butyl achieves a very tight seal which is essential especially in headspace analysis. A completely laminated butyl/PTFE septa has a much more slippery surface on the glass rims, so that the tightness is not as good with a Pharm-Fix septa.

***Pre-cut septa. With slitted liners used in HPLC the complete septa is cut through, in order to offer a penetration aid to the needle. In contrast, some pre-cut septa are only cut through the silicone layer, but not through the PTFE giving the same support to the needle without the risk of concentration changes due to solvent loss or contaminations from the environment.

Seal hardness

The hardness testing of many materials, including plastics and rubbers, is most commonly measured by the Shore test (also known as the durometer test). This method measures the resistance of materials toward indentation and provides an empirical hardness value. Shore hardness is the preferred method for rubbers/elastomers and is also commonly used for 'softer' plastics such as fluoropolymers. Most septa hardness values are defined using the Shore Scale A. The results obtained from this test with vial seals are a useful guide to their penetrability, which can help when attempting to select the most appropriate needle gauge for sample withdrawal.

Table 1: Seal hardness in 8mm, 9mm, 11mm, 12mm caps

Seal material	Hardness, °Shore	Thickness (mm)
Aluminium liner	-	0.06
Butyl red/ PTFE grey	55	1.3
Natural rubber red-orange/butyl red/TEF transparent	45	1.0
Natural rubber red-orange/TEF transparent	60	1.0
Natural rubber red-orange/TEF transparent	60	1.3
PTFE grey/butyl red/ PTFE grey	55	1.3
PTFE red/silicone white/PTFE red	45	1.0
PTFE virginal	53	0.25
PTFE virginal	53	0.2
Red rubber/PTFE beige	45	1.0
Silicone beige/PTFE white	45	1.3
Silicone cream/PTFE red	55	1.5
Silicone cream/PTFE red UltraClean	55	1.5
Silicone dark blue translucent/PTFE natural	35	1.0
Silicone dark blue/PTFE white	45	1.3
Silicone white/PTFE blue with slit	55	1.0
Silicone white/PTFE red	45	1.3
Silicone white/PTFE red UltraClean	45	1.3

Table 2: Seal hardness in 16, 18 and 20mm caps

Seal material	Hardness, °Shore	Thickness (mm)	Max. temp, °C
Bromobutyl/PTFE	50	3	120
Butyl red/PTFE grey	55	1.3	-
Butyl red/PTFE grey	55	1.6	-
Butyl red/PTFE grey	55	2.0	-
Chlorobutyl, dark grey	55	3	120
Moulded septa, butyl, dark grey	55	3	120
Moulded septa, butyl/PTFE grey	50	3	120
Natural rubber red-orange/TEF transparent	60	1.3	-
Pharma-fix-septa bromobutyl/PTFE	50	3	120
PTFE red/silicone white/PTFE red	45	1.0	-
Silicone blue transparent/PTFE transparent UltraClean	45	3	200
Silicone blue transparent/PTFE white	45	1.7	200
Silicone blue transparent/PTFE white	45	3	200
Silicone blue transparent/PTFE white UltraClean	45	3	200
Silicone white/aluminium foil	50	3	220
Silicone white/PTFE beige	45	3.2	200
Silicone white/PTFE blue	55	1.5	200
Silicone white/PTFE red	55	1.5	-
UHT silicone dark red/PTFE	45	3	300

Vial certifications

Certifications become more and more important in order to make processes more reproducible and avoid possible sources of errors right from the beginning. For Fisherbrand vials, the highest quality, consistency and quality control are extremely important and are denoted by three incrementally enhanced certification declarations:

Specification Certified

This is a certification and guarantee that Fisherbrand vials and closures meet the strict specification requirements that are essential for autosampler operation. This is achieved by the following measures:

- During the vial manufacturing process, special optoelectronic devices continually monitor their physical specifications (dimensions, etc.) as they go through the production run, and any that fail stringent quality control parameters are automatically rejected.
- Additional manual in-process controls, plus a final visual inspection according to DIN/ISO standards, also ensure functionality and a 'perfect fit' with the autosampler equipment.
- Regular functional tests further ensure that the vial and its components are fully compatible with the autosampler equipment. Reliable analyses can only be achieved if the entire vial assembly (vial, microinsert and closure) is viable.

HPLC and GC Certified Kits

Based on the 'Specification Certified' declaration, products further destined for 'HPLC and GC Certified Kits' undergo further testing on 15 critical parameters. This involves a HPLC/UV and GC/MS-test of the vial/closure combination on blank and trace samples in a near-to-reality procedure. Furthermore:

- HPLC and GC Certified Kits are delivered completely shrink-wrapped for safety and security during transport.
- Available as 9mm short thread vial in clear and amber with suitable closure.

LC/MS and GC/MS Certified Kits

Our LC/MS and GC/MS Certified Kits represent Fisherbrand's premium range of certified products. Each lot is tested by LC/MS and GC/MS on blank and trace values. Furthermore:

- Available as clear and amber 9mm short thread vials in the screw-top version for the absolute lowest possible evaporation rate of all autosampler vials.
- Furthermore, the glass surface of these particular screw-top vials possesses very low adsorption characteristics for all types of polar compounds; in fact much lower than all other vials of 1st hydrolytic class glass without surface treatment.
- The closure contains a very soft ultra low bleed (Ultra High Performance) silicone septum with PTFE layer, optimised for ultra trace analysis.
- LC/MS and GC/MS Certified Kits are delivered completely shrink-wrapped for safety and security during transport.

Characteristics and compatibilities

The tables below (Tables 3, 4 and 5), are for reference purposes only. Many factors affect the physical and chemical characteristics of vials and closures (see Tables 3 and 4 below), but we would kindly remind you that it is your responsibility to do a test under your own conditions to ensure that the product you are using is fully compatible. Table 5, starting on p18, is a comprehensive at-a-glance chart indicating the compatibility of most makes and models of autosampler with the full range of Fisherbrand vials (identified by their catalogue number) as featured in this brochure.

Table 3: Physical characteristics of vial and closure materials

Material abbreviation	Material description	Appearance	Max. temp °C	Min. temp °C	Autoclavable	Dry heat	Gamma radiatable	Microwavable	Ethylene oxide	Analytical purity	Fragmentation*	Hardness†	Resealability‡
HDPE	High-density polyethylene	Opaque	120	-35	No	No	Yes	Yes	Yes	Method dependent	Medium	Hard	No resealability
LDPE	Low-density polyethylene	Translucent	100	-40	No	No	Yes	Yes	Yes	Method dependent	Low	Medium hard	No resealability
TPX	Polymethylpentene	Transparent	175	0	Yes	No	Yes	Yes	Yes	Method dependent	Low	Very hard	N/A
PP	Polypropylene	Translucent	135	-20	Yes	No	No	Yes	Yes	Method dependent	Low	Medium hard	No resealability
PTFE	Polytetrafluorethy-lene	White	260	-200	Yes	Yes	Yes	Yes	Yes	Very high	Low	Very hard (very thin)	No resealability
RR	Red rubber/PTFE	Red/beige	110	-30	No	No	No	No	No	Medium	Medium	Medium hard	Medium
Butyl	Grey butyl	Opaque grey	125	-20	Yes	No	Yes	Yes	Yes	Method dependent	Low to Medium	Soft to medium	Highly resealable
T/S	Silicone/PTFE	White/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Low to Medium	Soft	Highly resealable
T/S/T	PTFE/Silicone/PTFE	Red/white/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Very low	Soft to medium	Good
	Viton™	Black	230	-30	Yes	Yes	Yes	Yes	Yes	Medium	Medium	Hard	Low to medium

* Due to hardness and molecular structure (coring)
† Needle penetration
‡ In case of multiple injections

Table 4: Chemical compatibilities of vial and closure materials

Key to chart

E – No damage after 30 days of constant exposure.
G – Little or no damage after 30 days of constant exposure.
F – Some effect after 7 days of constant exposure.
N – Immediate damage may occur. Not recommended for continous use.
S – Surface.
The first letter of each pair applies to minimum temperature conditions; the second to maximum temperature conditions.

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass	Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Acetaldehyde	GN	GF	GN	EE	GN	EE	Ammonium Hydroxide, 5%	EE	EE	EE	EE	EE	SS
Acetamide, Sat.	EE	EE	EE	EE	EE	EE	Ammonium Oxalate	EG	EE	EG	EE	EG	EE
Acetic acid, 5%	EE	EE	EE	EE	EE	EE	Ammonium Salts	EE	EE	EE	EE	EE	EE
Acetic acid, 50%	EE	EE	EE	EE	EE	EE	Amyl Alcohol	EE	EE	EE	EE	EE	EE
Acetic acid, Glacial	EG	EE	EG	EE	EG	EE	Amyl Chloride	NN	FN	EE	EE	NN	EE
Acetic anhydride	NN	FF	GF	EE	EG	EE	Aniline	EG	EG	NN	EE	GF	EE
Acetone	NN	NN	EG	EE	EE	EE	Aqua Regia	NN	NN	GF	EE	NN	SS
Acetonitrile	EE	EE	FN	EE	FN	EE	Arsenic Acid	GF	EG	NN	EE	EE	EE
Acetophenone	NN	FF	FF	EE	GN	EE	Benzaldehyde	EG	GN	EE	EE	EG	EE
Acrylonitrile	EE	EE	FN	EE	FN	EE	Benzenamine	EG	EG	EG	EE	GF	EE
Adipic acid	EG	EE	EE	EE	EE	EE	Benzene	NN	NN	NN	EE	GF	EE
Allyl alcohol	EE	EE	EE	EE	EG	EE	Benzoic Acid, Sat.	EE	EE	EG	EE	EG	EE
Aluminium Hydroxide	EG	EE	EG	EE	EG	SS	Benzyl Acetate	EG	EE	EG	EE	EG	EE
Amino acids	EE	EE	EE	EE	EE	EE	Benzyl Alcohol	NN	FN	NN	EE	NN	EE
Ammonia	EE	EE	EE	EE	EE	SS	Boric Acid	EE	EE	EE	EE	EE	EE
Ammonia, 25%	EE	EE	EE	EE	EE	SS	Bromine	NN	FN	NN	EE	NN	EE
Ammonium glycolate	EG	EE	EG	EE	EG	EE	Bromobenzene	NN	NN	NN	EE	NN	EE
Ammonium hydroxide, 30%	EG	EE	EG	EE	EG	SS	Bromoform	NN	NN	NN	EE	NN	EE

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Butadiene	NN	FN	NN	EE	NN	EE
2-Butanol	EE	EE	EE	EE	EG	EE
Butyl Acetate	NN	FF	FF	EE	GF	EE
Butyl Chloride	NN	NN	NN	EE	FN	EE
Butyric Acid	NN	FN	NN	EE	NN	EE
Calcium Hydroxide	EE	EE	EE	EE	EE	SS
Calcium Hypochlorite	EE	EE	EE	EE	EG	EE
Carbazole	EE	EE	EE	EE	EE	EE
Carbon Disulfide	NN	NN	NN	EE	NN	EE
Carbon Tetrachloride	FN	GF	GF	EE	NN	EE
Cellosolve Acetate	EG	EE	EG	EE	EG	EE
Chlorine Water	GN	GF	FN	EE	GF	EE
Chlorine, 10% moist	GN	GF	FN	EE	GN	EE
Chlorine, 10% in air	GN	EF	GN	EE	GN	EE
Chlorine, wet gas	GN	GF	FN	EE	GN	EE
Chloroacetic Acid	EE	EE	EG	EE	EG	EE
Chlorobenzene	NN	NN	NN	EE	FN	EE
Chloroform	FN	FN	NN	EE	NN	EE
Chromic Acid, 10%	EE	EE	EE	EE	EE	EE
Chromic Acid, 20%	EE	EE	GG	EE	EE	EE
Chromic Acid, 50%	EE	EE	GF	EE	GF	EE
Chromic:Sulfuric Acid Mixture, 96%	NN	NN	NN	EE	NN	EE
Citric Acid, 10%	EE	EE	EE	EE	EE	EE
Cresol	NN	FN	GF	EE	NN	EE
Cyclohexane	FN	FN	FN	EE	NN	EE
Cyclohexanone	NN	FN	FN	EE	GF	EE
Cyclopentane	NN	FN	FN	EE	FN	EE
Decahydronaphthalene	GF	EG	GF	EE	FN	EE
Diacetone	NN	NN	GF	EE	FF	EE
Diacetone Alcohol	FN	EE	EF	EE	EE	EE
Dibutylphthalate	--	-N	NN	EE	GG	EE
1,2 Dichloroethane	NN	NN	NN	EE	NN	EE
2,4 Dichlorophenol	NN	NN	NN	EE	FN	EE
Diethyl Benzene	NN	FN	NN	EE	NN	EE
Diethyl Ether	NN	FN	NN	EE	NN	EE
Diethyl Ketone	NN	NN	GG	EE	GF	EE
Diethyl Malonate	EE	EE	EE	EE	EG	EE
Diethylamine	NN	FN	GN	EE	FF	EE
Diethylene Dioxide	GF	GG	GF	EE	FN	EE
Diethylene Glycol	EE	EE	EE	EE	EE	EE
Dimethyl Acetamide	FN	EE	EE	EE	FG	EE
Dimethyl Formamide	EE	EE	EE	EE	EE	EE
Dimethylsulfoxide (DMSO)	EE	EE	EE	EE	EE	EE
Dioxane	GF	GG	GF	EE	FN	EE
1,4-Dioxane	GF	GG	GF	EE	GF	EE
Dipropylene Glycol	EE	EE	EE	EE	EE	EE
Ethanol, 40%	EG	EE	EG	EE	EG	EE
Ether	NN	FN	NN	EE	NN	EE
Ethyl Acetate	EE	EE	EG	EE	FN	EE
Ethyl Alcohol (Absolute)	EG	EE	EG	EE	EG	EE
Ethyl Alcohol, 40%	EG	EE	EE	EE	EG	EE
Ethyl Alcohol, 96%	EG	EG	EE	EE	EG	EE
Ethyl Benzene	NN	NN	NN	EE	NN	EE
Ethyl Benzoate	FF	GG	GF	EE	GF	EE
Ethyl Butyrate	GN	GF	GN	EE	FN	EE
Ethyl Chloride	FN	FF	FN	EE	FN	EE
Ethyl Chloride, Liquid	FN	FF	FN	EE	FN	EE
Ethyl Cyanoacetate	EE	EE	EE	EE	EE	EE
Ethyl Lactate	EE	EE	EE	EE	EE	EE
Ethylene Chloride	GN	GF	FN	EE	NN	EE
Ethylene Glycol	EE	EE	EE	EE	EE	EE
Ethylene Oxide Gas	FF	GF	FF	EE	FN	EE
Ethylene Oxide, 100%	FF	GF	FF	EE	FN	EE
Fatty Acids	EG	EE	EG	EE	EG	EG
Fluorine	FN	GN	FN	EG	FN	FN
Formaldehyde, 10%	EE	EE	EE	EE	EG	EG
Formaldehyde, 40%	EG	EE	EG	EE	EG	EG
Formalin, 10%	EE	EE	EE	EE	EG	EG
Formalin, 40%	EG	EE	EG	EE	EG	EG
Formic Acid	EG	EE	EG	EE	EF	EF
Formic Acid, 3%	EG	EE	EG	EE	EG	EG
Formic Acid, 50%	EG	EE	EG	EE	EG	EG
Formic Acid, 85%	EE	EE	EG	EE	EF	EF

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Formic Acid, 100%	EG	EE	EG	EE	EF	EF
Freon TF	EG	EG	EG	EE	FN	FN
Glutaraldehyde	EG	EE	EE	EE	FF	FF
Glycerine (Glycerol)	EE	EE	EE	EE	EE	EE
Hexane	NN	GF	GF	EE	FN	FN
Hydrazine	NN	NN	NN	EE	NN	NN
Hydrobromic Acid, 4%	EG	EE	EG	EE	EG	EG
Hydrobromic Acid, 48%	EE	EE	EE	EE	EE	EE
Hydrobromic Acid, 69%	--	-N	EG	EE	EE	EE
Hydrochloric Acid, 5%	EE	EE	EE	EE	EG	EG
Hydrochloric Acid, 20%	EE	EE	EE	EE	EG	EG
Hydrochloric Acid, 35%	EE	EE	EG	EE	EG	EG
Hydrogen Peroxide, 3%	EE	EE	EE	EE	EE	EE
Hydrogen Peroxide, 30%	EG	EE	EG	EE	EG	EG
Hydrogen Peroxide, 90%	EG	EE	EG	EE	EG	EG
Iodine crystals	NN	NN	FN	EE	GN	GN
Iodine tincture	EG	EG	GG	EE	NN	EE
Isobutanol	EE	EE	EE	EE	EG	EG
Isopropanol, 100%	EE	EE	EE	EE	EE	EE
Isopropyl Acetate	GF	EG	GF	EE	GF	GF
Isopropyl Benzene	FN	GF	FN	EE	NN	NN
Isopropyl Ether	NN	NN	NN	EE	EE	EE
Lactic Acid, 3%	EG	EE	EG	EE	EG	EG
Lactic Acid, 85%	EG	EE	EG	EE	EG	EG
Mercury	EE	EE	EE	EE	EE	EE
Methanol, 100%	EE	EE	EE	EE	EE	EE
2-Methoxyethanol	EG	EE	EE	EE	EE	EE
Methoxyethyl Oleate	EG	EE	EG	EE	EG	EG
Methyl Acetate	FN	FF	GF	EE	EE	EE
Methyl Ethyl Ketone	NN	NN	EG	EE	NN	NN
Methyl Isobutyl Ketone	NN	NN	GF	EE	FF	FF
Methyl Propyl Ketone	GF	EG	GF	EE	FF	FF
Methylene Chloride	FN	FN	FN	EE	FN	FN
Propane Gas	NN	FN	NN	EE	NN	EE
2-Propanol	EE	EE	EE	EE	EE	EE
Proprionic Acid	FN	EF	EG	EE	EF	EE
Propylene Glycol	EE	EE	EE	EE	EE	EE
Propylene Oxide	EG	EE	EG	EE	EG	EE
Pyridine	NN	NN	NN	EE	NN	EE
Resorcinol, 5%	EE	EE	EE	EE	EE	EE
Resorcinol, Sat.	EE	EE	EE	EE	EE	EE
Salicylaldehyde	EG	EE	EG	EE	EG	EE
Salicylic Acid, Sat.	EE	EE	EE	EE	EE	EE
Salt Solutions, Metallic	EE	EE	EE	EE	EE	SS
Silicone Oil	EG	EE	EE	EE	EE	EE
Silver Nitrate	EG	EE	EG	EE	EE	EE
Sodium Dichromate	EE	EE	EE	EE	EE	EE
Sodium Hydroxide, 1%	EE	GF	EE	EE	EE	SS
Sodium Hydroxide, 10%	EE	GF	EE	EE	EE	SS
Sodium Hydroxide, 50%	GG	GF	EE	EE	EE	SS
Sodium Hypochlorite, 15%	EE	EE	GF	EE	EE	EE
Stearic Acid	EE	EE	EE	EE	EE	EE
Sulfur Dioxide	NN	FN	NN	EE	NN	EE
Sulfur Dioxide, wet or dry	EE	EE	EE	EE	EE	EE
Sulfur Salts	FN	GF	FN	EE	FN	EE
Sulfuric Acid, 6%	EE	EE	EE	EE	EE	EE
Sulfuric Acid, 20%	EE	EE	EG	EE	EG	EE
Sulfuric Acid, 30%	EE	EE	GG	EE	EG	EE
Sulfuric Acid, 60%	EG	EE	EG	EE	EG	EE
Sulfuric Acid, 96%	GG	GG	FN	EE	GG	EE
Sulfuric Acid, 98%	GG	GG	FN	EE	GG	EE
Tartaric Acid	EE	EE	EE	EE	EE	EE
Tetrahydrofuran	FN	GF	GF	EE	FF	EE
Thionyl Chloride	NN	NN	NN	EE	NN	EE
Toluene	FN	FN	FN	EE	FF	EE
Tributyl Citrate	GF	EG	GF	EE	GF	EE
Trichloroacetic Acid (TCA)	FN	FF	FN	EE	EE	EE
1,2,4-Trichlorobenzene	NN	NN	NN	EE	GF	EE
Trichloroethane	NN	FN	NN	EG	NN	EE
Trichloroethylene	NN	FN	NN	EE	NN	EE
Triethylene Glycol	EE	EE	EE	EE	EE	EE
2,2,4-Trimethylpentane	FN	FN	FN	EE	FN	EE
Tripropylene Glycol	EE	EE	EE	EE	EE	EE
Tris Buffer, Solution	EG	EG	EG	EE	EG	EE
Urea	EE	EE	EE	EE	EE	EE
Xylene	GN	GF	FN	EE	NN	EE

Table 5: Autosampler compatibility chart

1 Crimp Neck ND8

Manufacturer	Model	Crimp Neck ND8 [1]	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Screw Neck ND8	Screw Neck ND8	Short Thread ND9	Screw Neck ND10	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 11767577 11595874 11732428	11515884	11575884 10080952 11515894 11833912 10572064 11834740 10145714 13405529 12951011 15166425 15136425 15176425 11871653 11595914 11836083 11707597 11585964 11727597 11515974 10509482 11545974	11707577 11742448 11531474	11816912 10326042 11535884 11732418 11565894 10678005 11742418	11555884	11505884	11874890
Agilent	1050									•		•			
Agilent	1050 (34 Pos. Tray)				•										
Agilent	1090									•		•			
Agilent	1090 (34 Pos. Tray)				•										
Agilent	1100									•		•			
Agilent	1200									•		•			
Agilent	1260 Infinity									•		•			
Agilent	1290 Infinity									•		•			
Agilent	G1888A														
Agilent	7673A				•					•		•			
Agilent	7683A				•		•			•		•			
Agilent	HS7694														
Agilent	7695A														
Agilent	79855(A)									•		•			
Agilent	5880									•		•			
Agilent	5890									•		•			
Agilent	6850 (27 Pos. Tray)									•		•			
Agilent	6850 (22 Pos. Tray)														
Agilent	6890									•		•			
Agilent	CTC HTS+HTC PAL	•			•	•				•		•			
Agilent	CTC GC PAL	•			•	•				•		•			
Agilent	CTC Combi PAL														
Agilent	Tekmar SOLATek72														
Agilent	Archon Pluge + Trap														
Agilent	AQUATek 70														
Agilent	7693A							•				•			
Agilent	HS7694														
Agilent	7697A														
Analytik Jena	multi N/C 3000 (TOC)														
Antec Leyden	Alexys							•		•		•			
Antec Leyden	AS 100							•		•	•	•			
Antek	736 Unisampler							•		•	•	•			
Antek	738							•		•	•	•			
Atas	GL Focus							•		•		•			
Beckman	501				•			•		•	•	•			
Beckman	502/502e				•			•		•	•	•			
Beckman	504	•				•									
Beckman	507/507e				•			•	•	•	•	•			
Beckman	508 (System Gold)									•					
Beckman	Marathon							•	•	•		•		•	
Beckman	Promis							•	•	•		•		•	
Beckman	Triathlon,Standard Tray							•	•	•		•		•	•
Beckman	Triathlon, LSV Tray				•										
Beckman	Triathlon, Super-LSV Tray														
Beckman	Triathlon, Micro-Tray	•				•									
Bruker	LC51														
Cambridge Scientific Instruments	205 Series							•		•	•	•			
Cambridge Scientific Instruments	300 Series							•		•	•	•			
Carlo Erba	AS100	•			•	•		•	•	•		•		•	
Carlo Erba	AS200	•				•		•		•		•		•	
Carlo Erba	A200LC	•				•		•	•	•		•		•	
Carlo Erba	AS200S	•				•		•	•	•		•		•	
Carlo Erba	AS300	•			•	•		•	•	•		•		•	
Carlo Erba	AS800, 42 vial tray							•		•		•		•	•
Carlo Erba	AS800, 60 vial tray		•	•	•			•		•		•			
Carlo Erba	HS250														
Carlo Erba	HS500														
Carlo Erba	HS800														
Carlo Erba	HS850														
Cecil Instruments	CE4800							•		•	•	•			
Cecil Instruments	AutoQuest								•		•	•	•		
CTC (LEAP)	LC PAL (216 Pos.)							•	•	•	•	•		•	
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray)	•													
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray)				•			•	•	•	•	•		•	
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray)														
CTC (LEAP)	Combi PAL (200 Pos. Tray), GC PAL (200Pos. Tray)	•													
CTC (LEAP)	Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray)				•					•		•		•	
CTC (LEAP)	Combi PAL SPME Mode (98 Pos. Tray)									•		•		•	
CTC (LEAP)	Combi PAL (32 Pos. Tray), GC PAL (32 Pos. Tray)														
CTC (LEAP)	Combi PAL SPME Mode (32 Pos. Tray)														
CTC	PAL HPLC-Systems	•						•		•	•	•			
CTC	PAL Combi-xt Liqid Mode	•						•		•	•	•			
CTC	Combi-xt Headspace Option											•			
CTC	GC-xt Headspace Option	•						•		•	•	•			
CTC	PAL HTC-xt	•						•		•	•	•			
CTC	HTS-xt	•						•		•	•	•			
CTC	HTX-xt	•						•		•	•	•			
CTC	Combi-xt SPME Options											•			
CTC	A200S	•				•		•		•	•	•			
CTC	A200 LC	•				•		•	•	•	•	•		•	
CTC	HS 500														
DANI	ALS 39.80									•		•			
DANI	ALS 86.80									•		•			

Table 5: Autosampler compatibility chart, continued

2 Snap Ring ND11

Manufacturer	Model	Snap Ring ND11 2	Screw Neck ND13	Shell Vials	Shell Vials	Shell Vials	Shell Vials	Headspace ND20 (D18)	Headspace ND20 (D18)	Headspace ND20 (D18)	Headspace ND20 (D18)	Headspace ND20N (D18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw Neck ND24 (EPA)
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 11767577 11595874 11732428	11515884	11575884 10080952 11515894 11833912 10572064 11834740 10145714 13405529 12951011 15166425 15136425 15176425 11871653 11595914 11836083 11707597 11585964 11727597 11515974 10509482 11545974	11707577 11742448 11531474	11816912 10326042 11535884 11732418 11565894 10678005 11742418	11555884	11505884	11874890
Agilent	1050	•													
Agilent	1050 (34 Pos. Tray)														
Agilent	1090	•													
Agilent	1090 (34 Pos. Tray)														
Agilent	1100	•													
Agilent	1200	•													
Agilent	1260 Infinity														
Agilent	1290 Infinity														
Agilent	G1888A		•								•				
Agilent	7673A														
Agilent	7683A														
Agilent	HS7694		•								•				
Agilent	7695A														•
Agilent	79855(A)	•													
Agilent	5880														
Agilent	5890														
Agilent	6850 (27 Pos. Tray)														
Agilent	6850 (22 Pos. Tray)		•												
Agilent	6890														
Agilent	CTC HTS+HTC PAL	•													
Agilent	CTC GC PAL														
Agilent	CTC Combi PAL								•			•			
Agilent	Tekmar SOLATek72														•
Agilent	Archon Pluge + Trap														•
Agilent	AQUATek 70														•
Agilent	7693A	•	•		•										
Agilent	HS7694		•								•				
Agilent	7697A										•				
Analytik Jena	multi N/C 3000 (TOC)														•
Antec Leyden	Alexys	•													
Antec Leyden	AS 100	•													
Antek	736 Unisampler	•													
Antek	738	•													
Atas	GL Focus	•													
Beckman	501	•													
Beckman	502/502e	•													
Beckman	504														
Beckman	507/507e	•													
Beckman	508 (System Gold)								•						
Beckman	Marathon	•													
Beckman	Promis	•													
Beckman	Triathlon,Standard Tray	•						•	•						
Beckman	Triathlon, LSV Tray		•												
Beckman	Triathlon, Super-LSV Tray								•						
Beckman	Triathlon, Micro-Tray														
Bruker	LC51		•												
Cambridge Scientific Instruments	205 Series		•												
Cambridge Scientific Instruments	300 Series		•												
Carlo Erba	AS100	•				•									
Carlo Erba	AS200														
Carlo Erba	A200LC	•				•									
Carlo Erba	AS200S														
Carlo Erba	AS300	•				•									
Carlo Erba	AS800, 42 vial tray														
Carlo Erba	AS800, 60 vial tray														
Carlo Erba	HS250								•						
Carlo Erba	HS500								•						
Carlo Erba	HS800								•			•			
Carlo Erba	HS850								•			•			
Cecil Instruments	CE4800	•													
Cecil Instruments	AutoQuest	•	•		•										
CTC (LEAP)	LC PAL (216 Pos.)	•							•						
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray)														
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray)	•							•						
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray)											•			
CTC (LEAP)	Combi PAL (200 Pos. Tray), GC PAL (200Pos. Tray)														
CTC (LEAP)	Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray)														
CTC (LEAP)	Combi PAL SPME Mode (98 Pos. Tray)														
CTC (LEAP)	Combi PAL (32 Pos. Tray), GC PAL (32 Pos. Tray)								•			•			
CTC (LEAP)	Combi PAL SPME Mode (32 Pos. Tray)											•			
CTC	PAL HPLC-Systems								•			•			
CTC	PAL Combi-xt Liqid Mode								•			•			
CTC	Combi-xt Headspace Option								•			•			
CTC	GC-xt Headspace Option								•			•			
CTC	PAL HTC-xt								•			•			
CTC	HTS-xt								•			•			
CTC	HTX-xt								•			•			
CTC	Combi-xt SPME Options								•			•			
CTC	A200S														
CTC	A200 LC	•							•						
CTC	HS 500								•						
DANI	ALS 39.80	•													
DANI	ALS 86.80	•													

Table 5: Autosampler compatibility chart, continued

3 Screw Neck ND8

Manufacturer	Model	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	ScrewNeck ND8 [3]	Screw Neck ND8	Short Thread ND9	Screw Neck ND10	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	11717567 11722408	11792408 11571364	11551374 11551374	11565874 11767577 11595874 11732428	11515884	10162512 11575884 10080952 11515894 11833912 10572064 11834740 10145714 13405529 12951011 15166425 15136425 15176425 11871653 11595914 11836083 11707597 11585964 11727597 11515974 10509482 11545974	11707577 11742448 11531474	11816912 10326042 11535884 11732418 11565894 10678005 11742418	11555884	11505884	11874890
DANI	ALS 1,000									•		•			
DANI	HS39.50														
DANI	HS86.50														
DANI	Master AS									•		•			
Dimatec	Dimatoc 2000														
Dionex	Gina 50			•						•		•			
Dionex	AS 50				•			•		•	•				
Dionex	Summit ASI 100, Micro-Tray (192 Pos.)			•											
Dionex	Summit ASI 100, Analytical Tray (117 Pos.)							•		•		•			
Dionex	Summit ASI 100, Semiprep. Tray (63 Pos.)														
Dionex	Famos (LC Packings/Dionex)							•		•	•	•			
Dionex	UltiMate Analytical, cylindrical, WPS-3000 SL, 120 Pos. Rack (2mL)							•		•	•	•			
Dionex	UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1mL=2mL w. Inserts)												•		
Dionex	UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µL)				•										
Dionex	UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. Rack (4mL)														
Dionex	UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. Rack (1.2mL)			•											
Dionex	ASE 200														
Dionex	AS 40														
Dionex	HS-HV							•							
Dimatec	Dimatoc 200														
Dimatec	Dimatoc 300														
Dimatec	Dimatoc 400														
Finnigan	A200S	•				•		•		•		•			
Fisons	AS100	•			•	•		•	•	•		•	•		
Fisons	AS200	•				•		•		•		•	•		
Fisons	A200LC	•				•		•	•	•		•	•		
Fisons	AS200S	•				•		•	•	•		•	•		
Fisons	AS300	•			•	•		•	•	•		•	•		
Fisons	AS800, 42 vial tray							•		•		•	•	•	
Fisons	AS800, 60 vial tray		•	•	•			•		•		•			
Fisons	HS250														
Fisons	HS500														
Fisons	HS800														
Fisons	HS850														
GE Instruments	Sievers™ 900														
Gerstel	MPS2	•			•	•						•	•		
Gilson	201/202							•		•					
Gilson	221/222							•		•					
Gilson	231/401							•		•					
Gilson	232/402							•		•					
Gilson	Aspec							•		•					
Gilson	Aspec Xli							•		•					
Gilson	Aspec XL4							•		•					
Gilson	221XL/222XL	•			•*	•									
Gilson	223	•				•									
Gilson	231XL/232XL/233XL	•			•**	•									
Gilson	Nano Injektor							•		•					
Gilson	235/235P/SP 235/SP 235P	•				•		•		•					
Gynkotek	Gina 50			•						•		•			
Hach Lange	IL 550 TOC-TN														
HTA	HT200H														
HTA	HT250D							•		•	•	•			•
HTA	HT280T							•		•	•	•			•
HTA	HT300A							•		•	•	•			•
HTA	HT310A							•		•	•	•			•
HTA	HT300L							•		•	•	•			
ICI	LC1600	•				•									•
IMT GmbH	VSP4000														
IMT GmbH	PTA3000														
Jasco	AS 2055/AS 2055 (i)				•			•		•	•	•			
Jasco	AS 2057/AS 2057 (i)				•			•		•	•	•			
Jasco	AS 2059				•			•		•	•	•			
Knauer	K-3800 (Basic Marathon)							•	•	•		•	•		
Knauer	Smartline K-3950							•		•		•			
Knauer	PLATINblue AS-1							•		•		•			
LDC	713-60		•		•										
LDC	Marathon							•	•	•		•	•		
LDC	Promis							•	•	•		•	•		
LEAP	pls. see CTC														
O.I. Analytical	1020A														
O.I. Analytical	1088														
O.I. Analytical	1096+														
O.I. Analytical	4551A														
O.I. Analytical	1552														
PerkinElmer	Series 200, 25 vial tray														
PerkinElmer	Series 200, 85 vial tray										•	•			
PerkinElmer	Series 200, 81/100 vial tray										•	•			

*(221XL only)
**(231XL only)

Table 5: Autosampler compatibility chart, continued

4 Shell Vials

Manufacturer	Model	Snap Ring ND11	Screw Neck ND13	4 Shell Vials	Shell Vials	Shell Vials	Shell Vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw Neck ND24 (EPA)
		11525894 11535894 11545894 11545914 12672465 15219468 11585914 11505924 11525924 11545924 11575964 11595964 10488082 10705203	10571013 11556044 11576044 11586044	10306062	10145424 10506075 11561374 10224852	11555914 11565914	11516074 10455982	10663303	10681033 10195012	12990951 10080822 10152512 12981241	10680843 12971231	11506114 12941221 11526114 12951221 10070952 10510323 12910991	10192652	11520545	10465982 10000782 10758874 11510585 10458082 11530585 11540585 11550585
DANI	ALS 1,000										•				
DANI	HS39.50										•				
DANI	HS86.50	•									•				
DANI	Master AS														•
Dimatec	Dimatoc 2000	•	•												
Dionex	Gina 50	•													
Dionex	AS 50														
Dionex	Summit ASI 100, Micro-Tray (192 Pos.)	•													
Dionex	Summit ASI 100, Analytical Tray (117 Pos.)		•												
Dionex	Summit ASI 100, Semiprep. Tray (63 Pos.)	•							•						
Dionex	Famos (LC Packings/Dionex)	•							•						
Dionex	UltiMate Analytical, cylindrical, WPS-3000 SL, 120 Pos. Rack (2mL)								•						
Dionex	UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1mL=2mL w. Inserts)								•						
Dionex	UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µL)		•						•						
Dionex	UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. Rack (4mL)								•						
Dionex	UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. Rack (1.2mL)														•
Dionex	ASE 200		•		•										
Dionex	AS 40														
Dionex	HS-HV														•
Dimatec	Dimatoc 200														•
Dimatec	Dimatoc 300														•
Dimatec	Dimatoc 400														
Finnigan	A200S	•				•									
Fisons	AS100														
Fisons	AS200	•				•									
Fisons	A200LC														
Fisons	AS200S	•				•									
Fisons	AS300														
Fisons	AS800, 42 vial tray														
Fisons	AS800, 60 vial tray								•						
Fisons	HS250								•						
Fisons	HS500								•				•		
Fisons	HS800								•				•		
Fisons	HS850														•
GE Instruments	Sievers™ 900								•				•		
Gerstel	MPS2					•	•								
Gilson	201/202					•	•								
Gilson	221/222					•									
Gilson	231/401					•									
Gilson	232/402					•	•								
Gilson	Aspec														
Gilson	Aspec Xli														
Gilson	Aspec XL4														
Gilson	221XL/222XL														
Gilson	223														
Gilson	231XL/232XL/233XL														
Gilson	Nano Injektor														
Gilson	235/235P/SP 235/SP 235P	•	•												
Gynkotek	Gina 50														•
Hach Lange	IL 550 TOC-TN										•				
HTA	HT200H	•									•				
HTA	HT250D	•									•				
HTA	HT280T	•													
HTA	HT300A	•													
HTA	HT310A	•									•				
HTA	HT300L														
ICI	LC1600														•
IMT GmbH	VSP4000														
IMT GmbH	PTA3000	•													
Jasco	AS 2055/AS 2055 (i)	•													
Jasco	AS 2057/AS 2057 (i)	•													
Jasco	AS 2059	•						•							
Knauer	K-3800 (Basic Marathon)	•						•							
Knauer	Smartline K-3950	•													
Knauer	PLATINblue AS-1														
LDC	713-60	•													
LDC	Marathon	•													
LDC	Promis														
LEAP	pls. see CTC														•
O.I. Analytical	1020A														•
O.I. Analytical	1088														•
O.I. Analytical	1096+														•
O.I. Analytical	4551A														•
O.I. Analytical	1552							•							
PerkinElmer	Series 200, 25 vial tray							•							
PerkinElmer	Series 200, 85 vial tray														
PerkinElmer	Series 200, 81/100 vial tray														

Table 5: Autosampler compatibility chart, continued

5 Short Thread ND9

Manufacturer	Model	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Screw Neck ND8	Screw Neck ND8	Short Thread ND9 [5]	Screw Neck ND10	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 10560053 11595874 11525884	11515884	10162512 11575884 10080952 11515894 11575894 11585894 11595894 10145714 11535914 12951011 15166425 15136425 15176425 11575914 11595914 11515924 11565964 11585964 11505974 11515974 10509482 11545974	11511474 10521593 11531474	10081022 10326042 11535884 11545884 11565894 10678005 11505894	11555884	11505884	11555894
PerkinElmer	Series 200, 205 vial tray				•						•	•			
PerkinElmer	Series 200, 225 vial tray				•										
PerkinElmer	AI-1		•		•							•			
PerkinElmer	AS-100/AS-100B		•		•							•			
PerkinElmer	AS2000/AS2000B		•				•				•	•			
PerkinElmer	AS-300		•		•							•			
PerkinElmer	AS8300		•		•							•			
PerkinElmer	Autosystem		•		•							•			
PerkinElmer	HS 6														
PerkinElmer	HS40/HS100/101														
PerkinElmer	TurboMatrix HS16/HS40/ HS40 XL/ HS40 Trap/ HS110/ HS110 Trap														
PerkinElmer	Integral 4000										•	•			
PerkinElmer	ISS-100, 85 vial tray										•	•			
PerkinElmer	ISS-100, 100 vial tray										•	•			
PerkinElmer	ISS-200, 85 vial tray										•	•			
PerkinElmer	ISS-200, 100 vial tray										•	•			
PerkinElmer	ISS-200, 145 vial tray				•										
PerkinElmer	ISS-225, 205 vial tray				•						•	•			
PerkinElmer	ISS-225, 100 vial tray + 80 vial tray										•	•			
PerkinElmer	ISS-225, 85 vial tray										•	•			
PerkinElmer	ISS-225, 25 vial tray														
PerkinElmer	LC 600, 42 vial tray		•												
PerkinElmer	LC 600, 60 vial tray										•	•			
PerkinElmer	Clarus 400, 500, 600											•			
Pharmacia	LKB 2157-010							•		•		•			
Pharmacia	LKB 2157-020	•				•									•
Polymer Laboratories	PL-AS RT							•		•	•	•			
Quma Elektronik	QHSS-40														
Sedere										•		•			
SGE	LS-3200	•				•									
Shimadzu	AOC-5000	•			•	•				•		•		•	
Shimadzu	AOC-14/1400							•	•	•	•	•		•	
Shimadzu	AOC-17							•	•	•	•	•		•	
Shimadzu	AOC-20/20i/20s 150 Pos. Tray							•	•	•	•	•		•	
Shimadzu	AOC-20/20i/20s 96 Pos. Tray														
Shimadzu	LC-20A							•	•	•	•	•		•	
Shimadzu	SIL-2AS				•			•	•	•	•	•		•	
Shimadzu	SIL-6A				•			•	•	•	•	•		•	
Shimadzu	SIL-6B/SIL-7A/SIL-8A/SIL-9A							•	•	•	•	•		•	
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack S 100 Pos.				•			•	•	•	•	•		•	
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack L 80 Pos.														
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack MTP2 192 Pos.														
Shimadzu	SIL-10HTA/SIL-10HTC 350 pos. Tray														
Shimadzu	SIL-10HTA/SIL-10HTC 140 Pos. Tray							•		•	•	•			
Shimadzu	SIL-10HTA/SIL-10HTC 100 Pos. Tray														
Shimadzu	SIL-10ADvp							•	•	•	•	•		•	
Shimadzu	HTA 200 H														
Shimadzu	SIL-20A (Prominence) 105 vial tray/ SIL-20AC (Prominence) 70 vial tray				•			•	•	•	•	•		•	
Shimadzu	SIL-20A/Sil-20AC (Prominence) 175 vial tray														
Shimadzu	SIL-20A/Sil-20AC (Prominence) 50 vial tray														
Shimadzu	LC2010C + LC2010A 350 Pos. Tray														
Shimadzu	LC2010C + LC2010A 140 Pos. Tray							•		•	•	•		•	
Shimadzu	LC2010C + LC2010A 100 Pos. Tray														
Shimadzu	ASI-V														
Shimadzu	HSS-2B														
Shimadzu	SIL 30-ACMP							•		•		•			
Shimadzu	SIL-20AXR/SIL-20ACXR (Prominence) 175 (1-mL vials), 70 (1.5-mL vials), 50 (4-mL vials)							•		•		•			
Shimadzu	SIL-30AC(Nexera) 175 (1-mL vials), 105 (1.5-mL vials), 50 (4-mL vials)							•		•		•			
Sievers (GE Instruments)	Sievers™ 900														
Spark	Marathon Basic, Standard 96 Pos. Tray							•	•	•		•		•	
Spark	Marathon Basic Präp King Size 48 Pos. Tray														

Table 5: Autosampler compatibility chart, continued

6 Headspace ND20

Manufacturer	Model	Snap Ring ND11	Screw Neck ND13	Shell Vials	Shell Vials	Shell Vials	Shell Vials	6 Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw Neck ND24 (EPA)
		11525894 11535894 11545894 11545914 12672465 15219468 11585914 11505924 11525924 11545924 11575964 11595964 10488082 10705203	10571013 11556044 11576044 11586044	10306062	10145424 10506075 11561374 10224852	11555914 11565914	11516074 10455982	10663303	10681033 10195012	12990951 10080822 10152512 12981241	10680843 12971231	11506114 12941221 11526114 10070952 10510323 12910991	10192652	11520545	10465982 10000782 10758874 11510585 10458082 11530585 11540585 11550585
PerkinElmer	Series 200, 205 vial tray														
PerkinElmer	Series 200, 225 vial tray														
PerkinElmer	AI-1														
PerkinElmer	AS-100/AS-100B														
PerkinElmer	AS2000/AS2000B														
PerkinElmer	AS-300														
PerkinElmer	AS8300														
PerkinElmer	Autosystem														
PerkinElmer	HS 6							•							
PerkinElmer	HS40/HS100/101							•		•					
PerkinElmer	TurboMatrix HS16/HS40/ HS40 XL/ HS40 Trap/ HS110/ HS110 Trap							•*		•		•**			
PerkinElmer	Integral 4000														
PerkinElmer	ISS-100, 85 vial tray							•							
PerkinElmer	ISS-100, 100 vial tray														
PerkinElmer	ISS-200, 85 vial tray							•							
PerkinElmer	ISS-200, 100 vial tray														
PerkinElmer	ISS-200, 145 vial tray														
PerkinElmer	ISS-225, 205 vial tray														
PerkinElmer	ISS-225, 100 vial tray + 80 vial tray														
PerkinElmer	ISS-225, 85 vial tray							•							
PerkinElmer	ISS-225, 25 vial tray							•							
PerkinElmer	LC 600, 42 vial tray														
PerkinElmer	LC 600, 60 vial tray														
PerkinElmer	Clarus 400, 500, 600														
Pharmacia	LKB 2157-010	•													
Pharmacia	LKB 2157-020														
Polymer Laboratories	PL-AS RT	•	•												
Quma Elektronik	QHSS-40										•				
Sedere		•													
SGE	LS-3200														
Shimadzu	AOC-5000								•			•			
Shimadzu	AOC-14/1400	•	•						•						
Shimadzu	AOC-17	•	•												
Shimadzu	AOC-20/20i/20s 150 Pos. Tray		•												
Shimadzu	AOC-20/20i/20s 96 Pos. Tray		•												
Shimadzu	LC-20A	•	•												
Shimadzu	SIL-2AS	•	•				•								
Shimadzu	SIL-6A	•	•				•								
Shimadzu	SIL-6B/SIL-7A/SIL-8A/SIL-9A	•	•			•	•								
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack S 100 Pos.	•				•									
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack L 80 Pos.		•				•								
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack MTP2 192 Pos.				•										
Shimadzu	SIL-10HTA/SIL-10HTC 350 pos. Tray				•										
Shimadzu	SIL-10HTA/SIL-10HTC 140 Pos. Tray	•				•									
Shimadzu	SIL-10HTA/SIL-10HTC 100 Pos. Tray		•				•								
Shimadzu	SIL-10ADvp	•	•		•	•	•								
Shimadzu	HTA 200 H										•	•			
Shimadzu	SIL-20A (Prominence) 105 vial tray/ SIL-20AC (Prominence) 70 vial tray	•													
Shimadzu	SIL-20A/Sil-20AC (Prominence) 175 vial tray				•										
Shimadzu	SIL-20A/Sil-20AC (Prominence) 50 vial tray		•				•								
Shimadzu	LC2010C + LC2010A 350 Pos. Tray				•										
Shimadzu	LC2010C + LC2010A 140 Pos. Tray	•				•									
Shimadzu	LC2010C + LC2010A 100 Pos. Tray		•				•								
Shimadzu	ASI-V														•
Shimadzu	HSS-2B										•	•			
Shimadzu	SIL 30-ACMP														
Shimadzu	SIL-20AXR/SIL-20ACXR (Prominence) 175 (1-mL vials), 70 (1.5-mL vials), 50 (4-mL vials)	•	•		•		•								
Shimadzu	SIL-30AC(Nexera) 175 (1-mL vials), 105 (1.5-mL vials), 50 (4-mL vials)	•	•		•		•								
Sievers (GE Instruments)	Sievers™ 900														•
Spark	Marathon Basic, Standard 96 Pos. Tray	•													
Spark	Marathon Basic Präp King Size 48 Pos. Tray							•							

*(not suitable for Turboma- tri ™ 110)

**(for Turboma- tri ™ 16, 40, 110 produced after 1.9.06)

Table 5: Autosampler compatibility chart, continued

7 Crimp Neck ND11

Manufacturer	Model	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Screw Neck ND8	Screw Neck ND8	Short Thread ND9	Screw Neck ND10	Crimp Neck ND11 [7]	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 10560053 11595874 11525884	11515884	10162512 11575884 10080952 11515894 11575894 11585894 11595894 10145714 11535914 12951011 15166425 15136425 15176425 11575914 11595914 11515924 11565964 11585964 11505974 11515974 10509482 11545974	11511474 10521593 11531474	10081022 10326042 11535884 11545884 11565894 10678005 11505894	11555884 11555894	11505884	11555894
Spark	Midas, Standard 84 Pos. Tray							•	•	•		•		•	•
Spark	Midas, Large Capacity 96 Pos. Tray							•	•	•		•		•	•
Spark	Midas, Large Volume 24 Pos. Tray														
Spark	Alias							•	•	•		•		•	
Spark	Promis							•	•	•		•		•	
Spark	SPH 125								•	•		•		•	
Spark	Triathlon,Standard 96 Tray							•	•	•		•		•	•
Spark	Triathlon, LSV 72 Pos. Tray														
Spark	Triathlon, Super-LSV 32 Pos. Tray														
Spark	Triathlon, Micro 160 Pos. Tray	•				•									
Spark	Endurance 48 Pos. Tray							•	•	•		•		•	
Spark	Reliance 48 Pos. Tray							•	•	•		•		•	
Spark	Interity									•		•			
Spark	Prospekt 2											•			
Spark	Reliance/Symbiosis Pharma											•			
Spark	Dried Blood Spot (DBS)							•		•		•			
Spark	Integrity							•		•		•			
Spark	Integrity 108 Pos.(2ml) 2 x Plates , IntegrityPlus 2 x 108 Pos.(2ml) 4 x Plates							•		•		•			
Spark	Optimas							•		•		•			
Spark	Optimas 96 Pos.(2mL) 24 Pos.(10mL)							•		•		•			
Spark	Alias							•	•	•		•		•	
Spectra-Physics	8875							•		•		•			
Spectra-Physics	8880							•		•		•			
Spectra-Physics	SpectraSYSTEM AS1000	•			•	•		•		•		•		•	
Spectra-Physics	SpectraSYSTEM AS 3000	•		•	•	•		•		•		•		•	•
Spectra-Physics	SpectraSYSTEM AS 3500	•			•	•		•		•		•		•	
Sykam	S 5200									•					
Teledyne Tekmar	7000/7000HT/7050														
Teledyne Tekmar	AQUATek 70/SOLATek 72™														
Teledyne Tekmar	STS 8000 TOC														
Teledyne Tekmar	HT3														
Thermo Scientific	AS1000 (Trace GC)	•			•	•		•		•		•		•	
Thermo Scientific	AS200	•			•	•		•	•	•		•		•	
Thermo Scientific	AS300	•			•	•		•	•	•		•		•	
Thermo Scientific	AS2000 30 vial tray														
Thermo Scientific	AS2000 90 vial tray (Trace GC)			•				•	•	•		•		•	•
Thermo Scientific	AI3000 (II)/AS3000 (II) AS3500 (Trace GC + Focus GC)	•			•	•				•		•		•	
Thermo Scientific	A200LC	•				•		•	•	•		•		•	
Thermo Scientific	SpectraSYSTEM AS1000	•			•	•		•		•		•		•	
Thermo Scientific	SpectraSYSTEM AS3000	•		•	•	•		•		•		•		•	•
Thermo Scientific	SpectraSYSTEM AS3500	•			•	•		•		•		•		•	
Thermo Scientific	A200S	•				•		•	•	•		•		•	
Thermo Scientific	AS100	•			•	•		•	•	•		•		•	
Thermo Scientific	AS800, 42 vial tray							•		•		•		•	•
Thermo Scientific	AS800, 60 vial tray		•	•	•			•		•		•			
Thermo Scientific	Dionex AS-AP							•		•	•	•			
Thermo Scientific	Dionex UltiMate WPS-3000	•		•				•	•	•	•	•			
Thermo Scientific	Dionex AS 40														
Thermo Scientific	HS250														
Thermo Scientific	HS500														
Thermo Scientific	HS800														
Thermo Scientific	HS850														
Thermo Scientific	HS2000														
Thermo Scientific	TriPlus (=GC PAL) (AS+ Duo)	•		•	•	•		•		•		•		•	•
Thermo Scientific	TriPlus HS														
Thermo Scientific	TriPlus SPME														
Thermo Scientific	TriPlus RSH				•	•		•		•		•			
Thermo Scientific	TriPlus 300														
Thermo Scientific	HiPerTOC														
Thermo Scientific	Surveyor (Surveyor Plus)	•			•	•		•		•		•		•	
Thermo Scientific	Accela High Speed LC Autosampler (200 Pos.)	•			•	•		•		•		•			
Thermo Scientific	Accela Open Autosampler	•				•	•		•	•		•			
Thermo Scientific	Trace 1300 Series							•		•	•	•			
Unicam	4247							•		•		•			
Unicam	4710							•		•		•			
Unicam	4700 (GC)	•				•									
Unicam	4700 (LC)	•				•		•	•	•					
Unicam	LC-XP							•	•	•		•		•	
Unicam	S4/S8	•				•									

Table 5: Autosampler compatibility chart, continued

8 Crimp Neck ND11

Manufacturer	Model	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Screw Neck ND8	Screw Neck ND8	Short Thread ND9 [8]	Screw Neck ND10	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 10560053 11595874 11525884	11515884	10162512 11575884 10080952 11515894 11575894 11585894 11595894 10145714 11535914 12951011 15166425 15136425 15176425 11575914 11595914 11515924 11565964 11585964 11505974 11515974 10509482 11545974	11511474 10521593 11531474	10081022 10326042 11535884 11545884 11565894 10678005 11505894	11555884 11555894	11505884	11555894
Spark	Midas, Standard 84 Pos. Tray							•	•	•		•		•	•
Spark	Midas, Large Capacity 96 Pos. Tray							•	•	•		•		•	•
Spark	Midas, Large Volume 24 Pos. Tray														
Spark	Alias							•	•	•		•		•	
Spark	Promis							•	•	•		•		•	
Spark	SPH 125								•	•		•		•	
Spark	Triathlon,Standard 96 Tray							•	•	•		•		•	•
Spark	Triathlon, LSV 72 Pos. Tray														
Spark	Triathlon, Super-LSV 32 Pos. Tray														
Spark	Triathlon, Micro 160 Pos. Tray	•				•									
Spark	Endurance 48 Pos. Tray							•	•	•		•		•	
Spark	Reliance 48 Pos. Tray							•	•	•		•		•	
Spark	Interity									•		•			
Spark	Prospekt 2											•			
Spark	Reliance/Symbiosis Pharma											•			
Spark	Dried Blood Spot (DBS)							•		•		•			
Spark	Integrity							•		•		•			
Spark	Integrity 108 Pos.(2ml) 2 x Plates , IntegrityPlus 2 x 108 Pos.(2ml) 4 x Plates							•		•		•			
Spark	Optimas							•		•		•			
Spark	Optimas 96 Pos.(2mL) 24 Pos.(10mL)							•		•		•			
Spark	Alias							•	•	•		•		•	
Spectra-Physics	8875							•		•		•			
Spectra-Physics	8880							•		•		•			
Spectra-Physics	SpectraSYSTEM AS1000	•			•	•		•		•		•		•	
Spectra-Physics	SpectraSYSTEM AS 3000	•		•	•	•		•		•		•		•	•
Spectra-Physics	SpectraSYSTEM AS 3500	•			•	•		•		•		•		•	
Sykam	S 5200									•					
Teledyne Tekmar	7000/7000HT/7050														
Teledyne Tekmar	AQUATek 70/SOLATek 72™														
Teledyne Tekmar	STS 8000 TOC														
Teledyne Tekmar	HT3														
Thermo Scientific	AS1000 (Trace GC)	•			•	•		•		•		•		•	
Thermo Scientific	AS200	•			•	•		•	•	•		•		•	
Thermo Scientific	AS300	•			•	•		•	•	•		•		•	
Thermo Scientific	AS2000 30 vial tray														
Thermo Scientific	AS2000 90 vial tray (Trace GC)			•				•	•	•		•		•	•
Thermo Scientific	AI3000 (II)/AS3000 (II) AS3500 (Trace GC + Focus GC)	•			•	•				•		•		•	
Thermo Scientific	A200LC	•				•		•	•	•		•		•	
Thermo Scientific	SpectraSYSTEM AS1000	•			•	•		•		•		•		•	
Thermo Scientific	SpectraSYSTEM AS3000	•		•	•	•		•		•		•		•	•
Thermo Scientific	SpectraSYSTEM AS3500	•			•	•		•		•		•		•	
Thermo Scientific	A200S	•				•		•	•	•		•		•	
Thermo Scientific	AS100	•			•	•		•	•	•		•		•	
Thermo Scientific	AS800, 42 vial tray							•		•		•		•	•
Thermo Scientific	AS800, 60 vial tray		•	•	•			•		•		•			
Thermo Scientific	Dionex AS-AP							•		•	•	•			
Thermo Scientific	Dionex UltiMate WPS-3000	•		•				•	•	•	•	•			
Thermo Scientific	Dionex AS 40														
Thermo Scientific	HS250														
Thermo Scientific	HS500														
Thermo Scientific	HS800														
Thermo Scientific	HS850														
Thermo Scientific	HS2000														
Thermo Scientific	TriPlus (=GC PAL) (AS+ Duo)	•		•	•	•		•		•		•		•	•
Thermo Scientific	TriPlus HS														
Thermo Scientific	TriPlus SPME														
Thermo Scientific	TriPlus RSH				•	•		•		•		•			
Thermo Scientific	TriPlus 300														
Thermo Scientific	HiPerTOC														
Thermo Scientific	Surveyor (Surveyor Plus)	•			•	•		•		•		•		•	
Thermo Scientific	Accela High Speed LC Autosampler (200 Pos.)	•			•	•		•		•		•			
Thermo Scientific	Accela Open Autosampler	•				•	•		•	•		•			
Thermo Scientific	Trace 1300 Series							•		•	•	•			
Unicam	4247							•		•		•			
Unicam	4710							•		•		•			
Unicam	4700 (GC)	•				•									
Unicam	4700 (LC)	•				•		•	•	•					
Unicam	LC-XP							•	•	•		•		•	
Unicam	S4/S8	•				•									

Table 5: Autosampler compatibility chart, continued

9 Short Thread ND9

Manufacturer	Model	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Crimp Neck ND8	Screw Neck ND8	Screw Neck ND8	Short Thread ND9	Screw Neck ND10	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11	Crimp Neck ND11
		10152272 11591364	11561364	11531374 11541374	10672543 11521374	11541364 11571364	11551374	11565874 10560053 11595874 11525884	11515884	10162512 11575884 10080952 11515894 11575894 11585894 11595894 10145714 11535914 12951011 15166425 15136425 15176425 11575914 11595914 11515924 11565964 11585964 11505974 11515974 10509482 11545974	11511474 10521593 11531474	10081022 10326042 11535884 11545884 11565894 10678005 11505894	11555884	11505884	11555894
Varian	ProStar 400, Standard 96 Pos. Tray							•	•	•	•	•		•	
Varian	ProStar 400, King Size 48 Pos. Tray														
Varian	ProStar 410, Standard 84 Pos. Tray							•	•	•	•	•		•	•
Varian	ProStar 410, Large Capacity 96 Pos. Tray							•	•	•	•	•		•	•
Varian	ProStar 410, Large Volume 24 Pos. Tray														
Varian	ProStar 420, Standard 96 Pos. Tray							•	•	•	•	•		•	•
Varian	ProStar 420, LSV 72 Pos. Tray				•										
Varian	ProStar 420, Super-LSV 32 Pos. Tray														
Varian	ProStar 420, Micro 160 Pos. Tray	•				•									
Varian	ProStar 430, 48 Pos. Tray							•	•	•		•		•	
Varian	8035							•	•	•					
Varian	8000							•		•		•			
Varian	8400 (100 Pos.)							•		•		•			
Varian	8410-Autoinjector (10 x 2ml; 6 x 5ml; 5 x 10ml)							•		•		•			
Varian	8100							•		•		•			
Varian	8200							•		•	•	•			
Varian	CP-910, 911, 912							•		•		•			
Varian	CP-940, 941											•			
Varian	LC 9100/LC 9095/LC 9090									•		•			
Varian	Archon														
Varian	COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray)	•				•									
Varian	COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray)				•					•		•			
Varian	COMBI PAL SPME mode (98 Pos. Tray)									•		•			
Varian	COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray)														
Varian	COMBI PAL SPME mode (32 Pos. Tray)														
Varian	Genesis														
Varian	Marathon Basic, Standard 96 Pos. Tray							•	•	•		•		•	
Varian	Marathon Basic, Präp, King Size 48 Pos. Tray														
Varian	Vista							•		•					
Varian	CP-9020/CP-9025														
Varian	CP-9060														
Varian	CP-9010							•		•		•			
Varian	920-LC/940-LC							•							
Viscotek	Vortex™														
Viscotek	GPC Autosampler							•		•	•				
VWR	Hitachi Chromaster							•		•		•			
VWR (Merck℠)/Hitachi	L2200 (LaChrom Elite)/ L2200-U (LaChrom Ultra) (200 Pos. Tray)							•		•					
VWR (Merck℠)/Hitachi	L2200 (LaChrom Elite) (128 Pos. Tray)														
VWR (Merck℠)/Hitachi	L7200 (LaChrom) (80 Pos. Tray)/L7250(LaChrom) (120 Pos. Tray)							•		•					
VWR (Merck℠)/Hitachi	L7250 (LaChrom) (Rack Holder for combination Racks)				•			•		•					
VWR (Merck℠)/Hitachi	655-A40 (108 Pos. Tray)							•		•					
VWR (Merck℠)/Hitachi	L-9100							•		•					
VWR (Merck℠)/Hitachi	AS 2000 (50 Pos. Tray)							•		•		•			
VWR (Merck℠)/Hitachi	AS 4000 (150 Pos. Tray)							•		•		•			
VWR (Merck℠)/Hitachi	AS 4000 (198 Pos. Tray)				•										
VWR (Merck℠)/Hitachi	5210 (Chromaster) 195 Pos (1 mL), 120 Pos 1.5 mL (Standard), 72 Pos. (4 mL), 2 x MTP (96,384)							•		•		•			
VWR (Merck℠)/Hitachi	AS 6000				•			•		•					
Waters™	ACQUITY™ UPLC Systeme									•					
Waters™	Wisp 48 position														
Waters™	Wisp 96 position														
Waters™	717, 96 Position Carousel														
Waters™	717, 48 Position Carousel														
Waters™	Alliance™									•	•	•			
Waters™	Alliance™ GPC 2000														
Waters™	Alliance™ HT Syst.									•	•	•			
Waters™	Alliance™ 2790/2795									•	•	•			
Waters™	Acquity Sample Organizer									•					
Waters™	Acquity/CapLC/Waters/ Nano Acquity									•					
Waters™	Alliance™ 2690/2695									•*	•	•			

*(not for 11515894)

Table 5: Autosampler compatibility chart, continued

10 Snap Ring ND11

Manufacturer	Model	Snap Ring ND11 [10]	Screw Neck ND13	Shell Vials	Shell Vials	Shell Vials	Shell Vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw Neck ND24
		11525894 11535894 11545894 11545914 12672465 15219468 11585914 11505924 11525924 11545924 11575964 11595964 10488082 10705203	10571013 11556044 11576044 11586044	10306062	10145424 10506075 11561374 10224852	11555914 11565914	11516074 10455982	10663303	10681033 10195012	12990951 10080822 10152512 12981241	10680843 12971231	11506114 12941221 11526114 10070952 10510323 12910991	10192652	11520545	10465982 10000782 10758874 11510585 10458082 11530585 11540585 11550585
Varian	ProStar 400, Standard 96 Pos. Tray							•	•	•	•	•		•	
Varian	ProStar 400, King Size 48 Pos. Tray														
Varian	ProStar 410, Standard 84 Pos. Tray							•	•	•	•	•		•	•
Varian	ProStar 410, Large Capacity 96 Pos. Tray														
Varian	ProStar 410, Large Volume 24 Pos. Tray														
Varian	ProStar 420, Standard 96 Pos. Tray														
Varian	ProStar 420, LSV 72 Pos. Tray		•												
Varian	ProStar 420, Super-LSV 32 Pos. Tray							•	•						
Varian	ProStar 420, Micro 160 Pos. Tray														
Varian	ProStar 430, 48 Pos. Tray	•													
Varian	8035														
Varian	8000														
Varian	8400 (100 Pos.)												•		
Varian	8410-Autoinjector (10 x 2ml; 6 x 5ml; 5 x 10ml)												•	•	
Varian	8100														
Varian	8200														
Varian	CP-910, 911, 912														
Varian	CP-940, 941														
Varian	LC 9100/LC 9095/LC 9090	•													
Varian	Archon														•
Varian	COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray)								•						
Varian	COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray)								•						
Varian	COMBI PAL SPME mode (98 Pos. Tray)								•						
Varian	COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray)								•			•			
Varian	COMBI PAL SPME mode (32 Pos. Tray)								•			•			
Varian	Genesis										•				
Varian	Marathon Basic, Standard 96 Pos. Tray	•													
Varian	Marathon Basic, Präp, King Size 48 Pos. Tray							•							
Varian	Vista														
Varian	CP-9020/CP-9025								•						
Varian	CP-9060								•						
Varian	CP-9010														
Varian	920-LC/940-LC	•													
Viscotek	Vortex™														•
Viscotek	GPC Autosampler														
VWR	Hitachi Chromaster		•												
VWR (Merck℠)/Hitachi	L2200 (LaChrom Elite)/ L2200-U (LaChrom Ultra) (200 Pos. Tray)	•													
VWR (Merck℠)/Hitachi	L2200 (LaChrom Elite) (128 Pos. Tray)		•												
VWR (Merck℠)/Hitachi	L7200 (LaChrom) (80 Pos. Tray)/L7250(LaChrom) (120 Pos. Tray)	•													
VWR (Merck℠)/Hitachi	L7250 (LaChrom) (Rack Holder for combination Racks)	•	•												•
VWR (Merck℠)/Hitachi	655-A40 (108 Pos. Tray)	•													
VWR (Merck℠)/Hitachi	L-9100	•													
VWR (Merck℠)/Hitachi	AS 2000 (50 Pos. Tray)	•													
VWR (Merck℠)/Hitachi	AS 4000 (150 Pos. Tray)	•													
VWR (Merck℠)/Hitachi	AS 4000 (198 Pos. Tray)														
VWR (Merck℠)/Hitachi	5210 (Chromaster) 195 Pos (1 mL), 120 Pos 1.5 mL (Standard), 72 Pos. (4 mL), 2 x MTP (96,384)	•	•		•		•								
VWR (Merck℠)/Hitachi	AS 6000	•													
Waters™	ACQUITY™ UPLC Systeme		•*												
Waters™	Wisp 48 position		•				•								
Waters™	Wisp 96 position				•										
Waters™	717, 96 Position Carousel				•										
Waters™	717, 48 Position Carousel		•				•								
Waters™	Alliance™	•													
Waters™	Alliance™ GPC 2000		•						•						
Waters™	Alliance™ HT Syst.	•													
Waters™	Alliance™ 2790/2795	•													
Waters™	Acquity Sample Organizer	•													
Waters™	Acquity/CapLC/Waters/ Nano Acquity	•													
Waters™	Alliance™ 2690/2695	•													

*(for 24 position plate)

The Fisherbrand range of chromatography vials and closures is extensive. They have been designed to provide you with the best fit for your applications, sample type and autosampler mode. However, if you are unable to find the product you need or if you have any further questions regarding the Fisherbrand range of chromatography vials and closures, then please contact our Product Support Advisors.

CRIMP NECK VIALS ND8

These vials are preferentially used on instruments from the following manufacturers: Agilent, Beckman, Carlo Erba, CTC, Fisons, PerkinElmer, Shimadzu, Thermo Scientific, VWR (Merck™)/Hitachi, etc. (Refer to 'Autosampler Compatibility Chart' pages 18 to 27 for further information). A broad selection of ND8 crimp neck vials and microvials are available (see below), which can closed with 8mm aluminium caps, 9mm PE caps or 8mm push-on caps. Note that some microvials may need an adapter for full autosampler compatibility as typically they have a conical base and are therefore not free-standing.

- Available in different capacities
- With flat, round or conical bottoms
- In clear or amber glass
- For almost all autosamplers

ND8 Crimp neck vials and microvials

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
	Crimp neck vials								
1	**11732408**	0.7mL Crimp neck vial	40 x 7	Clear	0.9	0.8	40	<11	10 x 100
2	**11742408**	0.7mL Crimp neck vial	40 x 7	Amber	0.9	0.8	40	<11	10 x 100
3	**11561364**	0.8mL Crimp neck vial	30 x 8.2	Clear	0.9	0.8	40	<11	100
1	**11531374**	1.2mL Crimp neck vial	40 x 8.2	Clear	1.1	1.00	50	<20	100
2	**11541374**	1.2mL Crimp neck vial	40 x 8.2	Amber	1.1	1.00	50	<20	100
	Microvials								
4	**11717567**	0.3mL Microvial round bottom	31.5 x 5.5	Clear	0.35	0.3	30	<6	10 x 100
5	**11722408**	0.2mL Microvial conical bottom	31.5 x 5.5	Clear	0.26	0.2	25	<3	10 x 100
6	**11782408**	0.6mL Microvial conical bottom	40 x 7	Clear	0.64	0.6	25	<3	10 x 100
7	**11792408**	0.6mL Microvial conical bottom	40 x 7	Amber	0.64	0.6	25	<3	10 x 100
8	**11712408**	0.7mL Microvial conical bottom	30 x 7	Amber	1.3	1.05	25	<3	10 x 100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Aluminium crimp caps ND8

Natural rubber/TEF and red rubber/PTFE seals

- Temperature resistant from -40°C up to +120°C for natural rubber, up to +110°C for red rubber
- Natural rubber also ideal for multiple injections due to high resealability, but not as clean as the synthetic red rubber
- Natural rubber harder to penetrate with more fragmentation during penetration than red rubber

	Cat. No	Cap description	Septa material	Durometer	Thickness, mm	Pack qty
1	**11511344**	Aluminium cap clear lacquered, 4mm centre hole	Natural rubber red-orange/TEF transparent approved IMQ*	60° Shore A	1.0	100
1	**11561344**	Aluminium cap clear lacquered, 4mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**10369304**	Aluminium cap clear lacquered, 4mm centre hole	Red rubber/PTFE beige	45° Shore A	1.0	100

*IMQ = Instrument Manufacturer Quality

Silicone/PTFE seals ND8

- Temperature resistant from -60°C up to +200°C
- Preferably only for single injections due to low resealability properties
- Different hardnesses (durometers) to meet requirements of the needle regarding penetration
- Much cleaner than natural rubber or red rubber
- Silicone liners with PTFE on both sides for less coring during penetration

	Cat. No	Cap description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10385862**	Aluminium cap clear lacquered, 4mm centre hole	Silicone white/PTFE red	45° Shore A	1.3	100
1	**11581334**	Aluminium cap clear lacquered, 4mm centre hole	Silicone cream/PTFE red	55° Shore A	1.5	100
2	**11541344**	Aluminium cap clear lacquered, 4mm centre hole	Silicone dark blue/PTFE white	45° Shore A	1.3	100
3	**11571334**	Aluminium cap clear lacquered, 4mm centre hole	PTFE red/Silicone white/ PTFE red	45° Shore A	1.0	100
4	**11551344**	Aluminium cap clear lacquered, 4mm centre hole	Silicone white/PTFE red, with slit	45° Shore A	1.3	100

Other caps and seals for crimp neck vials ND8

- Push-on cap (10378842) with thinned penetration point made of polyethylene for crimp neck vials and microvials ND8
- Inexpensive alternative to crimp caps for uncritical analyses, as it does not contain any septa, but only has a thinner penetration point

	Cat. No	Cap description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10378842**	PE push-on cap, blue	With thinned penetration point	-	-	100
2	**11551424**	PE push-on cap, transparent 9 x 5.9mm, 4mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
3	**11561424**	PE push-on cap, transparent 9 x 5.9mm, 4mm centre hole	Silicone white/PTFE red	45° Shore A	1.3	100

SCREW NECK VIALS ND8

The vials are preferentially used on instruments from the following manufacturers: Beckman, CTC, Gilson, Knauer, Shimadzu, Spark, Varian, VWR (Merck™)/Hitachi (refer to 'Auto-sampler Compatibility Chart' pages 18 to 27 for further information)

- Standard vials for GC and HPLC
- Specially suitable for VWR (Merck™)/Hitachi instruments (Cat No.11565874, 10560053, 10040992, 10671763, 11561354, 11821663, 11841653)
- Broad range of micro-insert
- Vials and seals also available as 2-in-1 kit
- Small opening requires micro-inserts with a diameter of 5mm
- Micro-insert with flat bottom also available

Screw neck vials ND8, small opening, 8-425 thread and microvials ND8

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11565874**	1.5mL Screw neck vial, small opening (silanised version available Cat. No 11575904)	32 x 11.6	Clear	1.9	1.5	200	<110	100
2	**10560053**	1.5mL Screw neck vial, small opening	32 x 11.6	Amber	1.9	1.5	200	<110	100
3	**11525884**	1.5mL Screw neck vial, small opening, label + filling lines	32 x 11.6	Clear	1.9	1.65	200	<110	100
4	**11595874**	1.5mL Screw neck vial, small opening, label + filling lines (silanised version available Cat. No 11525914)	32 x 11.6	Amber	1.9	1.5	200	<110	100
5	**11515884**	1.1mL Microvial, conical, small opening	32 x 11.6	Clear	1.3	1	30	<3	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Micro-inserts for vials ND8 with small opening

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11762428**	0.1mL Micro-insert, 15mm top	31 x 5	Clear	0.2	0.15	25	<1	10 x 100
2	**11861653**	0.1mL Micro-insert, 9mm top	31 x 5	Clear	0.25	0.2	30	<2	10 x 100
3	**11772428**	0.2mL Micro-insert, flat bottom	31 x 5	Clear	0.3	0.26	40	<8	10 x 100
4	**11858951**	0.1mL Micro-insert, with assembled plastic spring	29 x 5	Clear	0.2	0.15	25	<1	10 x 100
5	**11848951**	0.1mL Micro-insert, metal spring required!	27.5 x 4	Clear	0.2	0.11	25	<1	10 x 100
6	**11571304**	Spring for micro-insert 11848951	36 x 5	-	-	-	-	-	100

Polypropylene screw caps ND8

- Ready to use combination seals; no time consuming and "tricky" assembly
- Available as black or white screw caps with 8-425 thread
- Available as closed top screw seals or with centre hole
- Now available either with natural rubber or red rubber as cost-effective seals

Natural rubber/TEF, red rubber/PTFE and butyl/PTFE seals ND8

- Natural rubber is ideal for multiple injections due to high resealability, but not as easy to penetrate as red rubber/PTFE
- Standard, moderately priced seals for GC and HPLC
- Red rubber/PTFE has a better purity than natural rubber/TEF, is softer and has less fragmentation, but doesn´t offer the same resealability as natural rubber/TEF
- Temperature resistant from -40°C up to +120°C for natural rubber/TEF + butyl/PTFE, resistant up to +110°C for red rubber/PTFE
- Butyl as a synthetic rubber has good chemical properties

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Polypropylene screw cap black, 5.5mm centre hole, 8-425 thread				
1	**10671763**	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**11511404**	Red rubber/PTFE beige	45° Shore A	1.0	100
3	**11591394**	Butyl red/PTFE grey	55° Shore A	1.3	100

Silicone/PTFE seals ND8

- Temperature resistant from -60°C up to +200°C
- Silicone liners with PTFE on both sides for less coring
- Much cleaner than natural rubber, red rubber or butyl
- Different hardnesses (durometers) to meet requirements of the various types of needles regarding penetration

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Polypropylene screw cap black, 5.5mm centre hole, 8-425 thread				
1	**11561384**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
1	**11581384**	Silicone cream/PTFE red UltraClean	55° Shore A	1.5	100
2	**11531394**	Silicone dark blue/PTFE white	45° Shore A	1.3	100
3	**10204902**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
4	**11571394**	Silicone white/PTFE red, with slit	45° Shore A	1.3	100

Natural rubber/TEF, red rubber/PTFE, butyl/PTFE and silicone/PTFE seals, closed top ND8

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Polypropylene screw cap black, closed top, 8-425 thread				
1	**11511394**	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**15552300**	Red rubber/PTFE beige	45° Shore A	1.0	100
3	**11501404**	Butyl red/PTFE grey	55° Shore A	1.3	100
4	**11551394**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100

Septa (only, without caps) for ND8 (8mm) vials

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11821663**	PTFE virginal (only unassembled)	53° Shore D	0.25	1,000
2	**11848961**	Natural rubber red-orange/TEF transparent (only unassembled)	60° Shore A	1.0	1,000
2	**11787557**	Natural rubber red-orange/TEF transparent, tested by VWR (Merck™)/Hitachi	60° Shore A	1.3	1,000
3	**12950841**	Red rubber/PTFE beige	45° Shore A	1.0	100
4	**11868961**	Butyl red/PTFE grey	55° Shore A	1.3	1,000
5	**11872663**	Silicone white/PTFE red	45° Shore A	1.3	1,000
5	**11830772**	Silicone cream/PTFE red	55° Shore A	1.5	1,000
6	**11840772**	Silicone dark blue/PTFE white	45° Shore A	1.3	1,000
7	**11841653**	Silicone white/PTFE blue, slitted, rec. by VWR (Merck™)/Hitachi (only unassembled)	55° Shore A	0.9	1,000
8	**11828961**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	1,000

Polypropylene screw caps ND8 (caps only, supplied without seals)

	Cat. No	Cap description	Pack qty
1	**11561354**	Polypropylene screw cap, black, 5.5mm centre hole	100
2	**11571354**	Polypropylene screw cap, black, closed top	100
3	**10060942**	Polypropylene screw cap, white, 5.5mm centre hole	100
4	**10497912**	Polypropylene screw cap, white, closed top	100

Screw neck vials ND8, small opening, 8-425 thread with pre-screwed PP screw seals ND8

- Pre-screwed vials reduce the risk of contamination of vials in laboratories

Cat. No	Vial description	Seal	Pack qty
12980861	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (Vial Cat.No 11565874)	Pre-screwed with polypropylene screw cap, black, 5.5mm centre hole (seal Cat.No 11561354); silicone white/PTFE blue, 55° Shore A, 0.9mm, slitted (seal Cat.No 11841653), rec. by VWR (Merck™)/Hitachi	100
11555924	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (Vial Cat.No 11565874)	Pre-screwed with polypropylene screw cap black, 5.5mm centre hole; silicone white/PTFE red, 45° Shore A, 1.3mm, (seal Cat.No 11561384)	100
11575924	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (Vial Cat.No 11565874)	Pre-screwed with polypropylene screw cap black, 5.5mm centre hole; silicone white/PTFE red, 45° Shore A, 1.3mm, slitted (seal Cat.No 11571394)	100
12980861	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (Vial Cat.No 11565874)	Pre-screwed with polypropylene screw cap black, closed top, 8-425 thread; silicone white/PTFE red, 45° Shore A, 1.3mm (seal Cat.No 11551394)	100
11555924	1.5mL Screw neck vial, 8-425 thread, 32 x 11.6mm, amber glass, 1st hydrolytic class, small opening (vial Cat.No 10560053)	Pre-screwed with polypropylene screw cap black, 5.5mm centre hole; silicone white/PTFE red, 45° Shore A, 1.3mm, (seal Cat.No 11561384)	100
11575924	1.5mL Screw neck vial, 8-425 thread, 32 x 11.6mm, amber glass, 1st hydrolytic class, small opening (vial Cat.No 10560053)	Pre-screwed with polypropylene screw cap black, closed top, 8-425 thread; silicone white/PTFE red, 45° Shore A, 1.3mm (seal Cat.No 11551394)	100

Special 3-in-1 and 2-in-1 kits

3-in-1 and 2-in-1 kits for VWR (Merck™)/Hitachi autosampler

Cat. No	Item	Description	Pack qty
10670843	3-in-1 kit	3-in-1 kit consisting of: 11565874, 11561354 and 11841653	100
11565874	Vial	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening	100
11561354	Cap	Polypropylene screw cap, black, 5.5mm centre hole	100
11841653	Septa	Silicone white/PTFE blue, 55° Shore A, 0.9mm, slitted rec. by VWR (Merck™)/ Hitachi	100
12980871	Alternative 3-in-1 kits	Same cap + same septa in combination with 10560053 (amber glass, small opening)	100
12950871	Alternative 3-in-1 kits/2-in-1 kits	Same vial + same cap in combination with 11821663 (PTFE virginal 0.25mm)	100
10000842	2-in-1 kit	2-in-1 kit consisting of: 11565874, 10671763	100
11565874	Vial	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening	100
10671763	Cap	Polypropylene screw cap, black, 5.5mm centre hole, natural rubber red-orange/ TEF transparent, 60° Shore A, 1.3mm	100
12910881	Alternative 2-in-1 kits	Same seal in combination with 10560053 (amber glass, small opening)	100
12900881	Alternative 2-in-1 kits	Same seal in combination with 11525884 (clear glass, small opening, with label + filling lines)	100

2-in-1 kits for Varian autosampler

Cat. No	Item	Description	Pack qty
10475792	2-in-1 kit	2-in-1 kit consisting of: 11565874, 11561384	100
11565874	Vial	1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening	100
11561384	Seal	PP screw cap, black, 5.5mm centre hole; UltraClean silicone white/PTFE red, 45° Shore A, 1.3mm	100
12990871	Alternative 2-in-1 kit	Same seal in combination with 11525884 (clear glass, small opening, with label + filling lines)	100
12960871	2-in-1 kit	2-in-1 kit consisting of: 10560053, 11561384	100
10560053	Vial	1.5mL Screw neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, small opening	100
11561384	Seal	PP screw cap, black, 5.5mm centre hole; UltraClean silicone white/PTFE red, 45° Shore A, 1.3mm	100
12970871	Alternative 2-in-1 kit	Same seal in combination with 11595874 (amber glass, small opening, with label + filling lines)	100

To download a copy of the vial compatibility chart for your autosampler, simply visit www.eu.fishersci.com/go/fisherbrand (tab Product Resources)

SHORT THREAD VIALS ND9

These vials can be used on all popular autosamplers thanks to their technical geometry, especially models manufactured by Agilent, HTA, Shimadzu, Thermo Scientific, Varian and Waters (refer to 'Autosampler Compatibility Chart' pages 18 to 27 for further information)

The universal autosampler vial

- Universally compatible with almost all autosamplers
- Vials with integrated micro-insert are also now available in amber glass
- Pre-screwed short thread vials available

Short thread vials ND9, wide opening and microvials with short thread ND9

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**10162512**	1.5mL Short thread vial, 1st hydrolytic class, wide opening (silanised version available Cat. No 11585894)	32 x 11.6	Clear	1.85	1.5	200	<120	100
2	**11575884**	1.5mL Short thread vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat. No 15562310)	32 x 11.6	Clear	1.85	1.5	200	<120	100
3	**10080952**	1.5mL Microlitre thread vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat. No 11595894)	32 x 11.6	Amber	1.85	1.5	200	<120	100
4	**11575894**	Short thread vial with integrated 0.2mL Micro-insert, 1st hydrolytic class, label + filling lines, "Top Bonded"	32 x 11.6	Clear	0.34	0.2	25	<1	100
5	**10145714**	Short thread vial with integrated 0.2mL Micro-insert, 1st hydrolytic class, label + filling lines, "Top Bonded"	32 x 11.6	Amber	0.34	0.2	25	<1	100
6	**12951011**	Short thread vial with integrated micro-insert, 1st hydrolytic class "Base Bonded"	32 x 11.6	Clear	0.4	0.3	30	<3	100
7	**15592310**	Short thread vial with integrated micro-insert, 1st hydrol.class "Base bonded"	32 x 11.6	Amber	0.4	0.3	30	<3	100
8	**11515894**	1.1mL Microlitre short thread vial ND9, 1st hydrolytic class (silanised version available Cat. No 10670341)	32 x 11.6	Clear	1.6	1.5	30	<3	100
9	**11535914**	0.9mL total Microlitre short thread vial ND9, 1st hydrolytic class	32 x 11.6	Clear	1.4	1.1	25	<1	100
10	**11575914**	TopSert TPX short thread vial, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11595914)	32 x 11.6	Clear	0.36	0.2	25	<1	100
11	**11515924**	TopSert TPX short thread vial, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11535924)	32 x 11.6	Amber	0.36	0.2	25	<1	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Short thread SureStop™ vials ND9

Watch our SureStop™ function video by visiting
www.eu.fishersci.com/go/chromowebsite

1.5mL short thread SureStop™ vials ND9 with SureStop™ function

- A stop-ring barrier thread defines the ideal endpoint of the screwing process
- Defined screwing end-point eliminates user-to-user variance
- Optimal septum compression produces significantly higher analytical reproducibility

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**15166425**	1.5mL short thread SureStop™ vial, wide opening, with overwind-barrier	32 x 11.6	Clear	1.85	1.5	200	<120	100
2	**15136425**	1.5mL short thread SureStop™ vial, wide opening, label + filling lines, with overwind-barrier	32 x 11.6	Clear	1.85	1.5	200	<120	100

Micro-inserts for short thread vials ND9 with wide opening

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11752418**	0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available Cat. No 11889120)	31 x 6	Clear	0.34	0.25	30	<4	10x100
2	**11777557**	0.1mL Micro-insert, 1st hydrolytic class, 12mm top	31 x 6	Clear	0.35	0.3	30	<4	10x100
3	**11805863**	0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available Cat. No 11878951)	29 x 5.7	Clear	0.3	0.25	30	<4	10x100
4	**11762418**	0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available Cat. No 11792368)	31 x 6	Clear	0.5	0.35	40	<8	10x100
5	**13445489**	0.1mL PP micro-insert, 10mm top, filling lines	29 x 6	Clear	0.30	0.25	30	<4	10x100
6	**13455499**	0.1mL PP micro-insert, 10mm top, filling lines and attached plastic spring	29 x 6	Clear	0.30	0.25	30	<4	10x100
7	**13495479**	0.2mL PP micro-insert, flat bottom	31 x 6	Clear	0.5	0.35	40	<8	10x100

Plastic vials ND9 and plastic microvials ND9

	Cat. No	Description	Dimensions, mm	Glass type	TFVol (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11505974**	1.5mL PP short thread vial, filling lines, slightly concave shaped bottom	32 x 11.6	Transparent	1.85	1.50	200	<110	100
2	**10509482**	1.5mL PP short thread vial, filling lines, slightly concave shaped bottom	32 x 11.6	Amber	1.85	1.50	200	<110	100
3	**11545974**	0.7mL PP short thread microvial	32 x 11.6	Transparent	0.87	0.60	150	<80	100
4	**11565964**	0.3mL PP short thread microvial	32 x 11.6	Transparent	0.4	0.25	30	<4	100
5	**11585964**	0.3mL TPX short thread microvial	32 x 11.6	Crystal clear	0.4	0.25	30	<4	100
6	**11515974**	0.3mL PP short thread microvial	32 x 11.6	Amber	0.4	0.25	30	<4	100

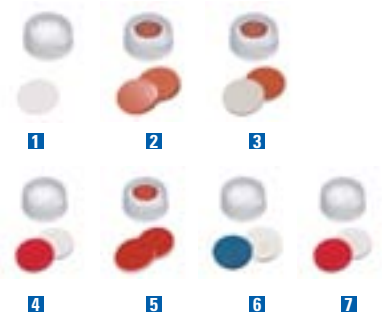
TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Polypropylene short thread seals ND9

- The synthetic red rubber/PTFE septum is cost-effective alternative to the natural rubber Instrument Manufacturer Quality (IMQ) option. Please note however that although softer for easier penetration, it is not suitable for multiple injection
- With pre-cut septa only, the silicone material is slitted in a Y-shape whilst the PTFE lamination remains intact. This ensures that sample evaporation and concentration occurring with completely slitted septa can be minimised
- Short thread seals also available as closed top version (blue cap)
- Fully assembled seal with slitted liner available, in order to avoid a vacuum inside the vial during multiple injections
- Screw caps actually possess a crimp cap design, making them suitable for robotic handling

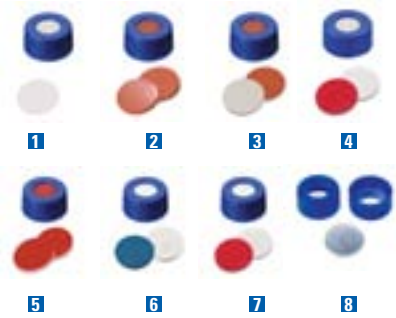
Polypropylene short thread cap ND9 transparent, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11531434**	PTFE virginal	53° Shore D	0.2	100
2	**11521424**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**10135044**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11541424**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**10192702**	PTFE red/silicone white/ PTFE red	45° Shore A	1.0	100
6	**11591424**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100
7	**10034364**	Silicone white/PTFE red, pre-cut (Y)	55° Shore A	1.0	100



Polypropylene short thread ND9 cap blue, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11541434**	PTFE virginal	53° Shore D	0.2	100
2	**10520443**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**11541454**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11581424**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**11511434**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11521434**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100
7	**10004604**	Silicone white/PTFE red, pre-cut (Y)	55° Shore A	1.0	100
8	**15572300**	Aluminium liner sealed by transparent flat-seal		0.06	100



Polypropylene short thread ND9 cap blue, closed top

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11551454**	PTFE virginal	53° Shore D	0.2	100
2	**10617625**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**10088322**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100

Polypropylene short thread ND9 cap red, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11501444**	PTFE virginal	53° Shore D	0.2	100
2	**11551434**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**10094594**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11571434**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**10651603**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11581434**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100

*Instrument Manufacturer Quality (IMQ)

Polypropylene short thread ND9 cap black, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11591444**	PTFE virginal	53° Shore D	0.2	100
2	**11561444**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**11511464**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11581444**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**11571444**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11501454**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100

Polypropylene short thread ND9 cap green, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**12912680**	PTFE virginal	53° Shore D	0.2	100
2	**11511444**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**11581454**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11591434**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**11521444**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11521454**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100

Polypropylene short thread cap yellow, 6mm centre hole

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**12922680**	PTFE virginal	53° Shore D	0.2	100
2	**11551444**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
3	**11521464**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11541444**	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100
5	**11531444**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11511454**	Silicone white/PTFE blue, with slit	55° Shore A	1.0	100

Magnetic short thread cap, 6mm centre hole (for CTC GC PAL and Thermo Scientific TriPlus Autosamplers)

- More convenient and safer handling than 11mm magnetic crimp seals
- Ready-to-use closures
- Officially tested and approved by CTC

Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
11571454	Silicone white/PTFE red UltraClean	55° Shore A	1.0	100

Short thread MS ND9 cap transparent

- One component closure – no bleeding
- Absolutely inert
- Pierceable like a septa
- LC/GC MS certified
- Tightens like a septum

Cat. No	Description cap	Pack qty
11511424	With thinned penetration area and diaphragm	100

*Instrument Manufacturer Quality (IMQ)

UltraBond Seals ND9

Analogous to the LECTRABOND closure from Waters and the INTERSEAL closure from Agilent, we also offer several UltraBond short thread seals, including some manufactured to an improved Instrument Manufacturer Quality. The new septa material is an especially pure silicone, which optimises product safety even more, whilst the PTFE layer has also been modified to permit even easier needle penetration. With the UltraBond seal, the cap and liner form an inseparable unit, such that the liner cannot be dislocated or pushed into the vial, even with a blunt needle.

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**10264992**	PP short thread cap black, 6mm centre hole	Silicone white/PTFE red	45° share A	1.3	100
2	**10418092**	PP short thread cap blue, 6mm centre hole	Silicone beige/PTFE white, improved IMQ*	45° share A	1.3	100
	10122612	PP short thread cap blue, 6mm centre hole	Silicone beige/PTFE white, with slit, improved IMQ*	45° share A	1.3	100

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Special 2-in-1 kits for Waters instruments

Cat. No	Item	Description	Pack qty
12960891	2-in-1 kit	2-in-1 kit consisting of: 10162512 + 10418092	100
10162512	Vial	1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
10418092	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm	100
12950891	2-in-1 kit	2-in-1 kit consisting of: 10162512 + 10122612	100
10162512	Vial	1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
10122612	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit	100
12910901	2-in-1 kit	2-in-1 kit consisting of: 11575884 + 10418092	100
11575884	Vial	1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening, label and filling lines	100
10418092	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm	100
11860972	2-in-1 kit	2-in-1 kit consisting of: 11575884 + 10418092	100
11575884	Vial	1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening, label and filling lines	100
10418092	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit	100
12920901	2-in-1 kit	2-in-1 kit consisting of: 10080952 + 10418092	100
10080952	Vial	1.5mL short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines	100
10418092	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm	100
12570186	2-in-1 kit	2-in-1 kit consisting of: 10080952 + 10122612	100
10080952	Vial	1.5mL short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines	100
10122612	Seal	9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit	100

HPLC and GC Certified vial kits (short thread vials and short thread seals ND9)

Vial certifications are getting far more critical, in order to ensure process reproducibility and to avoid possible sources of errors right from the beginning. For Fisherbrand, the highest quality, consistency and quality control have always been very important, as exemplified by our range of 'HPLC and GC Certified' vials and closures.

	Cat. No	Description	Seal	Pack qty
1	**13429748**	HPLC/GC certified vial kit 1.5mL short thread vial, clear glass, 1st hydrolytic class, label + filling lines	UltraClean seal: 9mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 1.0mm	100
2	**13439748**	HPLC/GC certified vial kit 1.5mL short thread vial, amber glass, 1st hydrolytic class, label + filling lines	UltraClean seal: 9mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 1.0mm	100

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*Instrument Manufacturer Quality (IMQ)

LC/MS and GC/MS certified vial kits (short thread vials and short thread seals ND9)

- Fisherbrand LC/MS and GC/MS certified kits represent our premium range of certified products. Each lot of vial/closure combination has been tested by LC/MS and GC/MS on blank and trace values
- Available as clear and amber 9mm short thread vial in the SureStop™ version for the lowest evaporation rate of all autosampler vials
- The glass surface of the SureStop™ vials possesses very low adsorption properties for all types of polar compounds, notably lower than all other vials of 1st hydrolytic class glass without surface treatment
- The closure contains a very soft ultra low bleed (Ultra High Performance) silicone septum with PTFE layer, optimised for ultra-trace analysis
- LC/MS and GC/MS certified kits are delivered fully shrink-wrapped to assure total transport safety and security

	Cat. No	Description	Seal	Pack qty
1	**15562320**	LC/MS and GC/MS certified vial kit 1.5mL short thread SureStop™ vial, 32 x 11.6mm, clear glass, wide opening, label + filling lines with overwind-barrier	Ultra high performance seal: PP short thread cap, blue, centre hole; silicone dark blue-translucent/PTFE natural, 35° Shore A, 1.0mm	100
2	**15572320**	LC/MS and GC/MS certified vial kit 1.5mL short thread SureStop™ vial, 32 x 11.6mm, amber glass, wide opening, label + filling lines with overwind-barrier	Ultra high performance seal: PP short thread cap, blue, centre hole; silicone dark blue-translucent/PTFE natural, 35° Shore A, 1.0mm	100

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*Instrument Manufacturer Quality (IMQ)

Short thread vials ND9, wide opening with pre-screwed PP short thread seals ND9

- Pre-screwed vials reduce the risk of contamination during cap assembly in the laboratory
- Pre-screwed vials are available with any of the short thread vials and any seal of your choice

Cat. No	Description	Seal	Pack qty
12990861	1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening (vial Cat.No 10162512)	Pre-screwed with PP short thread cap blue, 6mm centre hole, silicone white/PTFE blue, with slit, 55° Shore A, 1.0mm (seal Cat.No 11521434)	100
11585924	1.5mL Short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label + filling lines (vial Cat.No 10080952)	Pre-screwed with PP short thread cap blue, 6mm centre hole, silicone white/PTFE blue, with slit, 55° Shore A, 1.0mm (seal Cat.No 11521434)	100
11595924	1.5mL Short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label + filling lines (vial Cat.No 10080952)	Pre-screwed with PP UltraBond Seal blue, 6mm centre hole, silicone beige/PTFE white, with slit (approved IMQ*), 45° Shore A, 1.3mm (seal Cat.No 10122612)	100
12356763	1.5mL Short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label + filling lines (vial Cat.No 10080952)	Pre-screwed with PP short thread cap transparent, centre hole, silicone white/PTFE red, 55° Shore A, 1.0mm, pre-cut (Y) (seal Cat.No 10034364)	100

2-in-1 kits with short thread vials ND9

Cat. No	Item	Description	Pack qty
11787497	2-in-1 kit	2-in-1 kit consisting of: 10162512 + 11581424	100
10162512	Vial	1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
11581424	Seal	PP short thread cap blue, 6mm centre hole; UltraClean silicone white/PTFE red, 55° Shore A, 1.0mm	100
15124649	2-in-1 kit	2-in-1 kit consisting of: 10162512 + 11521434	100
10162512	Vial	1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
11521434	Seal	PP short thread cap blue, 6mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.0mm, with slit	100
15532320	2-in-1 kit	2-in-1 kit consisting of: 11575884 + 11501454	100
11575884	Vial	1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening, label and filling lines	100
11501454	Seal	PP short thread cap, black, 6mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.0mm, slit	100
12951251	2-in-1 kit	2-in-1 kit consisting of: 10162512 + 11541424	100
10162512	Vial	1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
11541424	Seal	PP short thread cap transparent, 6mm centre hole; UltraClean silicone white/PTFE red, 55° Shore A, 1.0mm	100
11395991	2-in-1 kit	2-in-1 kit consisting of: 10080952 + 11541424	100
10080952	Vial	1.5mL Short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines	100
11541424	Seal	PP short thread cap transparent, 6mm centre hole; silicone white/PTFE red, 55° Shore A, 1.0mm	100

SCREW NECK VIALS ND10

These vials are preferentially used on autosampler models from the following manufacturers: Jasco, PerkinElmer, Shimadzu, Varian and Waters (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information)

- Packed in a cleanroom environment as the new standard for chromatography vials
- Wide opening enables easy filling with viscous materials
- Alternatively see page 34 to 40 for short thread vials
- Broad range of micro-inserts

Screw neck vials ND10, wide opening, 10-425 thread and appropriate micro-inserts

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11511474**	1.5mL Screw neck vial, 10-425 Thread, 1st hydrolytic class, wide opening	32 x 11.6	Clear	2.0	1.50	200	<120	100
2	**10521593**	1.5mL Screw neck vial, 10-425 thread, 1st hydrolytic class, wide opening, label + filling lines	32 x 11.6	Clear	2.0	1.50	200	<120	100
3	**11531474**	1.5mL Screw neck vial, 10-425 thread, 1st hydrolytic class, wide opening, label + filling lines	32 x 11.6	Amber	2.0	1.50	200	<120	100
4	**11752418**	0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available Cat. No 11531314)	31 x 6	Clear	0.34	0.25	30	<4	10 x 100
5	**11777557**	0.1mL Micro-insert, 1st hydrolytic class, 12mm top	31 x 6	Clear	0.35	0.30	30	<4	10 x 100
6	**11805863**	0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available Cat. No 11541314)	29 x 5.7	Clear	0.3	0.25	30	<4	10 x 100
7	**11762418**	0.2mL Micro-insert, 1st hydrolytic class, flat bottom	31 x 6	Clear	0.5	0.35	40	<8	10 x 100

Polypropylene screw caps and seals ND10

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11551474**	PP screw cap black, 7mm centre hole	Natural rubber red-orange/TEF trans-	60° Shore A	1.3	100
2			parent			
3	**11561474**	PP screw cap black, 7mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
4	**10051132**	PP screw cap black, 7mm centre hole	Silicone white/PTFE beige UltraClean	45° Shore A	1.5	100
5	**11571474**	PP screw cap black, 7mm centre hole	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**11581474**	PP screw cap black, 7mm centre hole	Silicone white/PTFE blue, with slit	55° Shore A	1.5	100
	11501484	PP screw cap black, 7mm closed top	Natural rubber red-orange/TEF trans-	60° Shore A	1.3	100
			parent			

Polypropylene screw caps ND10 (without seals)

	Cat. No	Description cap	Pack qty
1	**11591464**	Polypropylene screw cap black, 7mm centre hole	100
2	**11501474**	Polypropylene screw cap black, closed top	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

CRIMP NECK VIALS ND11

These vials are preferentially used on autosampler models from the following manufacturers: Agilent, Carlo Erba, CTC, DANI, Fisons, Gerstel, Jasco, PerkinElmer, Shimadzu, Spark, Thermo Scientific and Varian (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information).

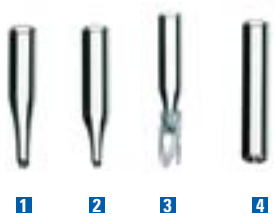
- Vials with integrated micro-insert are also available now in clear and amber glass
- Use our TopSert microvial with fused-in micro-inserts, absolutely centred and which forms a tight seal up against the septa due to its slightly proud top rim
- Vials with a barcode label can be obtained as well as pre-crimped vials
- Standard vials for GC and HPLC
- Microlitre vials (11505894/11545914) are ideal for sample preparation (reactions, concentrations) or as an alternative for crimp neck vials with conical inserts

Crimp neck vials ND11, wide opening and microvials with crimp neck ND11

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**10326042**	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening small opening 10081022 (silanised version available Cat. No 11555904)	32 x 11.6	Clear	2.0	1.50	200	<100	100
2	**11535884**	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat. No 15572310)	32 x 11.6	Clear	2.0	1.50	200	<100	100
3	**11545884**	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat. No 11525904)	32 x 11.6	Amber	2.0	1.50	200	<100	100
4	**11565894**	Crimp neck vial with integrated 0.2mL Micro-insert, 1st hydrolytic class, label + filling lines "Top Bonded"	32 x 11.6	Clear	0.4	0.21	25	<1	100
5	**10678005**	Crimp neck vial with integrated 0.2mL Micro-insert, 1st hydrolytic class, label + filling lines "Top Bonded"	32 x 11.6	Amber	0.4	0.2	25	<1	100
6	**12672465**	Snap/crimp vial ND11 with integrated Micro-Insert, 1st hydrolytic class "Base Bonded"	32 x 11.6	Clear	0.4	0.3	30	<3	100
7	**15219468**	Snap/crimp vial ND11 with integrated micro-insert, 1st hydrolytic class "Base Bonded"	32 x 11.6	Amber	0.4	0.3	30	<3	1,000
8	**11505894**	1.1mL Microlitre vial, 1st hydrolytic class (silanised version available Cat. No 11595904)	32 x 11.6	Clear	1.8	1.5	40	<8	100
9	**11545914**	0,9mL Total microlitre snap/crimp ring Vial ND11, 1st hydrolytic class	32 x 11.6	Clear	1.4	1.2	25	<1	100
10	**11505884**	1.1mL Microvial, 1st hydrolytic class, conical	32 x 11.6	Clear	1.3	1.1	30	<4	100
11	**11865813**	0.9mL Microvial, 1st hydrolytic class, conical	32 x 10	Clear	1.1	0.9	30	<2	10 x 100
12	**11585914**	TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11505924)	32 x 11.6	Clear	0.35	0.2	30	<4	100
13	**11525924**	TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11545924)	32 x 11.6	Amber	0.35	0.2	30	<4	100

Micro-inserts for crimp neck vials ND11 with wide opening

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11752418**	0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available Cat. No 11531314)	31 x 6	Clear	0.34	0.25	30	<4	10 x 100
2	**11777557**	0.1mL Micro-insert, 1st hydrolytic class, 12mm top	31 x 6	Clear	0.35	0.3	30	<4	10 x 100
3	**11805863**	0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available Cat. No 11541314)	29 x 5.7	Clear	0.3	0.25	30	<4	10 x 100
4	**11762418**	0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available Cat. No 12396192)	31 x 6	Clear	0.5	0.35	40	<8	10 x 100



TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Aluminium crimp caps with seals ND11

Natural rubber/TEF seals

- Three layer septa of natural rubber/butyl/TEF combines the good physical properties of natural rubber (resealability) with the good chemical properties of butyl (cleanliness)
- Temperature resistant from -40°C up to +120°C
- Standard seal for GC and HPLC
- Ideal for multiple injections due to high resealability

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10457692**	Aluminium cap clear lacquered, 5.5mm centre hole	Natural rubber red-orange/TEF transparent approved IMQ*	60° Shore A	1.0	100
1	**10204712**	Aluminium cap clear lacquered, 5.5mm centre hole	Natural rubber red-orange/butyl red/TEF transparent	45° Shore A	1.0	100
1	**15239468**	Aluminium cap clear lacquered, 5.5mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	1,000
2	**11591494**	Aluminium cap green lacquered, 5.5mm centre hole	Natural rubber red-orange/butyl red/TEF transparent	45° Shore A	1.0	100
3	**11501504**	Aluminium cap red lacquered, 5.5mm centre hole	Natural rubber red-orange/butyl red/TEF transparent	45° Shore A	1.0	100
4	**11511504**	Aluminium cap blue lacquered, 5.5mm centre hole	Natural rubber red-orange/butyl red/TEF transparent	45° Shore A	1.0	100
5	**11521504**	Aluminium cap gold lacquered, 5.5mm centre hole	Natural rubber red-orange/butyl red/TEF transparent	45° Shore A	1.0	100

Red rubber/PTFE seals ND11

- Temperature resistant from –40°C up to +110°C
- Softer alternative to natural rubber/TEF and butyl/PTFE
- Cleaner than natural rubber or butyl; low fragmentation
- Red rubber is a synthetic rubber

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**11595864**	Aluminium cap clear lacquered, 5.5mm centre hole	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
2	**11505874**	Aluminium cap green lacquered, 5.5mm centre hole	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
3	**10044364**	Aluminium cap red lacquered, 5.5mm centre hole	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
4	**11525874**	Aluminium cap blue lacquered, 5.5mm centre hole	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100
5	**11535874**	Aluminium cap gold lacquered, 5.5mm centre hole	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	100

Silicone/PTFE seals ND11

- Cross-slitted liner as penetration aid and for low coring, but also for avoiding vacuum in the vial during multiple injections
- Temperature resistant from -60°C up to +200°C
- Much cleaner than natural rubber, red rubber or butyl

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10264612**	Aluminium cap clear lacquered, 5.5mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
1	**11565854**	Aluminium cap clear lacquered, 5.5mm centre hole	Silicone cream/PTFE red	55° Shore A	1.5	100
2	**11535864**	Aluminium cap clear lacquered, 5.5mm centre hole	Silicone dark blue/PTFE white	45° Shore A	1.3	100
3	**11551494**	Aluminium cap clear lacquered, 5.5mm centre hole	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
4	**10274802**	Aluminium cap clear lacquered, 5.5mm centre hole	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.5	100
5	**11565864**	Aluminium cap green lacquered, 5.5mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
6	**11505864**	Aluminium cap red lacquered, 5.5mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
7	**11515864**	Aluminium cap blue lacquered, 5.5mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
8	**11555864**	Aluminium cap gold lacquered, 5.5mm centre hole	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100

*Instrument Manufacturer Quality (IMQ)

Other aluminium crimp caps with seals ND11

- PTFE is very inert and high temperature resistant mainly for uncritical HPLC analysis
- Total phthalate-free seal (TPF seal), septa material free of any elastomers and halogens
- Butyl as synthetic rubber is much cleaner than natural rubber
- Butyl is temperature resistant from –40°C up to +120°C

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**15522310**	11mm TPF combination seal: aluminium cap, clear lacquered, 5.5mm centre hole	Aluminium liner, (sealed by an additional assembled ring)	-	0.06	100
2	**15532310**	11mm Combination seal: aluminium cap, clear lacquered, 5.5mm centre hole	PTFE virginal (sealed by an additional assembled ring)	53° Shore D	0.25	100
3	**10162562**	Aluminium cap clear lacquered, 5.5mm centre hole, roll groove	PTFE virginal	53° Shore D	0.25	100
4	**10033482**	Aluminium cap clear lacquered, 5.5mm centre hole	Butyl red/PTFE grey	55° Shore A	1.3	100
5	**11585864**	Aluminium cap clear lacquered, 5.5mm centre hole	PTFE grey/butyl red/PTFE grey	55° Shore A	1.3	100

Magnetic crimp caps and seals ND11 (for CTC PAL and Thermo Scientific TriPlus autosamplers)

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11531504**	Magnetic cap, gold lacquered, 5mm centre hole	Silicone white/PTFE red Ultra-Clean	45° Shore A	1.3	100
2	**11541504**	Magnetic cap, gold lacquered, 5mm centre hole	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100

PE Caps, seals and septa for crimp neck vials ND11

Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
10255282	PE cap, transparent, 13 x 7.5mm, 4.5mm centre hole	Silicone white/PTFE red Ultra-Clean	55° Shore A	1.0	100

Septa 11mm for crimp neck vials ND11

	Cat. No	Description cap	Durometer	Thickness, mm	Pack qty
1	**11874860**	PTFE virginal	53° Shore D	0.25	1,000
2	**11804870**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	1,000
2	**15512310**	Natural rubber red-orange/TEF transparent, tested by VWR (Merck™)/Hitachi	60° Shore A	1.3	1,000
3	**11864870**	Red rubber/PTFE beige approved IMQ*	45° Shore A	1.0	1,000
4	**11844870**	Butyl red/PTFE grey	55° Shore A	1.3	1,000
5	**11854870**	PTFE grey/butyl red/PTFE grey	55° Shore A	1.3	1,000
6	**10041204**	Silicone white/PTFE red	45° Shore A	1.3	1,000
6	**11864860**	Silicone cream/PTFE red	55° Shore A	1.5	1,000
7	**11834870**	Silicone dark blue/PTFE white	45° Shore A	1.3	1,000
8	**11854860**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	1,000
9	**11894860**	Silicone white/PTFE blue, cross slitted	55° Shore A	1.5	1,000

*Instrument Manufacturer Quality (IMQ)

Crimp neck vials ND11, wide opening, with pre-crimped aluminium seals ND11 pre-assembled

- Pre-crimped vials reduce the risk of contamination during self-assembly in the laboratory

Cat. No	Description Vial	Description of pre-crimped Seal	Dimensions, mm	Glass type	Pack qty
12910921	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening (10326042) pre-crimped	Aluminium cap clear lacquered, 5.5mm centre hole, natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm (10457692) (approved IMQ*)	32 x 11.6	Clear	100
12940921	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening (10326042) pre-crimped	Aluminium cap clear lacquered, 5.5mm centre hole, natural rubber red-orange/TEF transparent, 60° Shore A, 1.3mm (11545864)	32 x 11.6	Clear	100
12930921	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening (10326042) pre-crimped	Aluminium cap clear lacquered, 5.5mm centre hole, natural rubber red-orange/butyl red/TEF transparent, 45° Shore A, 1.0mm (10204712)	32 x 11.6	Clear	100
12900921	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening (10326042) pre-crimped	Aluminium cap blue lacquered, 5.5mm centre hole, natural rubber red-orange/butyl red/TEF transparent, 45° Shore A, 1.0mm (11511504)	32 x 11.6	Clear	100
12920921	1.5mL Crimp neck vial, 1st hydrolytic class, wide opening, label + filling lines (11545884) pre-crimped	Aluminium cap clear lacquered, 5.5mm centre hole, natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm (10457692) (approved IMQ*)	32 x 11.6	Amber	100

2-in-1 Kits with crimp neck vials ND11

Cat. No	Item	Description	Pack qty
10571383	2-in-1 Kit	2-in-1 Kit consisting of: 10326042 + 10204712	100
10326042	Vial	1.5mL Crimp neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
10204712	Seal	11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/butyl red/ TEF transparent, 45° Shore A, 1.0mm	100
12696655	2-in-1 Kit	2-in-1 Kit consisting of: 10326042 + 10457692	100
10326042	Vial	1.5mL Crimp neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening	100
10457692	Seal	11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm	100
11326451	2-in-1 Kit	2-in-1 Kit consisting of: 11545884 + 10204712	100
11545884	Vial	1.5mL Crimp neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines	100
10204712	Seal	11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/butyl red/ TEF transparent, 45° Shore A, 1.0mm	100
10692143	2-in-1 Kit	2-in-1 Kit consisting of: 11545884 + 10457692	100
11545884	Vial	1.5mL Crimp neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines	100
10457692	Seal	11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm	100

*Instrument Manufacturer Quality (IMQ)

SNAP RING VIALS ND11

These vials are preferentially used with autosampler models from the following manufacturers: Agilent, CTC, DANI, Dionex, Jasco, Shimadzu, Spark, Thermo Scientific, Varian, VWR (Merck™)/Hitachi and Waters (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information)

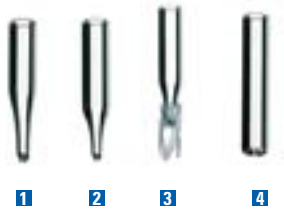
- We recommend this vial/closure system for HPLC applications only
- Universally usable vials for almost all autosamplers, even for those with robotic handling
- Micro-inserts can be delivered pre-assembled in vials
- Vials can also be crimped with a standard 11mm Aluminium crimp seal, as the two snap ring lips have the same height as a crimp neck
- Wide opening enables easy filling with viscous materials

Snap ring vials ND11, wide opening

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11525894**	1.5mL Snap ring vial, 1st hydrolytic class, wide opening (silanised version available Cat. No 11565904)	32 x 11.6	Clear	1.9	1.5	200	<100	100
2	**11535894**	1.5mL Snap ring vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat No 15582310	32 x 11.6	Clear	1.9	1.5	200	<100	100
3	**11545894**	1.5mL Snap ring vial, 1st hydrolytic class, wide opening, label + filling lines (silanised version available Cat. No 11515914)	32 x 11.6	Amber	1.9	1.5	200	<100	100
4	**11545914**	0.9mL Total microlitre snap ring vial ND11, 1st hydrolytic class	32 x 11.6	Clear	1.4	1.2	25	<1	100
5	**12672465**	Snap/crimp vial with integrated micro-insert, 1st hydrolytic class "Base Bonded"	32 x 11.6	Clear	0.4	0.3	30	<3	100
6	**15219468**	Snap/crimp vial with integrated micro-insert, 1st hydrolytic class "Base bonded"	32 x 11.6	Amber	0.4	0.3	30	<3	1,000
7	**11585914**	TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11505924)	32 x 11.6	Clear	0.35	0.2	20	<4	100
8	**11525924**	TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available Cat. No 11545924)	32 x 11.6	Amber	0.35	0.2	20	<4	100
9	**11575964**	0.3mL PP snap ring microvial	32 x 11.6	Transparent	0.4	0.25	30	<4	100
10	**11595964**	0.3mL TPX snap ring microvial	32 x 11.6	Clear	0.4	0.25	30	<4	100
11	**10705203**	0.7mL PP snap ring microvial	32 x 11.6	Transparent	0.9	0.64	50	<25	100
12	**10488082**	0.3mL PP snap ring microvial	32 x 11.6	Amber	0.4	0.25	30	<4	100

Micro-inserts for snap ring vials ND11 with wide opening

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11752418**	0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available Cat. No 11531314)	31 x 6	Clear	0.34	0.25	30	<4	10 x 100
2	**11777557**	0.1mL Micro-insert, 1st hydrolytic class, 12mm top	31 x 6	Clear	0.35	0.3	30	<4	10 x 100
3	**11805863**	0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available Cat. No 11541314	29 x 5.7	Clear	0.3	0.25	30	<4	10 x 100
4	**11762418**	0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available Cat. No 12396192)	31 x 6	Clear	0.5	0.35	40	<8	10 x 100

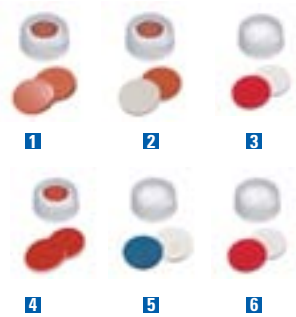


PE snap ring caps and seals ND11

- Choose synthetic red rubber/PTFE as a cost-effective alternative, but unlike natural rubber, synthetic rubber is not suitable for multiple injections but is nevertheless softer for safer needle penetration
- Snap ring caps are also available in a softer PE material in red or blue. They are easier to handle and push on/remove than the hard-cap version, but are less tight-fitting
- Snap ring cap with the design of a crimp cap; therefore suitable for robotic handling
- For quick and simple vial closing, saving time cost and effort
- Vials can also be sealed with an aluminium crimp seal ND11

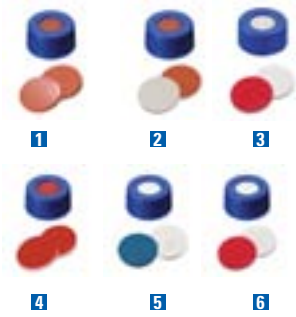
PE snap ring cap ND11 transparent, 6mm centre hole, hard or soft version

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Hard Cap				
1	**10233872**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**15272056**	Red rubber/PTFE beige IMQ*	45° Shore A	1.0	100
3	**11545934**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
4	**10631793**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
5	**10192172**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100
6	**11525964**	Silicone white/PTFE red, pre-cut (Y)	45° Shore A	1.3	100
	Soft Cap				
1	**10516655**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**10658205**	Red rubber/PTFE beige IMQ*	45° Shore A	1.0	100
3	**10195474**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
4	**10379884**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
5	**10014224**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100
6	**10768975**	Silicone white/PTFE red, pre-cut (Y)	45° Shore A	1.3	100



PE snap ring cap ND11 blue, 6mm centre hole, hard or soft version

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Hard Cap				
1	**11575934**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**15522320**	Red rubber/PTFE beige, IMQ*	45° Shore A	1.0	100
3	**10355962**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
4	**11585934**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
5	**11595934**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100
6	**10668205**	Silicone white/PTFE red, pre-cut (Y)	45° Shore A	1.3	100
	Soft Cap				
1	**10421245**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**11595944**	Red rubber/PTFE beige, IMQ*	45° Shore A	1.0	100
3	**10369694**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
4	**10267964**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
5	**10004754**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100
6	**10094364**	Silicone white/PTFE red, pre-cut (Y)	45° Shore A	1.3	100



PE snap ring cap ND11 red, 6mm centre hole, hard version only

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Hard version				
1	**11505944**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**10709454**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
3	**10448082**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
4	**11535944**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100

PE snap ring cap ND11 green, 6mm centre hole, hard version only

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Hard version				
1	**11545944**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**11505964**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
3	**11515964**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
4	**11585944**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100

*Instrument Manufacturer Quality (IMQ)

PE snap ring cap ND11 yellow, 6mm centre hole, hard version only

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
	Hard version				
1	**11555944**	Natural rubber red-orange/TEF transparent	60° Shore A	1.0	100
2	**11585954**	Silicone white/PTFE red UltraClean	45° Shore A	1.3	100
3	**11565944**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
4	**11575944**	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.0	100

PE snap cap for snap ring vials ND11

Cat. No	Description cap	Septa description	Pack qty
10083502	PE push-on cap, blue	With thinned penetration point	100

*Approved Instrument Manufacturer Quality

SCREW NECK VIALS ND13

These vials are preferentially used on autosampler models from the following manufacturers: Dionex, Shimadzu, Spark, Varian, VWR (Merck)/Hitachi and Waters (Wisp 48 Position Carousel) (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information).

- Vials are packed in a cleanroom in reclosable, tamper-proof evident PP-boxes
- Any combination of 4mL Screw neck vial ND13 with one of our 13mm PP screw seals can be obtained as a 2-in-1 kit (refer to page 50)
- Upon request barcode labelled vials can also be supplied
- For storage purposes also available with closed top screw seals
- Acrylic vial racks with 40 cavities for 4mL vials (refer to page 74)

Screw neck vials ND13 and appropriate micro-inserts

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**10571013**	4mL Screw neck vial, 1st hydrolytic class	45 x 14.7	Clear	5	4.1	800	<400	100
2	**11576044**	4mL Screw neck vial, 1st hydrolytic class, label + filling lines	45 x 14.7	Clear	5	4.1	800	<400	100
3	**11556044**	4mL Screw neck vial, amber glass, 1st hydrolytic class	45 x 14.7	Amber	5	4.1	800	<400	100
4	**11586044**	4mL Screw neck vial, 1st hydrolytic class, label + filling lines	45 x 14.7	Amber	5	4.1	800	<400	100
5	**11826912**	0.3mL Micro-insert, 1st hydrolytic class, 15mm top metal spring required!	40 x 6	Clear	0.5	0.4	40	<9	10 x 100
6	**10682733**	Spring, for micro-insert 11826912	50 x 7.5	-	-	-	-	-	100

Polypropylene screw caps with seals ND13

- Ready to use combination seals; no time consuming and "tricky" assembly
- No contamination of the liner that normally is caused by manual assembly
- Available as closed or open top screw seals with 13-425 thread
- Tamper-proof evident and reclosable ziplock bags ensure product safety
- Broad variety of different septa materials for almost all applications

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**10531593**	Polypropylene screw cap black, 8.5mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**11506064**	Polypropylene screw cap black, 8.5mm centre hole	Butyl red/PTFE grey	55° Shore A	1.3	100
3	**10010922**	Polypropylene screw cap black, 8.5mm centre hole	Silicone cream/PTFE red	55° Shore A	1.5	100
4	**11556054**	Polypropylene screw cap black, 8.5mm centre hole	Silicone dark blue/PTFE white	45° Shore A	1.3	100
5	**10265232**	Polypropylene screw cap black, 8.5mm centre hole	PTFE red/silicone white/PTFE red	45° Shore A	1.0	100
6	**10080962**	Polypropylene screw cap black, 8.5mm centre hole	Silicone white/PTFE blue, cross-slitted	55° Shore A	1.5	100
7	**11506054**	Polypropylene screw cap black, closed top	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
8	**12911221**	Polypropylene screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.3	100
9	**11536054**	Polypropylene screw cap black, closed top	Silicone cream/PTFE red	55° Shore A	1.5	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Septa 12mm for vial seals ND13

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11804950**	PTFE virginal	53° Shore D	0.25 (only unassembled)	1,000
2	**11814950**	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	1,000
3	**11757597**	Butyl red/PTFE grey	55° Shore A	1.3	1,000
4	**11894940**	Silicone cream/PTFE red	55° Shore A	1.5	1,000
5	**11844950**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	1,000
6	**11824950**	Silicone white/PTFE blue	55° Shore A	1.5 cross-slitted	1,000

Polypropylene screw caps ND13

	Cat. No	Description cap	Pack qty
1	**11596034**	Polypropylene screw cap, black, 8.5mm centre hole	100
2	**11506044**	Polypropylene screw cap, black, closed top	100
3	**11526044**	Polypropylene screw cap, white, 8.5mm centre hole	100
4	**11516044**	Polypropylene screw cap, white, closed top	100

Special kits with screw neck ND13

3-in-1 kits for VWR (Merck™)/Hitachi and Waters™ autosamplers

Cat. No	Item	Description	Pack qty
10672923	3-in-1 Kit	3-in-1 Kit consisting of: 10571013 + 11596034 + 11804950	100
10571013	Vial	4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic Class	100
11596034	Cap	Polypropylene screw cap, black, 8.5mm centre hole	100
11804950	Septa	PTFE virginal, 53° Shore D, 0.25mm	1,000
12900941	3-in-1 Kit	3-in-1 Kit consisting of: 11556044 + 11596034 + 11804950	100
11556044	Vial	4mL Screw neck vial, 45 x 14.7mm, amber glass, 1st hydrolytic Class	100
11596034	Cap	Polypropylene screw cap, black, 8.5mm centre hole	100
11804950	Septa	PTFE virginal, 53° Shore D, 0.25mm	1,000

Other 2-in-1 kits with screw neck vials ND13

Cat. No	Item	Description	Pack qty
11737607	2-in-1 Kit	2-in-1 Kit consisting of: 10571013 + 10531593	100
10571013	Vial	4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class	100
10531593	Seal	PP screw cap, black, 8.5mm centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.3mm	100
10224662	2-in-1 Kit	2-in-1 Kit consisting of: 10571013 + 10010922	100
10571013	Vial	4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class	100
10010922	Seal	PP screw cap, black, 8.5mm centre hole; silicone cream/PTFE red, 55° Shore A, 1.5mm	100
10778874	Alternative 2-in-1 Kit	Same seal in combination with 11556044 (amber glass)	100
12950931	2-in-1 Kit	2-in-1 Kit consisting of: 10571013+10265232	100
10571013	Vial	4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class	100
10265232	Seal	PP screw cap, black, 8.5mm centre hole; PTFE red/silicone white/PTFE red, 45° Shore A, 1.0mm	100
12910941	2-in-1 Kit	2-in-1 Kit consisting of: 10571013 + 10080962	100
10571013	Vial	4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class	100
10080962	Seal	PP screw cap, black, 8.5mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.5mm cross-slitted	100

SHELL VIALS

These vials are preferentially used on autosampler models from the following manufacturers: Alcott, Gilson, Shimadzu and Waters (Wisp 96 48-position carousel) (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information).

- PE plugs of 10145424/10506075, 11516074/10455982, 1155914/11565914 may be used for the fixation of a micro-insert eliminating the need for springs
- For the 1mL Shell vials, plugs with and without insertion barriers for the micro-inserts are available. The option without barrier demonstrates a better valving effect with regard to vacuum formation
- Star-shaped diaphragm enables easy penetration of the PE plug
- 10145424 + 10506075 with soft style plug for Waters™ and Shimadzu
- Recommended for HPLC usage
- A handy and inexpensive vial/closure combination for uncritical analyses

Shell vials 1mL and 4mL and appropriate micro-inserts

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**10306062**	1mL Shell vial, 1st hydrolytic class, 6mm PE plug, transparent, for ALCOTT	35 x 7.8	Clear	1.1	0.8	60	<25	100
2	**10145424***	1mL Shell vial, 1st hydrolytic class, 8mm PE plug, soft, without insertion barrier for micro-insert, transparent for Waters™ Wisp 96 pos. carousel, Shimadzu	40 x 8.2	Clear	1.4	1	100	<80	100
3	**10506075***	1mL Shell vial, 1st hydrolytic class, 8mm PE plug, soft, without insertion barrier for micro-insert, transparent for Waters™ Wisp 96 pos. carousel, Shimadzu	40 x 8.2	Amber	1.4	1	100	<80	100
4	**11792368**	0.1mL Micro-insert, 1st hydrolytic class, 13mm top (only in comb. With 11561374 + 10224852)	34 x 5	Clear	0.2	0.15	25	<0.1	10 x 100
5	**11516074**	4mL Shell vial, 1st hydrolytic class, 15mm PE plug, transparent for Waters™ Wisp 48 pos. carousel	44.6 x 14.65	Clear	5.5	4	1,000	<800	100
6	**10455982**	4mL Shell vial, 1st hydrolytic class, 15mm PE plug, transparent for Waters™ Wisp 48 pos. carousel	44.6 x 14.65	Amber	5.5	4	1,000	<800	100
7	**11728276**	0.3mL Micro-insert, 1st hydrolytic class, 13mm top	43.45 x 6	Clear	0.4	0.3	50	<8	10 x 100

*If a micro-insert is used in combination with the shell vial, please use 11561374 and 10224852, respectively, as they have an insertion barrier for micro-inserts. However, please note that the flexibility of the plug with the insertion barrier is reduced, so that plug push-in and needle penetration is more difficult.

Shell vials 2mL and appropriate micro-inserts

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11555914**	2mL Shell vial, 1st hydrolytic class, 12mm PE plug, transparent for various instruments	31.5 x 11.6	Clear	2.3	1.5	200	<100	100
2	**11565914**	2mL Shell vial, 1st hydrolytic class, 12mm PE plug, transparent for various instruments	31.5 x 11.6	Amber	2.3	1.5	200	<100	100
3	**10244802**	0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available Cat. No 11531314)	31 x 6	Clear	0.34	0.25	30	<4	100
4	**10770215**	0.1mL Micro-insert, 1st hydrolytic class, 12mm top	31 x 6	Clear	0.35	0.3	30	<4	10 x 100
5	**11521314**	0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available Cat. No 12396192)	31 x 6	Clear	0.5	0.35	40	<8	10 x 100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Polypropylene shell vials 1mL, 3mL and 4mL, with plugs

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11561404**	1mL PP shell vial, 8mm PE plug, transparent	40 x 8	Clear	1.28	1.05	50	<25	100
2	**12980941**	3mL PP shell vial, with inner cone; 15mm PE plug, transparent	44.6 x 14.65	Clear	4	3	40	<8	100
3	**12970941**	4mL PP shell vial, 15mm PE plug, transparent	44.6 x 14.65	Clear	5.5	4	1,000	<800	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

HEADSPACE ND20 (ND18) VIALS

This headspace vial range (together with our useful headspace vial compatibility chart on page 56 to 57) has been specially selected to help you quickly identify those consumables (vials and seals) suited to your own instruments.

IMPORTANT SAFETY TIP:

As headspace vials have to withstand high internal pressures, almost all vials featured below have a wall thickness of 1.2mm to prevent bursting. Contrary to widespread opinion, the seal and not the vial represents the weakest part of the whole vial assembly. Under pressure, the septa will press and bulge against the aluminium cap with such force that the cap is torn apart. Using our own testing procedures, we have verified that (for example) our PerkinElmer vial 10080822 can easily withstand 10 bars or more, whereas the seal is torn apart at around 10 bars when no pressure release system – such as our headspace cap – is used.

Headspace vials are available in a range of different forms and styles:

- Volume (5mL, 10mL, 20mL)
- Rounded or flat bottom. Rounded bottoms are more robust and more resistant to high pressures within the vial. These vials also slide more easily into heating blocks etc. On the other hand, a flat bottom might be required when vials have to run within instruments on a gradient or slope
- Bevelled top or flat DIN crimp neck/screw neck. A bevelled headspace neck rim might be required for some special closure systems (PerkinElmer), however, a liner has more surface area to make contact with a flat DIN crimp neck. The more surface area for the liner to sit on, the tighter the seal
- Length of the neck (instrument specific)
- Clear/amber glass
- With/without label and filling lines

Similarly, headspace closures are also available in a range of different forms and materials:

- Different types of cap permutations, for example, crimp\screw\headspace\centre hole\tear-off\magnetic\bimetal\PP\PE. Screw caps (as opposed to crimp-neck) are a novelty when it comes to headspace vials, but they represent a ready-to-use, convenient option that does not require any additional tools (crimpers, decappers). Therefore, samples can be taken and sealed out in the field without the need for sample transfer later in the lab. Magnetic screw seals can be used universally for headspace as well as for SPME.
- Different types of liner materials, such as butyl, butyl/PTFE, pharma-fix-liner (butyl/PTFE), silicone/PTFE, silicone/aluminium foil, viton, natural rubber/TEF. Besides the actual material, liners may also differ in thickness, hardness (° Shore A), colour, type of PTFE lamination and grade of silicone (UltraClean).

Headspace vials ND20 and ND18

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Compatibility	Pack qty
	10663303	5mL Headspace vial, 1st hydrolytic class, rounded bottom	38.2 x 22	Clear	9.4	5	1,500	800	Perkin Elmer	100
1	**10192652**	5mL Crimp neck vial,1st hydrolytic class, flat bottom	38 x 20	Clear	8	5	1,500	800	Varian	100
	10681033	10mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, rounded bottom	46 x 22.5	Clear	12.3	10	1,500	800	Carlo Erba, CTC, Fisons, Varian (CP)	100
2	**10195012**	10mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, rounded bottom	46 x 22.5	Amber	12.3	10	1,500	800	Carlo Erba, CTC, Fisons, Varian (CP)	100
	11520545	10mL Crimp neck vial, 1st hydrolytic class, flat bottom	54.5 x 20	Clear	12.2	10	1,500	800	Varian	100
	10680843	10mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, long neck, flat bottom	46 x 22.5	Clear	11.7	10	1,500	800	Carlo Erba, Dani, Fisons, Agilent	100
	10080822	20mL Headspace vial, 1st hydrolytic class, rounded bottom	75.5 x 23	Clear	22	20	1,500	800	Perkin Elmer, Tekmar	100
	12981241	20mL Headspace vial, 1st hydrolytic class, rounded bottom	75.5 x 23	Amber	22	20	1,500	800	Perkin Elmer, Tekmar	100
	10152512	20mL Headspace vial, 1st hydrolytic class, rounded bottom, label + filling lines	75.5 x 23	Clear	22.4	20	1,500	800	Perkin Elmer, Tekmar	100
3	**15552340**	20mL Headspace vial, 1st hydrolytic class, bevelled crimp neck, long neck, flat bottom	75.5 x 22.75	Clear	21.2	20	1,500	800	Agilent	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Headspace vials ND20 and ND18 - cont.

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Compatibility	Pack qty
	12971231	20mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, long neck, flat bottom	75.5 x 22.5	Clear	21.2	20	1,500	800	Carlo Erba, Dani, Fisons, Agilent	100
4	**10070952**	20mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, long neck, rounded bottom	75.5 x 22.5	Clear	20.9	20	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu), TriPlus HS	100
	12910991	20mL Headspace vial, 1st hydrolytic class, DIN-crimp neck, long neck, rounded bottom	75.5 x 22.5	Amber	20.9	20	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu), TriPlus HS	100
	10510323	20mL SPME Vial, 1st hydrolytic class, rounded bottom, special crimp neck	75.5 x 22.5	Clear	21.2	20	1,500	800	SPME Vial for CTC PAL	100
	11506114	10mL Precision thread vial ND18, 1st hydrolytic class, rounded bottom	46 x 22.5	Clear	10.8	8	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)	100
5	**11526114**	10mL Precision thread vial ND18, 1st hydrolytic class, rounded bottom	46 x 22.5	Amber	10.8	8	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)	100
6	**12941221**	20mL Precision thread vial ND18, 1st hydrolytic class, rounded bottom	75.5 x 22.5	Clear	20.6	18	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)	100
	12951221	20mL Precision thread vial ND18, 1st hydrolytic class, rounded bottom	75.5 x 22.5	Amber	20.6	18	1,500	800	CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)	100

4 5 6

Other headspace crimp neck vials ND20 and screw neck vial ND18

	Cat. No	Description	Dimensions, mm	Glass Type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res. Vol. (µL)	Pack qty
1	**11530535**	50mL Crimp neck vial, 1st hydrolytic class	101 x 31	Clear	58	50	3,080	1,500	100
2	**11560535**	100mL Crimp neck vial, 3rd hydrolytic class	94.5 x 51.6	Clear	118.8	100	10,000	6,000	88
3	**12990951**	20mL Headspace vial, 1st hydrolytic class, rounded bottom, with screw thread ND18 Perkin Elmer	75.5 x 23	Clear	21.2	20	1,500	800	100

1 2 3

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

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UHPLC	UHPLC coupled with UV detector	UHPLC gradient grade
High HPLC Gradient	LC gradient grade coupled with UV detector	HPLC advanced grade
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Headspace autosampler compatibility chart

	VIALS (refer to pages 53 to 54)					
Cat No.	10680843	12971231 15552340	10681033 10195012	10070952 12910991	10510323	11506114 11526114
						
For use on instruments	Agilent, Carlo Erba, DANI, Fisons	Agilent, Carlo Erba, DANI, Fisons	Carlo Erba, CTC PAL (Varian, Gerstel, Atas, Shimadzu), Disons, Varian, Thermo Scientific	CTC PAL (Varian, Gerstel, Atas, Shimadzu), Thermo Scientific, TriPlus HS ***	SPME Vial for CTC PAL	CTC Combi PAL (Varian, Gerstel, Atas, Shimadzu, PerkinElmer*, Agilent

*** not suitable for Thermo Scientific HS250/HS500 - *for TurboMatrix™ 16,40, and 110, produced after the 01.09.2006 / ** not suitable for TurboMatrix™ 110

AUTOSAMPLERS	COMPATIBLE CLOSURES (refer to pages 58 to 62)					
Agilent G1888A, Agilent HS7694 (DANI HS 39.50/HS 86.50)	10500633 10316012 10090772 10633113	10500633 10316012 10090772 10633113				
Agilent CTC combi Pal						
CTC Combi Pal (HS mode) (Gerstel MPS 2 / Varian) CTC Pal HTC-xt, CTC HTS-xt, CTC HTX-xt, CTC PAL Combi-xt Liquid Mode, CTC Combi.xt Option, CTC GC-xt HS Option			10172272 10617445	10172272 10617445		12961221 12971221 12981221
CTC Combi Pal (SPME Mode) (Gerstel MPS 2 / Varian) CTC combi-xt SPME Options					11540515 11550515	12961221 12971221 12981221 10607445
CTC HS 500			12920981	12920981		
HTA HT200H	10500633 10316012			10500633 10316012		
PerkinElmer HS6						
PerkinElmer HS40/HS100/HS101						
TurboMatrix™ HS16/HS40/HS40XL/HS40Trap/HS110/HS110 Trap						
Shimadzu AOC-5000 (HS Mode) Shimadzu SIL-30 ACMP			10172272 10617445	10172272 10617445		12961221 12971221 12981221
Shimadzu AOC-5000 (SPME Mode)					11540515 11550515	12961221 12971221 12981221 10607445
Thermo Scientific HS250 / HS500 (Carlo Erba/Fisons/Thermo Scientific)			11570505 12920981 11560505			
Thermo Scientific HS800 (Carlo Erba/ Fisons/Thermo Scientific)			11570505 12920981 11560505	11570505 12920981 11560505		
Thermo Scientific HS850 (Carlo Erba/ Fisons/Thermo Scientific)			10739834 10316012 12991231 10500633 10112372	10739834 10316012 12991231 10500633 10112372		
Thermo Scientific HS2000, Thermo Scientific TriPlus (HS Mode), Thermo Scientific TriPlus 300, Thermo Scientific TriPlus RSH			10739834 10316012 12991231 10500633 10112372	10739834 10316012 12991231 10500633 10112372		
Thermo Scientific TriPlus (SMPE Mode)			10739834 10316012	10739834 10316012		
Tekmar HT 3						
Varian CP-920/9025, CP-9060 Varian Genesis		10739834 10316012 10500633 10112372	10739834 10316012 10500633 10112372			

12941221 12951221	10663303	10080822 12981241	10152512	10192652 11520545
				
CTC Combi PAL (Varian, Gerstel Atas, Shimadzu), PerkinElmer*, Agilent	PerkinElmer**	PerkinElmer, Tekmar	PerkinElmer, Tekmar	Varian
12981221 (only for G1888A)				
12981221				
12961221 12971221 12981221				
12961221 12971221 12981221 10607445				
	12901241 12921241 10090772 12951241 10102182 10633113			
	12991231 10112372 10500633 10739834 10623113 10316012			
	see PerkinElmer HS6	see PerkinElmer HS6	see PerkinElmer HS6	
12971221 10729264 12980951	see PerkinElmer HS6	see PerkinElmer HS6	see PerkinElmer HS6	
12961221 12971221 12981221				
12961221 12971221 12981221 10607445				
		10500633 10112372 10739834 10316012	10500633 10112372 10739834 10316012	

This compatibility chart will help you to identify the appropriate vial and closure for your autosampler.

Several caps could be compatible with the headspace vial you select. This colour-code will help you to find the closure type you are looking for.

Aluminium, crimp cap, plain, 10mm centre hole

Headspace cap clear lacquered (pressure release cap)

Magnetic crimp cap, gold, 5mm centre hole

Magnetic crimp cap, gold, 8mm centre hole

Magnetic crimp bimetal-cap red/silver, 8mm centre hole

Magnetic precision thread, screw cap, silver, 8mm centre hole

All these caps are listed on pages 58 to 59

Aluminium crimp caps and liners ND20

Our range of aluminium crimp caps is featured below, all of which can be used with a broad variety of different liners.

Centre hole cap
plain, red, blue, gold, green 10mm centre hole

Headspace cap
clear lacquered, scorelines break open at 3.0 ± 0.5 bar for pressure release

Centre tear-off cap
clear lacquered, red, blue, gold, green

Complete tear-off cap
clear lacquered, red, blue, gold, green

Magnetic crimp cap
gold, 5mm centre hole CE
HS500/HS800, CTC 500, Fisons HS500/HS800

Magnetic crimp cap
gold, 8mm centre hole CTC Combi PAL

Magnetic bimetal crimp cap
red, 8mm centre hole CTC Combi PAL

Crimp caps with butyl seals ND20, non-laminated

- Temperature resistant from -40°C up to +120°C
- N.B. Liners do not possess a PTFE lamination so only suitable for non-critical analyses
- Budget product

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**12991231**	Aluminium cap, plain, 10mm centre hole	Chloro-butyl, dark grey	55° Shore A	3.0	100
2	**12901241**	Headspace cap, clear lacquered				100
3	**10492435**	Centre tear-off cap, clear lacquered				100
4	**12950971**	Complete tear-off cap, clear lacquered				100
5	**11570505**	Magnetic cap, gold, 5mm centre hole				100
6	**11510515**	Magnetic cap, gold, 8mm centre hole				100

Crimp caps with butyl/PTFE seals ND20, laminated

- Temperature resistant from -40°C up to +120°C
- Completely laminated with PTFE

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10112372**	Aluminium cap, plain, 10mm centre hole	Bromo-Butyl/PTFE, grey	50° Shore A	3.0	100
2	**12921241**	Headspace cap, clear lacquered				100
3	**12930971**	Centre tear-off cap, clear lacquered				100
4	**12920971**	Complete tear-off cap, clear lacquered				100
5	**11550505**	Magnetic cap, gold, 5mm centre hole				100
6	**11520515**	Magnetic cap, gold, 8mm centre hole				100
7	**12970981**	Magnetic bimetal cap, red, 8mm centre hole				100

Crimp caps with Pharma-fix seals ND20, partially laminated

- Special moulded butyl/PTFE liner that is only laminated where the liner is in direct contact with the sample. On the periphery, the unlaminated elastic butyl achieves a very tight seal with the vial top
- Temperature resistant from -40°C up to +120°C
- Achieves a tighter seal than completely laminated butyl/PTFE liners (see page 58)

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	10500633	Aluminium cap, plain, 10mm centre hole	Pharma-fix-septa, bromo-butyl/PTFE	50° Shore A	3.0	100
2	10090772	Headspace cap, clear lacquered				100
3	12900971	Centre tear-off cap, clear lacquered				100
4	12910971	Complete tear-off cap, clear lacquered				100
5	11560505	Magnetic cap, gold, 5mm centre hole				100
6	10294892	Magnetic cap, gold, 8mm centre hole				100

Crimp caps with silicone/PTFE seals ND20, fully laminated

- Temperature resistant from -60°C up to +200°C
- Clean/UltraClean liners for sensitive analyses
- White/beige liner corresponds to competitor HT liner
- Completely laminated with PTFE
- Soft liners for easy penetration

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	10739834	Aluminium cap, plain, 10mm centre hole	Silicone blue transparent/PTFE white UltraClean	45° Shore A	3.0	100
2	12951241	Headspace cap, clear lacquered				100
3	12960971	Centre tear-off cap, clear lacquered				100
4	12970971	Complete tear-off cap, clear lacquered				100
5	12920981	Magnetic cap, gold, 5mm centre hole				100
6	10172272	Magnetic cap, gold, 8mm centre hole	Silicone blue transparent/PTFE transparent UltraClean	45° Shore A	3.0	100
7	10617445	Magnetic bimetal cap, red, 8mm centre hole				100
8	10316012	Aluminium cap, plain, 10mm centre hole				100
9	10633113	Headspace cap, clear lacquered				100
10	11540525	Magnetic cap, gold, 8mm centre hole	Silicone white/PTFE beige (HT Quality)	45° Shore A	3.2	100
11	11368641	Magnetic bimetal cap, red, 8mm centre hole				100

Crimp caps with silicone/aluminium foil seals ND20

- Temperature resistant from -60°C up to +220°C
- Often used on PerkinElmer instruments
- Completely laminated with aluminium foil silver

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	10623113	Aluminium cap, plain, 10mm centre hole	Silicone white/ aluminium foil silver	50° Shore A	3.0	100
2	10102182	Headspace cap, clear lacquered	Silicone white/ aluminium foil silver	50° Shore A	3.0	100
3	12930981	Magnetic cap, gold, 5mm centre hole	Silicone white/ aluminium foil silver	50° Shore A	3.0	100

Crimp caps with Ultra-High Temperature (UHT) seal (silicone/PTFE) ND20

- High temperature, high quality silicone/PTFE septum for less extractables at low to mid-high temperatures.
- Operation up to +300°C possible
- Low bleeding level at high temperatures (>120°C)

Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
15303168	Ultra High Temperature seal: 20mm steel crimp cap, silver, with 5mm centre hole	Ultra High Temperature septa 20mm silicone dark red/PTFE	45° Shore A	3.0	100

Crimp cap, magnetic, with seal for SPME vial (Cat. No 10510323) for CTC

- Special silicone/PTFE liner with a thin 0.05mm PTFE film instead of the standard 0.13mm PTFE lamination, allowing even easier needle penetration
- Should only be used in combination with the SPME vial (Cat. No 10510323) which has a much thicker crimp neck than all standard headspace vials

Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
11540515	Magnetic cap, gold, 8mm centre hole	Silicone white/PTFE blue	55° Shore A	1.5	100

Septa/stoppers 20mm only, for vials ND20

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**10255044**	Moulded septa butyl, dark grey	55° Shore A	3.0	1,000
2	**11825020**	Moulded septa butyl/PTFE, grey	50° Shore A	3.0	1,000
3	**11815020**	Pharma-fix-septa (butyl/PTFE)	50° Shore A	3.0	1,000
4	**10602245**	Silicone blue transparent/PTFE white	45° Shore A	3.0	1,000
5	**12666505**	Silicone blue transparent/PTFE transparent	45° Shore A	3.0	1,000
6	**11805030**	Silicone white/PTFE beige (HT quality)	45° Shore A	3.2	1,000
7	**11895020**	Silicone white/aluminium foil silver	50° Shore A	3.0	1,000
8	**11500555**	20mm Butyl injection stopper, grey			100

Autosampler washer bottle caps and seals ND20

- Seals for washer bottles on autosampler instruments
- Intermediate closure when collecting samples out in the field

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10011112**	PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**10475972**	PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Butyl red/PTFE grey	55° Shore A	1.3	100
3	**10581013**	PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Silicone blue transparent/PTFE white	45° Shore A	1.3	100
1	**10170843**	PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**10704614**	PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Butyl red/PTFE grey	55° Shore A	1.3	100
4	**10304433**	PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Silicone blue transparent/PTFE white	45° Shore A	1.3	100
5	**11500575**	PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Silicone blue transparent/PTFE white, Y-slitted	45° Shore A	1.3	100
5	**10707085**	PE cap, transparent, 22 x 9.1mm, 8.0mm centre hole	Silicone blue transparent/PTFE white,Y-slitted	45° Shore A	1.3	100

Septa 19.5mm for seals ND20

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11855010**	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	1,000
2	**11875010**	Butyl red/PTFE grey	55° Shore A	1.3	1,000
3	**11865010**	Silicone blue transparent/PTFE white	45° Shore A	1.3	1,000

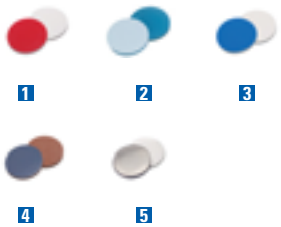
Crimp caps magnetic universal screw and seals ND18

- For precision thread vials 11506114, 11526114, 12941221, 12951221 for CTC, Agilent, Shimadzu, Varian, Gerstel and PerkinElmer instruments
- 12971221 and 12981221 have been tested and approved by CTC
- Closed top versions for sample storage
- Precision thread vials and closures now also used on PerkinElmer TurboMatrix 16, 40 and 110 autosamplers constructed after 01.09.2006
- 10607445* especially suitable for SPME due to the pre-cut septa

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**12961221**	Magnetic screw cap silver, 8mm centre hole	Silicone white/PTFE red	45° Shore A	1.3	100
2	**12971221**	Magnetic screw cap silver, 8mm centre hole	Silicone blue transparent/PTFE white	45° Shore A	1.3	100
3	**12981221**	Magnetic screw cap silver, 8mm centre hole	Silicone white/PTFE blue	55° Shore A	1.5	100
4	**10729264**	Magnetic screw cap silver, 8mm centre hole	Butyl red/PTFE grey	55° Shore A	1.6	100
5	**12980951**	Magnetic screw cap silver, 8mm centre hole	Silicone white/aluminium foil silver	50° Shore A	1.3	100
6	**10607445**	Magnetic screw cap silver, 8mm centre hole (SPME)	Silicone white/PTFE red, pre-cut star (*)	55° Shore A	1.5	100
7	**12901231**	Magnetic screw cap silver, closed top	Silicone white/PTFE red	45° Shore A	1.3	100
8	**12911231**	Magnetic screw cap silver, closed top	Butyl red/PTFE grey	55° Shore A	1.6	100

Septa 17.5mm for magnetic universal screw seals ND18

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11825000**	Silicone white/PTFE red	45° Shore A	1.3	1,000
2	**11815000**	Silicone blue transparent/PTFE white	45° Shore A	1.3	1,000
3	**11894990**	Silicone white/PTFE blue	55° Shore A	1.5	1,000
4	**11805000**	Butyl red/PTFE grey	55° Shore A	1.6	1,000
5	**11835000**	Silicone white/aluminium foil silver	50° Shore A	1.3	1,000



Polypropylene screw cap seal ND18

- Especially for headspace vial Cat. No 12990951
- These screw seals are not suitable for the following vials: 11506114, 12941221, 11526114 and 12951221

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**11576114**	Polypropylene screw cap black, 12mm centre hole	Butyl red/PTFE grey	55° Shore A	1.6	100
2	**10590623**	Polypropylene screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.6	100
3	**12900961**	Polypropylene screw cap black, 12mm centre hole	Butyl red/PTFE grey	55° Shore A	2.0	100
2	**12910961**	Polypropylene screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	2.0	100
4	**12940961**	Polypropylene screw cap black, 12mm centre hole	Silicone white/PTFE red	55° Shore A	1.5	100
5	**12930961**	Polypropylene screw cap black, closed top	Silicone white/PTFE red	55° Shore A	1.5	100
6	**10142752**	Polypropylene screw cap black, 12mm centre hole	Silicone blue transparent/PTFE white	45° Shore A	1.7	100

Septa 16mm for vial seals ND18

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11844990**	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	1,000
2	**11917061**	Butyl red/PTFE grey	55° Shore A	1.6	1,000
2	**11874990**	Butyl red/PTFE grey	55° Shore A	2.0	1,000
3	**15592330**	Silicone white/PTFE red	55° Shore A	1.5	1,000
4	**11854990**	Silicone blue transparent/PTFE white	45° Shore A	1.7	1,000
5	**11777607**	PTFE red/silicone white/PTFE red	45° Shore A	1.0	1,000

SNAP CAP VIALS ND18 AND ND22

- Easy to handle and inexpensive storage vials with push-on snap caps
- Different volumes of 5mL, 10mL, 15mL and 25mL available
- Caps and vials separately obtainable
- Quickly and easily to reopen and reseal
- No liners are required in the cap
- For storage of powders and solids

Snap caps vials ND18/ND22

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**10495982**	5mL Snap cap vial ND18, 3rd hydrolytic class	40 x 20	Clear	9.1	8	0.6	0.3	100
2	**10749644**	10mL Snap cap vial ND18, 3rd hydrolytic class	50 x 22	Clear	14	12.7	1	0.5	100
3	**11580535**	15mL Snap cap vial ND22, 3rd hydrolytic class	48 x 26	Clear	19.3	18.5	1	0.6	100
4	**10335582**	25mL Snap cap vial ND22, 3rd hydrolytic lass	65 x 26	Clear	27	25	1	0.6	100

PE snap caps ND18/ND22

	Cat. No	Description cap	Dimensions, mm	Colour	Pack qty
1	**10643493**	18mm PE snap cap, closed top, for ND18	19.8 x 5.2	Transparent	100
2	**11510565**	22mm PE snap cap, closed top, for ND22	23.5 x 5.5	Transparent	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

SCREW NECK VIALS ND24 (EPA)

The vials are preferentially used on autosampler models from the following manufacturers: Agilent, Dionex, Shimadzu, Tekmar, Thermo Scientific and Varian (please refer to the Autosampler Compatibility Chart on pages 18 to 27 for further information).

- All types of EPA vials can be delivered against a small surcharge with a certificate of cleanliness that might be needed especially for TOC analysis.
- EPA Vials can be obtained with any type of screw seal ND24 already screwed on (see page 50 'Specially assembled EPA vials')
- Broad range of EPA vials in clear and amber glass
- Volumes of 20mL, 30mL, 40mL and 60mL available

Screw neck vials ND24 (EPA)

	Cat. No	Description cap	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
	10000782	20mL EPA screw neck vial, 1st hydrolytic class	57 x 27.5	Clear	23.3	20	1	0.5	100
	10458082	20mL EPA screw neck vial, 1st hydrolytic class	57 x 27.5	Amber	23.3	20	1	0.5	100
	10758874	30mL EPA screw neck vial, 1st hydrolytic class	72.5 x 27.5	Clear	31.1	27.4	1.4	0.7	100
	11510585	30mL EPA screw neck vial, 1st hydrolytic class	72.5 x 27.5	Amber	31.1	27.4	1.4	0.7	100
1	**10465982**	40mL EPA screw neck vial, 1st hydrolytic class	95 x 27.5	Clear	42.9	40	1.4	0.7	100
2	**11530585**	40mL EPA screw neck vial, 1st hydrolytic class	95 x 27.5	Amber	42.9	40	1.4	0.7	100
	11540585	60mL EPA screw neck vial, 1st hydrolytic class	140 x 27.5	Clear	64.4	60	1.4	0.7	100
	11550585	60mL EPA screw neck vial, 1st hydrolytic class	140 x 27.5	Amber	64.4	60	1.4	0.7	100

Polypropylene screw cap seals UltraBond ND24

- Ready to use combination seals; no time consuming and "tricky" assembly.
- No contamination of the liner sometimes caused by manual assembly
- Broad variety of different septa materials for almost all applications
- UltraBond seals ND24 have a bonded cap and silicone/PTFE liner forming an inseparable unit which avoids the problem of liners detaching from the cap. UltraBond is achieved by a patented process that requires no adhesives but instead relies on molecular fusion of both components to achieve unity

PP screw cap seals ND24 (assembled)

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11530595**	PP screw cap white, 12.5mm centre hole	Butyl red/PTFE grey	55° Shore A	2.5	100
2	**10090962**	PP screw cap white, closed top	Butyl red/PTFE grey	55° Shore A	2.5	100
3	**10541013**	PP screw cap white, 12.5mm centre hole	Silicone white/PTFE beige (EPA-Quality)	45° Shore A	3.2	100
4	**10132422**	PP screw cap white, closed top	Silicone white/PTFE beige (EPA-Quality)	45° Shore A	3.2	100
5	**12921001**	PP screw cap white, closed top	PTFE/EPDM/PTFE	65° Shore A	2.0	100

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

UltraBond seals ND24

• With UltraBond, cap and liner form a bonded and inseparable unit, so that the liner cannot detach

	Cat. No	Description	Septa material	Durometer	Thickness, mm	Pack qty
1	**10729454**	PP screw cap white, centre hole	Silicone natural/PTFE beige (EPA-Quality)	45° Shore A	3.2	100
2	**10132322**	PP screw cap white, closed top	Silicone natural/PTFE beige (EPA-Quality)	45° Shore A	3.2	100

Septa 22mm for vial seals ND24

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11835070**	Butyl red/PTFE grey	55° Shore A	1.6	1,000
2	**11845070**	Butyl red/PTFE grey	55° Shore A	2.5	1,000
3	**11787617**	Silicone white/PTFE beige	45° Shore A	3.2 (EPA-Quality)	1,000
4	**11815070**	Silicone white/PTFE blue	55° Shore A	1.5, cross-slitted	1,000
5	**12950991**	Silicone white/aluminium foil silver	50° Shore A	3.0	1,000

Polypropylene screw caps ND24

	Cat. No	Description cap	Pack qty
1	**10590053**	Polypropylene screw cap, white, 12.5mm centre hole	100
2	**10759644**	Polypropylene screw cap, white, closed top	100

Specially assembled EPA vials with screw seals ND24

Cat. No	Description vial	Description assembled seal	Durometer	Thickness, mm	Pack Qty
12901001	20mL Screw neck vial, 57 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.10000782)	UltraBond seal, white, centre hole, silicone natural/PTFE beige (EPA-Quality) (seal Cat.No 10729454)	45° Shore A	3.2	100
12970991	40mL Screw neck vial, 95 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.10465982)	PP screw cap, white, centre hole, silicone white/PTFE beige (seal Cat.No 10541013)	45° Shore A	3.2	100
11510595	40mL Screw neck vial, 95 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.10465982)	UltraBond seal, white, centre hole, silicone natural/PTFE beige (EPA-Quality) (seal Cat.No. 10729454)	45° Shore A	3.2	100
11500595	40mL Screw neck vial, 95 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.10465982)	UltraBond seal, white, closed top, silicone natural/PTFE beige (EPA-Quality) (seal Cat.No. 10132322)	45° Shore A	3.2	100
12911251	40mL Screw neck vial, 95 x 27.5mm, amber glass, 1st hydrolytic class, EPA (vial Cat.No.11530585)	PP screw cap, white, centre hole, silicone white/PTFE beige (seal Cat.No. 10541013)	45° Shore A	3.2	100
12980991	60mL Screw neck vial, 140 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.11530585)	PP screw cap, white, centre hole, silicone white/PTFE beige (seal Cat.No. 10541013)	45° Shore A	3.2	100
12990991	60mL Screw neck vial, 140 x 27.5mm, clear glass, 1st hydrolytic class, EPA (vial Cat.No.11530585)	UltraBond seal, white, centre hole, silicone natural/PTFE beige (seal Cat.No. 10729454)	45° Shore A	3.2	100

SCREW NECK VIALS FOR STORAGE PURPOSES

- Screw neck vials for storage purposes made out of 1st hydrolytic class glass
- Clear and amber vials
- Separate caps and seals also available from a range of different materials (see below)

Screw neck vials for storage purposes

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11565874**	1.5mL Screw neck vial, 8-425	32 x 11.6	Clear	1.9	1.5	200	<110	100
2	**10560053**	1.5mL Screw neck vial, 8-425	32 x 11.6	Amber	1.9	1.5	200	<110	100
	10571013	4mL Screw neck vial, 13-425	45 x 14.7	Clear	5	4.1	800	<400	100
	11556044	4mL Screw neck vial, 13-425	45 x 14.7	Amber	5	4.1	800	<400	100
	10504463	8mL Screw neck vial, 15-425	61 x 16.6	Clear	8.9	8	1,500	800	100
	11596064	8mL Screw neck vial, 15-425	61 x 16.6	Amber	8.9	8	1,500	800	100
	11576064	12mL Screw neck vial, 15-425	66 x 18.5	Clear	12	11	1,500	800	100
	11506074	12mL Screw neck vial, 15-425	66 x 18.5	Amber	12	11	1,500	800	100
	10023672	16mL Screw neck vial, 18-400	71 x 20.6	Clear	17.4	16	1,500	800	100
	11590545	20mL Screw neck vial, 20-400	86 x 22.7	Clear	24.5	23	1,500	800	100
	10000782	20mL Screw neck vial, 24-400	57 x 27.5	Clear	23.3	20	1	0.5 (mL)	100
	10458082	20mL Screw neck vial, 24-400	57 x 27.5	Amber	23.3	20	1	0.5 (mL)	100
	10758874	30mL Screw neck vial, 24-400	72.5 x 27.5	Clear	31.1	27.4	1.4	0.7 (mL)	100
	11510585	30mL Screw neck vial, 24-400	72.5 x 27.5	Amber	31.1	27.4	1.4	0.7 (mL)	100
	10465982	40mL Screw neck vial, 24-400	95 x 27.5	Clear	42.9	40	1.4	0.7 (mL)	100
	11530585	40mL Screw neck vial, 24-400	95 x 27.5	Amber	42.9	40	1.4	0.7 (mL)	100
3	**11570605**	50mL Cylindrical jar, 3rd hydrolytic class with screw neck ND40	69.5 x 44	Clear	65.5	50	5	2.5 (mL)	85

1 2

3

Polypropylene screw cap seals for storage vials

- Corresponding centre hole versions are partially available
- Packed with 100 pieces in tamper-proof evident zip-lock PE-bags
- Seals with different septa material are available.

Polypropylene screw cap seals ND8 for 11565874 and 10560053

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11511394**	PP screw cap black, closed top	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**11501404**	PP screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.3	100
3	**11551394**	PP screw cap black, closed top	Silicone white/PTFE red	45° Shore A	1.3	100

1 2 3

Polypropylene screw cap seals ND13 for 10571013 and 11556044

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11506054**	PP screw cap black, closed top	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**12911221**	PP screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.3	100
3	**11536054**	PP screw cap black, closed top	Silicone cream/PTFE red	55° Shore A	1.5	100

1 2 3

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

Polypropylene screw cap seals ND15 for 10504463, 11596064, 11576064, 11506074

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11536074**	PP screw cap black, closed top	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**10717793**	PP screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.6	100
3	**11546074**	PP screw cap black, closed top	Silicone white/PTFE red	45° Shore A	1.3	100
4	**11566074**	PP screw cap black, 9mm centre hole	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
5	**10773072**	PP screw cap black, 9mm centre hole	Butyl red/PTFE grey	55° Shore A	1.6	100
6	**12930941**	PP screw cap black, 9mm centre hole	Silicone white/PTFE red	45° Shore A	1.3	100

Polypropylene screw cap seals ND18 for 10023672

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**10590623**	PP screw cap black, closed top	Butyl red/PTFE grey	55° Shore A	1.6	100
2	**11566114**	PP screw cap black, closed top	Silicone blue transparent/PTFE white	45° Shore A	1.7	100
3	**12930961**	PP screw cap black, closed top	Silicone white/PTFE red	55° Shore A	1.5	100

Polypropylene screw cap seals ND20 for 11590545

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**12930991**	Polypropylene screw cap white, closed top	Natural rubber red-orange/TEF transparent	60° Shore A	1.3	100
2	**10029332**	Polypropylene screw cap white, closed top	Butyl red/PTFE grey	55° Shore A	1.3	100
3	**12940991**	Polypropylene screw cap white, closed top	Silicone white/PTFE red	45° Shore A	1.3	100

Polypropylene screw cap seals ND24 for 10000782, 10458082, 10758874, 11510585, 10465982, 11530585, 11540585, 11550585

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**10090962**	PP screw cap white, closed top	Butyl red/PTFE grey	55° Shore A	2.5	100
2	**10132422**	PP screw cap white, closed top	Silicone white/PTFE beige	45° Shore A	3.2	100
3	**12921001**	PP screw cap white, closed top	PTFE/EPDM/PTFE	65° Shore A	2.0	100
2	**10132322**	UltraBond seal white, closed top	Silicone natural/PTFE beige	45° Shore A	3.2	100

Polypropylene screw cap seals ND40 for 11570605

Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
11580605	40mm Polypropylene screw cap black, closed top	PTFE virginal	53° Shore D	0.5	100

CRIMP NECK VIALS FOR STORAGE PURPOSES

- Please note that products designated as 'Special' may be non-stock and may require a minimum order quantity
- See below for a range of compatible caps and seals

Crimp neck vials for storage purposes, ND11\ND13

	Cat. No	Description	Dimensions, mm	Glass type	TFVol. (mL)	UsVol. (mL)	MWVol. (µL)	Res.Vol (µL)	Pack qty
1	**11555894**	2.5mL Crimp neck ND11 vial, 1st hydrolytic class, wide opening	41 x 11.6	Clear	2.7	2.4	200	<100	100
2	**10185767**	2mL Crimp neck vial ND13, 1st hydrolytic class	32 x 16	Clear	3.6	3	800	<400	100
3	**15582330**	4mL Crimp neck vial ND13, 1st hydrolytic class	45 x 14.7	Clear	5	4.1	800	<400	100

For vial 11555894 refer to crimp seal ND11 page 34

Septa for Schott screw caps

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11884950**	12.9mm Septa, silicone cream/PTFE beige for Schott screw cap GL14	55° Shore A	3.2mm	1,000
1	**11834990**	16.8mm Septa, silicone cream/PTFE beige for Schott screw cap GL18	55° Shore A	3.2mm	1,000
1	**11849430**	23.4mm Septa, silicone cream/PTFE beige	55° Shore A	3.2mm	1,000
1	**11859440**	30.3mm Septa, silicone cream/PTFE beige for Schott screw cap GL32	55° Shore A	3.2mm	1,000
1	**11899440**	43.2mm Septa, silicone cream/PTFE beige for Schott screw cap GL45	55° Shore A	3.2mm	1,000
2	**12666845**	43.2mm Septa, butyl red/PTFE grey for Schott screw cap GL45	55° Shore A	2.5mm	1,000

Special caps seals for crimp neck storage vials ND13

	Cat. No	Description cap	Septa material	Durometer	Thickness, mm	Pack qty
1	**11576024**	13mm Aluminium cap clear lacquered, 6mm centre hole	Butyl red/PTFE grey	55° Shore A	2.0	100
2	**12900931**	13mm Aluminium cap clear lacquered, complete tear off	Butyl red/PTFE grey	55° Shore A	2.0	100
3	**11546024**	13mm Aluminium cap clear lacquered, 6mm centre hole	Pharma-Fix septa (butyl/PTFE)	50° Shore A	2.0	100
4	**12970921**	13mm Aluminium cap clear lacquered, centre tear off	Pharma-Fix septa (butyl/PTFE)	50° Shore A	2.0	100

Septa 13mm

	Cat. No	Septa material	Durometer	Thickness, mm	Pack qty
1	**11844960**	13mm Septa, butyl red/PTFE grey	55° Shore A	2.0	1,000
2	**11814960**	13mm Septa, Pharma-Fix (butyl/PTFE)	50° Shore A	2.0	1,000

TFVol. = Total Volume/Filling Volume (mL)
UsVol. = Usable Volume (mL)
MWVol. = Minimum Working Volume (µL)
Res. Vol. = Residual Volume (µL)

CHROMATOGRAPHY ACCESSORIES

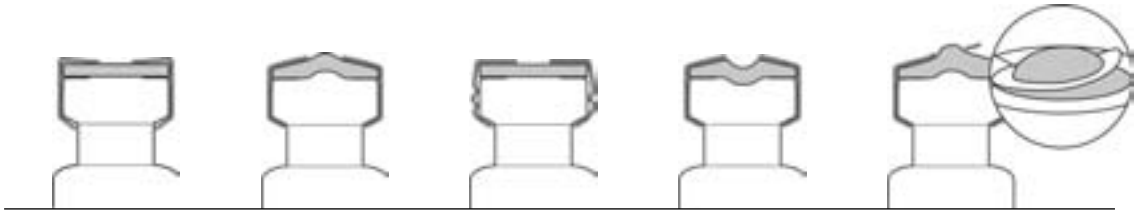
Crimping tools

- For easy and convenient vial capping
- Chemically resistant surface finish especially designed for use in laboratories
- Hardened crimping jaws made of a special alloy that guarantees long life
- Adjustable crimping pressure
- Additionally 11mm, 13mm and 20mm crimpers are adjustable in crimping height by screwing up or down the pressure block in the crimping head with a hexagon key

Correct Crimp
Flat cap surface
Flat septa surface

Tight fitting of the aluminium edge.
Plain and undeformed cap sides.

An inappropriate crimp can be recognised by:



Untight aluminium edge
Adjust crimping pressure with the screw handle **and** adjust crimping height with the hexagon key (see below)

(undercrimped)

Upward bulge of crimp cap
Adjust crimping pressure with the screw handle **and** adjust crimping height with the hexagon key (see below)

(overcrimped)

Deformation of crimp cap sides
Adjust crimping height with the hexagon key (see below)

(overcrimped)

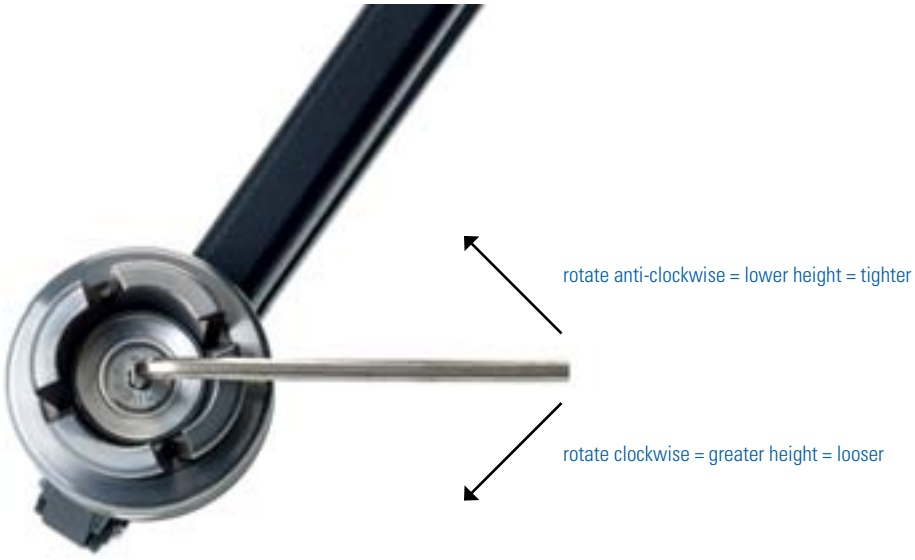
Convex looking liner
Adjust crimping pressure with the screw handle

(overcrimped)

Rounded edges/upward bulge of cap/liner
It is important not to overcrimp, especially with headspace CPAs. If the aluminium is stretched too much under the crimp neck, the bridges of the scorelines suffer too much stress and can break open at even low pressure (below 3 bars) or - in worst cases - can even tear apart

(overcrimped)

Note that a poor crimp cannot be recognised by simply trying to turn the seal, because PTFE-laminated liners have a very slippery surface, which permits even correctly crimped caps to be rotated if sufficient force is used. Correctly crimped caps can also be turned easily when the liner is in contact with the reduced surface area of a headspace (bevelled top) glass rim.



Manual crimping tools

- Crimping tools provide a reproducible, secure vial closure
- Easy and convenient handling
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance
- Textured handle surface provides an assured grip

Cat. No	Description	Pack qty
11707567	Crimper for 8mm Aluminium caps	1
11757577	Crimper for 11mm Aluminium caps	1
11748276	Crimper for 13mm Aluminium caps	1
11550525	Crimper for 20mm Aluminium caps	1
11839440	Crimper for 28mm Aluminium caps	1
11815863	Crimper for 32mm Aluminium caps	1
11777597	Crimper for 13mm flip top/flip off seals	1
11844970	Crimper for 13mm flip tear up seals	1
11801613	Crimper for 20mm flip top/flip off seals	1
11875050	Crimper for 20mm flip tear up seals	1
11829440	Crimper for 28mm flip top/flip off seals	1

Manual decapping tools

Cat. No	Description	Pack qty
11758276	Decapper for 8mm Aluminium caps	1
11768276	Decapper for 11mm Aluminium caps	1
11787597	Decapper for 13mm Aluminium caps	1
11500535	Decapper for 20mm Aluminium caps	1
11849440	Decapper for 28mm Aluminium caps	1
10621210	Decapper for 32mm Aluminium caps	1

Stainless steel cleanroom crimping and decapping tools

- The crimping/decapping mechanism is corrosion and heat resistant while the stainless steel construction removes the need for any protective coating on the handle or crimp head
- Can withstand repeated sterilisation for cleanroom use without the risk of damaging the tool
- Available in 11mm,13mm and 20mm sizes
- Crimping tools have adjustable crimping pressure and height to offer optimal crimping results on varying vial styles
- As no lubricant is used and the handles are from non-lacquered stainless steel, the crimper can be used in cleanroom environments without limitation

Manual crimping tools

Cat. No	Description	Pack qty
11737746	11mm crimper made of stainless steel, sterilisable, for cleanroom applications	1
11747746	13mm crimper made of stainless steel, sterilisable, for cleanroom applications	1
11757746	20mm crimper made of stainless steel, sterilisable, for cleanroom applications	1

Manual decapping tools

Cat. No	Description	Pack qty
11845722	11mm decapper made of stainless steel, sterilisable, for cleanroom applications	1
11586034	13mm decapper made of stainless steel, sterilisable, for cleanroom applications	1
11520535	20mm decapper made of stainless steel, sterilisable, for cleanroom applications	1

Pneumatic AIRGO ergonomic crimper

- New, ergonomically designed handheld tool with easy push button for a completely joint-friendly work position
- Unique ultra slim design of the crimping jaws is perfect for in-tray crimping of the vial
- Slim jaw shape allows for the first time an optical control of the crimping process
- Combines convenient large sample series processing with cleanroom usability
- Weight reduced by 50% over previous generation of handheld pneumatic tools
- The optional balancer helps to save space on the lab bench and keeps the crimper clean and ready to use in reach

Cat. No	Description	Pack qty
15592290	11mm AIRGO crimper high pressure min. 5 bar/72,5 psi stable working pressure	1
15502300	11mm AIRGO crimper low pressure min. 3 bar/43,5 psi stable working pressure	1
11808951	Hanging device with balancer	1

Pneumatic hand-held crimping and decapping tool

- Crimping and decapping tool, operated by compressed air (6.2bar = 90psi minimum net pressure)
- Easy handling; just by pushing the button the vial is crimped or decapped
- Interchangeable 'C'-heads for crimping and decapping also available in various sizes (see below)
- Adjustable, constant and reproducible crimping pressure
- CE mark of conformity
- Space-saving installation with a balancer above the working bench
- Ergonomical handling, as the balancer compensates the weight of the pneumatic crimper and facilitates steady and precise crimping
- Inlet air supply connector G¼" thread (female); connection to be provided by customer
- The pneumatic crimping tool can be delivered with stand and foot switch or with hanging device and trigger in the handle

Cat. No	Description	Pack qty
11898941	Pneumatic basic crimping tool, including pressure regulator, safety valve and nylon (PA) twisted hose	1
11808951	Hanging device with balancer	1
11818951	Stand with foot switch for pneumatic basic crimping tool	1

Crimping heads for pneumatic hand-held crimping tool

Cat. No	Description	Pack qty
11868981	Crimping head for 8mm Aluminium caps	1
11844890	Crimping head for 11mm Aluminium caps	1
11834970	Crimping head for 13mm Aluminium caps	1
11865050	Crimping head for 20mm Aluminium caps	1
11869440	Crimping head for 32mm Aluminium caps	1
11824970	Crimping head for 13mm flip top/flip off seals	1
12980981	Crimping head for 20mm flip top/flip off seals	1
12990981	Crimping head for 20mm flip tear up seals	1
12941001	Crimping head for 28mm flip top/flip off seals	1
11879440	Crimping head for 32mm flip top/flip off seals	1

Decapping heads for pneumatic hand-held crimping tool

Cat. No	Description	Pack qty
11878981	Decapping head for 8mm Aluminium caps	1
11854890	Decapping head for 11mm Aluminium caps	1
11854970	Decapping head for 13mm Aluminium caps	1
11885050	Decapping head for 20mm Aluminium caps	1
12951001	Decapping head for 28mm Aluminium caps	1
11889440	Decapping head for 32mm Aluminium caps	1

Electronic crimpers and decappers

- These electronic crimpers and decappers provide secure, reproducible crimps and quick and easy removal of aluminium seals with the push of a button
- Ergonomic design and push button operation eliminates wrist strain
- Built-in long life lithium ion rechargeable battery with low battery indicator
- Crimp force sensing assures consistent proper sealing
- Universal 100V–240V charger includes plug adaptors for most power outlets
- Crimpers and decappers can be operated while plugged in and recharging
- Vials can be crimped or decapped while they remain in most standard removable sample trays
- Adjustable crimp settings for compatibility with most vial/septum/seal combinations

Electronic crimpers

Cat. No	Description	Vial diameter, mm	Volts	Pack qty
15532300	Electronic crimper	8	110 - 240V	1
15582300	Electronic crimper	11	110 - 240V	1
15542330	Electronic crimper	13	110 - 240V	1
15502340	Electronic crimper	20	110 - 240V	1

Electronic decappers

Cat. No	Description	Dimensions, mm	Volts	Pack qty
15592300	Electronic decapper	11	110 - 240V	1
15552330	Electronic decapper	13	110 - 240V	1
15522340	Electronic decapper	20	110 - 240V	1

Replacement battery for electronic crimpers and decappers

Cat. No	Description	Pack qty
15522300	Replacement battery, 6.4V lithium ion for electronic crimpers and decappers	1

Programmable electronic high power crimp station (basic tool)

- Fully programmable station with quick exchange crimp and de-crimp heads
- High power, perfect for magnetic steel caps
- Adjustable crimp settings for compatibility with most vial/septum/seal combinations including aluminium, steel and bi-metal seals
- Exchangeable crimp and decapping heads can be removed or installed in seconds
- For each head, a set of up to 10 adjustment programs is available and can be saved
- A reliable crimp is guaranteed when programmed, with various closures, septa thickness and vials
- Crimp-force sensing automatically determines when a proper seal has been formed and opens the jaws to release the vial

Cat. No	Description	Pack qty
15512300	Programmable electronic high power crimper and 12 volt DC supply with power cord (accessory base is not included)	1

Programmable electronic high power crimp station, with accessory bases

Cat. No	Description	Dimensions, mm	Pack qty
15502310	Programmable electronic high power crimp station with variable accessory base, external power supply and two exchangeable jaw sets	11	1
15512340	Programmable electronic high power crimp station with variable accessory base, external power supply and two exchangeable jaw sets	20	1

Crimping heads for programmable electronic high power crimp station

Cat. No	Description	Dimensions, mm	Pack qty
15542300	Crimping head for 8mm crimp caps	8	1
15542310	Crimping head for 11mm crimp caps	11	1
15562330	Crimping head for 13mm crimp caps	13	1
15532340	Crimping head for 20mm crimp caps	20	1

Decapping heads for programmable electronic high power crimp station

Cat. No	Description	Dimensions, mm	Pack qty
15552310	Decapping head for 11mm Aluminium caps	11	1
15572330	Decapping head for 13mm Aluminium caps	13	1
15542340	Decapping head for 20mm Aluminium caps	20	1

VIAL RACKS AND STORAGE BOXES

- Easy handling and transportation of sample vials
- Acrylic racks allow clear visibility of contents
- Stable standing position because of solid construction
- Silicone base provides stability when stacked
- Racks for 8mm respectively 11mm vials can even hold conically shaped sample vials

Vial racks

	Cat. No	Description	Dimensions, mm	Compatible with vial Cat. Nos:	Pack qty
1	**11708256**	Vial rack, acrylic, 50 placements with a diameter of 8.5/3mm	173 x 95 x 20	11541364, 11561364, 11571364, 11521374, 11531374, 11541374, 11551374, 11561374, 10224852, 10306062, 10145424, 10506075, 10672733	1
1	**11767597**	Vial rack, acrylic, 50 placements with a diameter of 12mm	173 x 95 x 20	11511474, 10521593, 11531474, 11565874, 10560053, 10326042, 11595874, 11505884, 11515884, 11525884, 11525884, 11545884, 10162512, 11575884, 10080952, 11505894, 11515894, 11525894, 11535894, 11545894, 11555894, 11565894, 11575894, 11585894, 11595894, 10678005, 10145714, 12951011, 11535914, 11545914, 12672465, 11555914, 11565914, 11575914, 11585914, 11515924, 11525924, 11565964, 11575964, 11585964, 11595964, 11505974, 10509482, 11545974, 10705203	1
2	**11728256**	Vial rack, acrylic, 40 placements with a diameter of 15.1mm	175.8 x 115.5 x 20	10571013, 11556044, 11576044, 11586044, 15582330, 11516074, 10455982	1
3	**11738256**	Vial rack, acrylic, 25 placements with a diameter of 24mm	160 x 160 x 30	12990951, 10495982, 10749644, 11506114, 12941221, 11526114, 12951221, 10080822, 10663303, 10152512, 10680843, 12971231, 10192652, 11520545, 10070952, 10510323, 12981241, 10681033, 12910991, 10195012	1
4	**11767746**	Vial rack, PP, for 1.5mL vials, 50 placements, blue, stackable	200 x 105 x 17	11511474, 10521593, 11531474, 11565874, 10560053, 10326042, 11595874, 11505884, 11515884, 11525884, 11525884, 11545884, 10162512, 11575884, 10080952, 11505894, 11515894, 11525894, 11535894, 11545894, 11555894, 11565894, 11575894, 11585894, 11595894, 10678005, 10145714, 12951011, 11535914, 11545914, 12672465, 11555914, 11565914, 11575914, 11585914, 11515924, 11525924, 11565964, 11575964, 11585964, 11595964, 11505974, 10509482, 11545974, 10705203	1
4	**12672495**	Vial rack, PP, for 4mL vials, 50 placements, blue, stackable	230 x 117 x 28	10571013, 11556044, 11576044, 11586044, 15582330, 11516074, 10455982	1

Storage boxes, polypropylene

- Stable standing on the laboratory bench and secure vial containment during transport thanks to specific placement diameters tailored to vial sizes
- Ideal for space-saving storage in fridges
- Transparent lid helps prevents condensation and contamination
- Temperature resistant from -80°C up to +100°C
- Alphanumeric coding (1.5mL, 4mL) for clear sample identification
- Unbreakable polypropylene bottom and lid, stackable
- Chemically resistant and robust; autoclavable

Storage boxes, polypropylene, for 1.5mL sample vials, 81 placements

Cat. No	Description	Dimensions, mm	Colour	Pack qty
12692495	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Blue	1
12682495	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Orange	1
12602505	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Pink	1
12612505	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Yellow	1
12622505	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Green	1
12632505	Storage box for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 81 placements with alphanumeric coding on all four sides and on base for each placement	130 x 130 x 45	Transparent	1

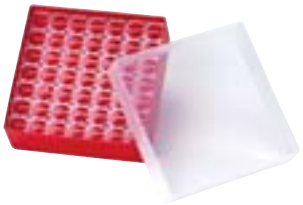
Vial racks and storage boxes

Storage boxes, polypropylene, for 1.5mL sample vials, 16 placements

Cat. No	Description	Dimensions, mm	Colour	Pack qty
15502330	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Blue	5
15512330	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Orange	5
15592320	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Pink	5
15522330	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Yellow	5
15582320	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Green	5
15532330	Storage box, polypropylene, for 1.5mL (1.8mL, 2mL) vials or 2mL Shell vials, with cover, 16 placements	67 x 67 x 45	Transparent	5

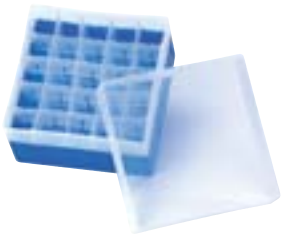
Storage boxes, polypropylene, for 4mL sample vials, 49 placements

Cat. No	Description	Colour	Pack qty
12642505	Storage box, polypropylene, for 4mL or 4mL Shell vials, red, with cover, (130 x 130 x 52mm), 49 placements with individual alphanumeric coding	Red	1



PP Storage boxes for 5mL, 10mL and 20mL headspace vials, 25 placements

Cat. No	Description	Colour	Pack qty
12381113	Storage box, polypropylene, for 5mL, 10mL and 20mL Headspace vials, blue with cover, (130 x 130 x 102mm), 25 placements	Blue	1



Storage boxes, polypropylene, for 20mL and 30mL EPA vials, 10 and 16 placements

	Cat. No	Description	Colour	Pack qty
1	**12652465**	Storage box, polypropylene, for 30mL and 40mL EPA vials, with cover (130 x 130 x 105mm), 10 placements	Violet	1
2	**12652505**	Storage box, polypropylene, for 20mL EPA vials, with cover (130 x 130 x 80mm), 16 placements	Violet	1

MICROPLATES

Microplates are primarily used in analytical research for screening or for multiple cell-based assays. They are ideal products for simultaneously manipulating and managing large numbers of different samples and can also be especially useful for sample storage.

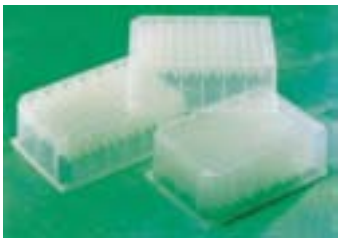
Microplates, polypropylene, storage, 96 and 384 well

- Resistant to most reagents
- Withstand temperatures from -80°C to +121°C making these plates ideal for storage
- Choose round bottom wells for optimal sample recovery
- Come in a variety of colours for quick identification during storage

Cat. No	Material	N° of wells	Colour	Well shape	Sterile	Well volume	Pack qty
11907954	PP	96	Natural	Round	N	500µL	80
11917954	PP	96	Red	Round	N	500µL	80
11927954	PP	96	Yellow	Round	N	500µL	80
11937954	PP	96	Blue	Round	N	500µL	80
13505450	PP	96	Natural	Round	Y	500µL	120
13515450	PP	96	Natural	Round	Y	1mL	50
13535450	PP	96	Natural	Round	N	2mL	60
13545450	PP	96	Natural	Round	Y	2mL	60
13555450	PP	384	Natural	Flat	N	250µL	60
13565450	PP	384	Natural	Conical	N	35µL	100
13575450	PP	384	Natural	Conical	Y	35µL	100
13595450	PP	384	Black	Conical	N	35µL	100
13585450	PP	384	White	Conical	N	35µL	100
11957954	PP	384	Natural	Round	N	120µL	120
11967954	PP	384	Red	Round	N	120µL	120
11977954	PP	384	Yellow	Round	N	120µL	120
11987954	PP	384	Blue	Round	N	120µL	120

Microplates, polypropylene storage, 96 deep well

- Applications include SPE, HPLC, MS, liquid handling, automation, robotics
- Unique, patented sealing cap allows penetration of a needle through the cap into each well, with minimal needle coring thanks to reduced cap well thickness
- Choice of volumes, all with same external dimensions
- Manufactured from inert polypropylene giving heat and solvent resistant qualities
- Conical well base aids sample concentration, reconstitution and centrifugation
- Small radius on all corners to prevent sample precipitation and improve concentration
- DNase and RNase free



Cat. No	Well volume, µL	Well shape	Pack qty
12439307	350	Square	50
12449307	1,000	Square	50
11511963	2,000	Square	50
Accessory			
12439307	Pierceable sealing cap (EVA), square well, non-autoclavable		50

GENERAL INTRODUCTION TO CHEMICALS

In addition to the range of chromatography vials and closures featured in the first section of this brochure (pages 10 to 67) Fisher Scientific is also your partner of choice for chemicals. In this section you will discover the perfect chemicals for your chromatography applications as well as understanding the manufacturing capabilities and packaging innovations of Fisher Chemical. However, if you are unable to find the product you need or if you have any further questions regarding the Fisher Chemical range, then please contact our Product Support Advisors.

Chemical Grades

Table 6: Fisher Chemical Grades

Grade	Application	Definition
HPLC	HPLC isocratic analysis	HPLC grade solvents and reagents show low UV absorbance as guaranteed suitability for isocratic HPLC applications
UHPLC-MS Optima™	UHPLC-MS	Ultra high-purity solvents specifically qualified for UHPLC-MS instrumentation, with a specification based on higher ionisation efficiency to detect organic contaminants in full scan MS with the absence of an additive. Signal-to-noise specification greater than ten when measured with 250ppt propazine using MS/MS. Filtered at 0.1µm, packaged in borosilicate glass and tightened metal specifications minimising metal ion adduct formation.
Optima™ LC-MS	LC-MS	Meets stringent purity requirements of LC/MS and UHPLC by addressing the need for minimal organic contamination with 0.1µm filtration to ensure particle free. Evaluated for 17 metal impurities at ppb concentrations for minimal metal mass adduct formation. High ionisation efficiency to detect organic contaminants at 50 ppb max (positive) and 300 ppb max (negative) in full scan MS. Screened for UV-absorbing contaminants at every wavelength in the 200 to 400 nm range to afford smooth baselines and to reduce interferences.
LC-MS	LC-MS	Ideal mobile phase for routine LC-MS applications. Guaranteed for low level of trace metals and non-volatile residue. Low level of absorbance, performance under gradient conditions. Filtered at 0.2µm.
UHPLC Gradient Grade	UHPLC-UV	Solvent certified for UHPLC analysis with high UV transmission. Low background noise at 210nm and 254nm. Filtered at 0.1µm for ultra-low particulates.
Advanced HPLC Gradient Grade	HPLC gradient analysis	Advanced HPLC gradient grade specifically manufactured to guarantee a very low level of gradient baseline drift. Includes lot analysis and absorbance curve on the label.
HPLC Gradient Grade	HPLC gradient analysis	HPLC solvents suitable for gradient analysis. Guaranteed for low absorbance/high UV transmission and low concentration of non-volatile impurities. In some instances may be suitable for fluorescence detection. Includes lot analysis and absorbance curve on the label.
HPLC Fluorescence	HPLC with fluorescence and UV detectors	HPLC solvents suitable for fluorescence and UV detectors. Guaranteed for low fluorescence between 250nm and 750nm emission and excitation wavelengths.
HPLC Electrochemical	HPLC with electrochemical and UV detectors	HPLC solvents suitable for electrochemical and UV detectors. Guaranteed for low electrochemical activity and low UV absorbance/high transmission. Includes lot analysis and absorbance curve on label.
GPC	GPC - Gel Permeation Chromatography	Solvents manufactured for gel permeation chromatography. Filtered to 0.2µm. Low water, residue and colour. Actual lot analysis on the pack label.
Distol	GC - Gas Chromatography	Range of solvents suitable for pesticide and petroleum residue analysis. Guaranteed to meet the ECD, NPD and FID detectors requirement.
Optima™ Grade	ICP-MS	Highest purity acids, bases and water specifically qualified for ultra-trace elemental analysis by ICP-MS instruments. Ultra-pure quality tested for up to 65 parameters at 1-100 ppt level.
Trace Metal™ Grade	ICP	TraceMetal™ grade qualified for trace elemental analysis by ICP instruments. Acids and reagents tested for up to 65 parameters at ppb levels.
Primar Plus™ Grade	AAS	Primar Plus™ grade suitable for trace elemental analysis by AAS instruments. Acids and reagents are tested for up to 40 parameters at 1 to 10 ppb level.
For Analysis	General analytical application	Certified reagents for analytical application. Tested for up to 18 guaranteed parameters. Actual lot analysis on the pack label.
For Analysis Conform Eur.Ph.	General analytical application	Certified reagents for analytical application meeting the Eur.Ph requirement. Tested for up to 18 guaranteed parameters. Actual lot analysis on the pack label
Specified Laboratory Reagent (SLR)	General laboratory applications	Specified Laboratory Reagents for general laboratory applications. Tested for up to 13 parameters.
Technical	General use	For general use in the laboratory.
Buffer	pH-Metry	Buffer NIST Standard solutions certified for pH measurement. Ready to use, with an accuracy factor of ±0.02 pH at 20°C. Also available as concentrates, packaged in ampoules.
Volumetric Solution	Volumetry	Standard solutions for volumetric analysis. Accuracy factor up to 0.999 - 1.001 NIST traceability. Ready to use.
Solutrate	Volumetry	Concentrated standard solutions for volumetric analysis. NIST traceability. Supplied in singles or pack of six sealed ampoules.
Aqualine™	Karl Fischer titration	Karl Fischer reagents for the determination of moisture. Volumetric and coulometric reagents and standards. Pyridine free, rapid titration and a stable end-point. Supplied in single packs or in ampoules.

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

Packaging Innovations

Fisher Chemical products come in a variety of innovative packaging options designed for safety, environmental protection, convenient handling and storage, and preservation of product integrity. Our packaging is compliant with all government regulations.

Amber glass and borosilicate glass bottles

- Amber glass is used to package photosensitive chemicals to protect them from light
- Borosilicate glass significantly reduces leaching of metal cations

HDPE plastic bottles

- A proprietary surface treatment is applied to HDPE bottles to create a barrier between the bottle and chemical, thus preventing contamination by plasticisers

Ampoules

- Fisher Chemical Optima LC/MS additives are now custom-packaged in amber borosilicate ampoules
- Available in sizes from 0.5mL to 2mL
- Manufactured under inert atmospheric conditions to provide the freshest additives for preparing aqueous and organic mobile phase blends

Aluminium bottles

- Providing optimum material characteristics to avoid interactions between solvents and packaging material
- Lightweight bottles allow easy handling and low transport costs

High volume solvent container systems

- High-volume solvent delivery container systems, available in 10L to 1000L
- Enhanced solvent safety - the bottle-free, closed container system eliminates the potential for glass bottle breakage and makes the risk of spills and exposure to vapours negligible
- Increases lab efficiency by eliminating
  - Repeated solvent testing
  - Multiple lots of material
  - Bottle rinsing
  - Disposal costs
- Environmentally friendly
  - Reduces the amount of solid waste generated
  - Minimises the release of flammable or toxic solvent liquids and vapours
  - Eliminates bottle rinsing – empty containers are returned, cleaned and refilled
- Applications include:
  - High-performance liquid chromatography (HPLC)
  - Preparative chromatography and high-volume gas chromatography sample preparation
  - Process synthesis and extractions

Custom Blends and Specifications

Take advantage of solvents, reagents and solutions tailored to your individual needs

Utilising our dedicated manufacturing sites, Fisher Chemical can tailor-make solvents to meet the specifications you need for your application. Our experience in manufacturing, processing and testing high-purity solvents therefore enables complete customisation to your requirements. Our Specialised Chemical Services (SCS) team serves customers who require something different:

- Semi-bulk and bulk chemicals
- Tailored solvents and solvent blends
- Special solutions
- Additional testing services
- Customised packaging and labelling

Custom blending process

Fisher Chemical can tailor make solvents to meet your specifications for your application. In addition, their dedicated solvent-mixing facilities are available to produce high-quality blends. Solvents are charged by weight and passed through a 0.2µm filter by air-driven pump and/or by nitrogen pressure. Small amounts of solid and liquid additives are added via charge-ports. All blending and mixing operations are carried out according to written procedures. The mixing vessels are cleaned (CIP) before and after the mixing/blending operation and are left in a dry condition, filled with nitrogen, between operations.

Quality and testing

For bespoke products, a sample will be prepared and the specification finalised before production commences. This specification will be formally defined in a document called a 'quality schedule'. The quality schedule will be a full description of the customer's quality requirements, including packaging and labelling. On manufacture, the components are charged and blended, and the resulting material is sampled to ensure the product quality. The material is then discharged into the final product containers by nitrogen pressure. The final product containers are then re-sampled and subjected to final testing and approval.

Packaging

The final product can be supplied in packaging from 1L glass bottles to stainless steel containers up to 1,000L (refer to page 85 to 88 for further information).

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

CHROMATOGRAPHY SOLVENTS AND REAGENTS

Research, quality control or routine analysis – whatever the field of activity, the Fisher Chemical range of solvents meet the challenges of chromatography from HPLC to UHPLC-MS applications. Fisher Chemical can supply the type of solvents, blends and reagents in the grades, sizes and packaging that meet your requirements for the most challenging applications, including:

- Forensic toxicology
- Environmental analysis
- Pharmaceutical and biopharmaceutical research
- Proteomics and metabolomics
- Clinical research

The Fisher Chemical range of chromatography solvents, blends and reagents is extensive. However, if you are unable to find the product you need or if you have any further questions, please contact our Product Support Advisors.

Table 7: Fisher Chemical chromatography solvent selection guide

Chromatography Application	Instrument and Detector Type	Fisher Chemical Solvent Grade
Isocratic HPLC	LC coupled with UV detector	HPLC Grade
UHPLC-MS	UHPLC coupled with mass detector	Optima UHPLC-MS
High HPLC-MS	LC and UHPLC coupled with mass detector	Optima LC/MS
HPLC-MS	LC coupled with mass detector	LC/MS Grade
UHPLC	UHPLC coupled with UV detector	UHPLC Gradient Grade
High HPLC Gradient Analysis	LC gradient coupled with UV detector	HPLC Advanced grade
HPLC Gradient Analysis	LC gradient coupled with UV detector	HPLC Gradient grade

OPTIMA™ SOLVENTS FOR UHPLC-MS

- NEW solvent grade targeted for trace analysis by UHPLC-MS
- UHPLC-MS Optima™ are ultra-high purity solvents specifically qualified for Mass Spec instrumentation
- Designed to ensure low metal ion adduct formation, reduce column clogging and improve peak profiles

Key Features

- Solvent specification based on S/N ratio of the propazine product ion from MS/MS fragmentation
- LC-UV gradient suitability specification is tested in the full 200–400nm range
- Borosilicate glass significantly reduces leaching of metal cations (Na+ and K+)

Advantages

- Designed to ensure low metal ion adduct formation and improve peak profiles
- Submicron filtration reduces instrument, column and check valves clogging
- Providing a smooth baseline with minimal interference

Cat. No	Description	Filter size	Pack size
15329865	Acetonitrile	0.1µm	1L
15319865	Methanol	0.1µm	1L
15339865	Water	0.03µm	1L

To view the full range of solvents, blends and reagents, see pages 85 to 88

OPTIMA™ SOLVENTS FOR LC-MS

The certified performance of our Optima™ LC-MS solvents offers the most reliable product range for today's scientist. For consistent, reproducible performance in the mobile phase of LC-MS, choose Optima™ LC/MS grade products:

- Solvents
- Mobile phase blends
- Reagents and additives

Key Features

- Higher signal intensity and lower metal ion content (up to 17 metals level tested)
- Innovative LC-UV gradient test with photo diode array detector
- Sub-micron filtration for maximum purity

Advantages

- Ensure extremely low levels of UV-absorbing impurities – peak height with PDA (from 200 to 400 nm) with 2mAU max
- Range of pack sizes available to suit application requirements
- Lower particulate levels from < 0.1µm filtration to protect columns and components from clogging

Cat. No	Description	Filter size	Pack size
10055454	Acetonitrile	0.1µm	500mL
10489553	Acetonitrile	0.1µm	1L
10001334	Acetonitrile	0.1µm	2.5L
10636545	Methanol	0.1µm	500mL
10031094	Methanol	0.1µm	1L
10767665	Methanol	0.1µm	2.5L
10095164	Water	0.03µm	500mL
10728098	Water	0.03µm	1L
10505904	Water	0.03µm	2.5L

To view the full range of solvents, blends and reagents, see pages 85 to 88

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

BLENDED OPTIMA™ SOLVENTS FOR LC-MS

Fisher Chemical Optima™ LC-MS solvents have set the standard of excellence for consistent, reproducible performance in the mobile phase of LC-MS. Now these same high purity solvents are pre-blended with Optima™ LC-MS modifiers, such as formic acid (FA) or trifluoroacetic acid (TFA), to provide ready to use aqueous and organic mobile phase blends for LC-MS applications.

Key Features

- Low mass spectrometry background noise (LC-MS)
- Minimal metal impurities
- Lowest impurity background using diode array reduction (LC-UV)

Advantages

- Minimise safety risks associated with storing, blending and disposing of hazardous solvents
- Eliminate overhead costs associated with preparing blends
- Eliminates the need to clean glassware or measure corrosive acids
- Extend LC-MS column life due to low impurity level and low residue value

Optima™ LC-MS blends

Cat. No	Description	Pack size
10468704	Acetonitrile with 0.1% formic acid	500mL
10678935	Acetonitrile with 0.1% formic acid	1L
10118464	Acetonitrile with 0.1% formic acid	2.5L
10270455	Acetonitrile with 0.1% trifluoroacetic acid	500mL
10230125	Acetonitrile with 0.1% trifluoroacetic acid	1L
10585635	Acetonitrile with 0.1% trifluoroacetic acid	2.5L
10429474	Water with 0.1% formic acid	500mL
10229884	Water with 0.1% formic acid	1L
10188164	Water with 0.1% formic acid	2.5L
10362055	Water with 0.1% trifluoroacetic acid	500mL
10311725	Water with 0.1% trifluoroacetic acid	1L
10516625	Water with 0.1% trifluoroacetic acid	2.5L

The additional specialty solvent blends listed below from Fisher Chemical have also been specifically developed for use in LC-MS in cutting-edge research applications in proteomics, metabolomics, clinical chemistry and drug discovery.

Specialised Optima LC-MS solvent blends

Cat. No	Description	Pack size
15203075	Methanol with 10 nM ammonium formate + 0.05% formic acid	1L
15213075	Water with 10 nM ammonium formate + 0.05% formic acid	1L
15223075	45% Acetonitrile + 45% IPA + 10% acetone	1L

To view the full range of solvents, blends and reagents, see pages 85 to 88

OPTIMA™ REAGENTS AND ADDITIVES FOR LC-MS

Optima™ LC-MS grade reagents are used as ultra-pure additives in the formulation of solvent blends for the mobile phase of LC-MS applications. Fisher Chemical mobile phase additives are use-tested to ensure suitability and are also protease-free.

Key Features

- Low spectrometry background noise
- Minimal metal impurities
- Lowest impurity background using diode array detection (LC-UV)

Advantages

- Available in ampoules for small volumes and HDPE bottles for larger quantities
- Convenient, ready to use ampoules for easy dilution
- Ampoules are pre-scored for easy opening – no need to fill the ampoules

Cat. No	Description	Pack size
11337540	Acetic acid	1mL ampoule
11377540	Acetic acid	10 x 1mL ampoules
10860701	Acetic acid	50mL
11317490	Ammonium acetate	50g
11377490	Ammonium formate	50mL
10780320	Formic acid	0.5mL
10473038	Formic acid	1mL
10063427	Formic acid	2mL
10797488	Formic acid	10 x 1mL ampoules
10155347	Trifluoroacetic acid	0.5mL
10266617	Trifluoroacetic acid	1mL
10378747	Trifluoroacetic acid	2mL
10125637	Trifluoroacetic acid	10mL

SOLVENTS FOR ROUTINE LC-MS APPLICATIONS

Mobile phase solvents for routine LC-MS applications are guaranteed for low level of trace metals and non-volatile residue. Products are filtered at 0.2µm and show low level of absorbance under gradient conditions.

Cat. No	Description	Pack size
10799704	Acetonitrile	1L
10616653	Acetonitrile	2.5L
10532213	Methanol	1L
10653963	Methanol	2.5L
10434902	Water	1L
10777404	Water	2.5L

To view the full range of solvents, blends and reagents, see pages 85 to 88

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

SOLVENTS FOR UHPLC-UV

The UHPLC (Ultra High Pressure Liquid Chromatography) pump has become an indispensable instrument to get shorter run times while maintaining chromatographic integrity. In addition to low filtration, these solvents display a remarkably high UV transmission rate making them the ideal for UHPLC applications using UV detection.

For those working at high pressure, where high sensitivity and a fast run rate are key to successful analysis, we have raised the bar by providing solvents that are ideally specified for this application.

Key Features

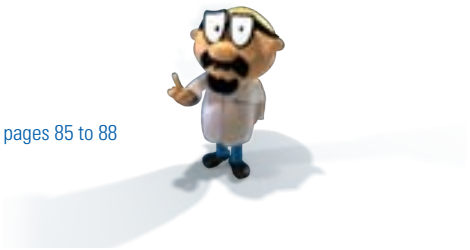
- Outstanding high UV transmission - Interference-free
- Low acidity and alkalinity level
- Filtered to 0.1µm

Advantages

- Ensure an extremely low baseline noise at 210nm and 254nm
- Improved UV resolution
- Lower particulate levels protecting columns and components from clogging

Cat. No	Description	Filter size	Pack size
11317080	Acetonitrile	0.1µm	1L
11373230	Acetonitrile	0.1µm	2.5L
11357080	Methanol	0.1µm	1L
11313240	Methanol	0.1µm	2.5L
11307090	Water	0.1µm	1L
11357090	Water	0.1µm	2.5L

To view the full range of solvents, blends and reagents, see pages 85 to 88



SOLVENTS FOR GRADIENT HPLC

Suitable for HPLC gradient grade pumps for essential and routine analysis. For everyday use and technical applications, these solvents are the benchmark that ensure we can meet the needs of all of our end users. Several packaging innovations, such as Contain™ plastic coated bottles and 5L aluminium cans have ensured that we maintain a reputation for providing customers with enhanced safety features and flexibility.

Key Features

- High UV transmission
- Low acidity/alkalinity level
- Filtered to 0.2µm

Advantages

- Wide range of packaging styles available to suit customer requirements
- Actual Lot analysis is printed on label for ease of reference

Cat. No	Description	Filter size	Pack size
10794741	Acetonitrile	0.2µm	1L
10660131	Acetonitrile	0.2µm	2.5L
10630131	Acetonitrile	0.2µm	2.5L
10500911	Acetonitrile	0.2µm	5L
10010280	Methanol	0.2µm	1L
10499560	Methanol	0.2µm	2.5L
10000280	Methanol	0.2µm	2.5L
10487322	Methanol	0.2µm	5L
10367171	Water	0.2µm	1L
10449380	Water	0.2µm	2.5L
10257243	Water	0.2µm	2.5L

To view the full range of solvents, blends and reagents, see pages 85 to 88

SOLVENTS FOR ADDITIONAL HPLC APPLICATIONS

To support other HPLC chromatographic techniques and applications, Fisher Chemical also offer a diverse range of solvents, all specified and tested for HPLC:

- Advanced Gradient Grade featuring a very low baseline drift for method development
- HPLC grade for electrochemical detection
- HPLC grade for fluorescence detection
- GPC (Gel Permeation Chromatography) grade

Advantages

- Broad range of solvents, blends, buffers, additives and other reagents
- Developed and guaranteed according to specific detector requirement
- Wide range of packaging styles available to suit customer requirements
- Actual Lot analysis is printed on label for ease of reference

To view the full range of solvents, blends and reagents, see pages 85 to 88

GHS information

Product specific information

Lot analysis

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

SOLVENTS, BLENDS AND REAGENTS SELECTION GUIDES

The tables below will guide you to the most suitable Fisher Chemical solvents, blends and reagents grade for your chromatography application. However, if you are unable to find the product you need or if you have any further questions regarding the Fisher Chemical range, then please contact our Product Support Advisors.

These tables feature only the most popular pack sizes. For further information on the complete ranges available visit www.eu.fishersci.com.

Table 8: Isocratic HPLC grade solvents

Packaging colour codes

Glass bottle	Plastic coated glass bottle	Aluminium can	Borosilicate glass bottle

Solvent	Cat. No	Pack size
Acetone	10417440	1L
	10131560	2.5L
Acetonitrile	10754361	1L
	10407440	2.5L
	10010010	2.5L
	10181460	5L
1-Chlorobutane	11448113	1L
	10795321	2.5L
Chloroform, stabilised with amylene	10050090	1L
	10615492	2.5L
	10427060	2.5L
Cyclohexane	10365360	1L
	10766091	2.5L
	10030060	2.5L
1,2-Dichloroethane	10764751	1L
	10764941	2.5L
Dichloromethane, stabilised with amylene	10468210	1L
	10626642	2.5L
	10010120	2.5L
	10030120	5L
Dichloromethane, stabilised with methanol	10580442	1L
	10373082	2.5L
Dichloromethane, unstabilised	10110342	1L
	10343602	2.5L
	10601573	2.5L
1,4-Dioxane, stabilised with BHT	10540721	1L
	10111520	2.5L
Diethyl ether, stabilised with ethanol	10407830	1L
	10579950	2.5L
	10050100	2.5L
Dimethyl sulfoxide	10500151	250mL
	10122140	500mL
	10387791	2.5L
Dimethylformamide	10346180	1L
	10356180	2.5L
	10161660	2.5L
Ethanol absolute	12498750	1L
	10244240	2.5L
Ethanol absolute, duty free	10542382	1L
	10428671	2.5L
Ethyl acetate	10724181	1L
	10456870	2.5L
	10040140	2.5L
Ethyl acetate, dried with water content <100pm	11478273	2.5L

Table 8: Isocratic HPLC grade solvents continued

Solvent	Cat. No	Pack size
Heptane, approx. 99% n-Heptane	10664912	1L
	10598800	2.5L
	10757704	2.5L
Hexanes, 95% n-Hexane approx.	10499170	1L
	10703611	2.5L
	10101910	2.5L
	10234150	5L
Isohexane, contains <5% n-Hexane	10479170	1L
	10214150	2.5L
	10306380	5L
Iso-propanol	10284250	1L
	10674732	2.5L
	10641203	2.5L
Methanol	10365710	1L
	10675112	2.5L
	10674922	2.5L
	10532503	5L
Methyl-tert-butyl ether	10273960	2.5L
Pentane, mixed isomers	10060280	1L
	10346000	2.5L
Propan-1-ol	10449760	1L
	10111440	2.5L
Tetrahydrofuran, unstabilised	10264350	1L
	10578070	2.5L
Toluene	10152830	1L
	10040500	2.5L
2,2,4-Trimethylpentane	10589580	1L
	10254210	2.5L
	10264210	5L

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

Packaging colour codes

Glass bottle	Plastic coated glass bottle	Aluminium can	Borosilicate glass bottle

Table 9: Solvents and blends for other chromatography applications

Solvent	Optima™ UHPLC/MS	Optima™ LC-MS	LC-MS	UHPLC-UV	Advanced HPLC Gradient	Gradient HPLC	HPLC Electrochemical	HPLC Fluorescence
Acetonitrile	15329865 - 1L	10055454 - 500mL 10489553 - 1L 10001334 - 2.5L	10799704 - 1L 10616653 - 2.5L	11317080 - 1L 11373230 - 2.5L	10398233 - 1L 10629112 - 2.5L	10794741 - 1L 10660131 - 2.5L 10630131 - 2.5L 10500911 - 5L	11423503 - 1L 10427630 - 2.5L	10040010 -1L 10325120 - 2.5L
Acetonitrile with 0.1 % trifluoroacetic acid (v/v)		10270455 - 500mL 10230125 - 1L 10585635 - 2.5L				12397113 - 2.5L		
Acetonitrile with 0.1% formic acid (v/v)		10468704 - 500mL 10678935 - 1L 10118464 - 2.5L 10713337 - 4L				12327123 - 2.5L		
Heptane, approx. 99% n-Heptane								10684912 - 1L 10355750 - 2.5L
Hexanes, 95% n-Hexane approx.								10647602 -1L 10409370 - 2.5L
Isohexane, contains <5% n-Hexane								10181950 - 1L 10713801 - 2.5L
Iso-propanol		10783447 - 500mL 10091304 - 1L 10684355 - 2.5 L 10001314 - 4L				10561802 - 2.5L	10549010 - 2.5L	
Methanol	15319865 - 1L	10636545 - 500mL 10031094 - 1L 10767665 - 2.5L	10532213 - 1L 10653963 - 2.5L	11357080 - 1L 11313240 - 2.5L	10144953 - 1L 10670263 - 2.5L	10010280 - 1L 10499560 - 2.5L 10000280 - 2.5L 10487322 - 5L	10714191 - 2.5L	10172100 - 2.5L
Methanol with 0.1% formic acid (v/v)						12327083 - 2.5L		
Water	15339865 - 1L	10095164 - 500mL 10728098 - 1L 10505904 - 2.5L	10434902 - 1L 10777404 - 2.5L	11307090 - 1L 11357090 - 2.5L	10327873 - 1L 10221712 - 2.5.L	10367171 - 1L 10449380 - 2.5L 10257243 - 2.5L	10637042 - 2.5L	10706501 - 2.5L
Water with 0.1% formic acid (v/v)		10429474 - 500mL 10229884 - 1L 10188164 - 2.5L				12317123 - 2.5L		
Water with 0.1% trifluoroacetic acid (v/v)		10362055 - 500mL 10311725 - 1L 10516625 - 2.5L				12387113 - 2.5L		
Solvents starter kit		11988379 - 1 SET		11332693 - 1SET				

Table 10: Reagents selection guide

Packaging colour codes

Glass bottle	Plastic coated glass bottle	Aluminium can	Borosilicate glass bottle	Amber borosilicate ampoule	Plastic jar	HDPE plastic bottle

Reagent	Isocratic HPLC	Optima™ LC-MS	HPLC for ECD
Acetic acid	10365020 - 500mL 10060000 - 1L	11377540 - 10 x 1mL ampoules 11337540 - 1mL ampoule 10860701 - 50mL	10233800 - 500mL
Ammonia solution, 35%	10508610 - 100mL		
Ammonia solution 0.25M	10144483 - 500mL		
Ammonium acetate	10598410 - 250g	11317490 - 50g	10395210 - 250g
Ammonium acetate solution 0.25M	10649633 - 500mL		
Ammonium carbonate	10785511 - 250g		
1-Butane sulfonic acid sodium salt	10191510 - 25g		
Di-n-butylamine	10418790 - 250mL		
Di-n-butylamine phosphate solution 1.0 M	10283180 - 100mL		
Citric acid monohydrate			10375360 - 500g
Ethylenediaminetetraacetic acid, disodium salt			10131430 - 2.5L
Formic acid		10780320 - 0.5mL ampoule 10797488 - 10 x 1mL ampoules 10473038 - 1mL ampoule 10063427 - 2mL ampoule 10596814 - 50mL	
Formic acid solution 0.25M	10000112 - 500mL		
Orthophosphoric acid, 85%			10644732 - 500mL
Orthophosphoric acid solution 1M	10072583 - 500mL		
Perchloric acid 60%	10254490 - 100mL		
Potassium dihydrogen orthophosphate	10429570 - 250g 10588250 - 1kg		10598250 - 250g
Sodium acetate trihydrate	10122400 - 250g 10733704 - 1kg		10539390 - 250g
Sodium chloride	10274392 - 500g		
tri-Sodium citrate dihydrate			10030520 - 500g
Sodium dihydrogen orthophosphate dihydrate			10010340 - 500g
Sodium dihydrogen orthophosphate 0.25M solution	10082583 - 500mL		
Sodium formate	10102690 - 250g		
di-Sodium hydrogen orthophosphate dihydrate	10776491- 500g		
di-Sodium hydrogen orthophosphate, 0.25M solution	10503484 - 500mL		
Sodium hydrogen carbonate	10588820 - 250g		
Sodium hydroxide, 46-48% solution			10050470 - 2.5L
Sodium perchlorate	10336150 - 250g		
Tetrabutyl ammonium bromide	10214500 - 25g		
Tetra-n-butyl ammonium hydroxide solution 0.5M	10366150 - 250mL		
Tetra-n-butyl ammonium hydroxide, 0.1M solution phosphate buffered	10264590 - 250mL		
Tetradecyltrimethylammonium bromide	10743811 - 25g		
Tetraethylammonium bromide	10744001 - 25g		
Tetramethylammonium chloride	10447270 - 25g		
Tetramethyl ammonium hydrogen sulfate	10090410 - 5g		
Triethylamine	10625892 - 250mL		
Trifluoroacetic acid	10112740 - 25mL 10294110 - 100mL	10155347 - 0.5mL ampoule 10266617 - 1mL ampoule 10378747 - 2mL ampoule 10125637 - 10mL ampoule 10723857 - 50mL	
Trifluoroacetic acid 1% solution	10104953 - 500mL		
Tri-n-hexylamine	10656272 - 100mL		

For up to date GHS information on Fisher Chemical products listed please refer to the safety data sheet available from www.eu.fishersci.com

TECHNICAL RESOURCES

Here to give you a helping hand!

Fisher Scientific's Product Support Team is your dedicated information resource. Our Product Support Advisors are all highly qualified professionals who are here to support and guide you to the fastest, most effective and efficient answer to your enquiry.

Areas of technical expertise include:

- Bioreagents and Life Science
- Chemicals and Chromatography
- Consumables
- Equipment
- Safety

This section features FAQ's and useful compatibility charts. If, however, this information does not resolve the issue, or if you have any questions not covered below then please contact our Product Support Advisors.

Contact our Product Support Advisors

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FAQ's - Chromatography vials and closures

Q. What type of glass are your chromatography vials made from?

A. Almost all Fisherbrand vials are made out of 1st hydrolytic class glass. Hydrolytic class glass is very hard and has a low expansion coefficient even at high temperature variations. It shows an excellent chemical resistance to acidic and neutral solutions, and even to alkaline solutions due to its relatively low alkali content.

Q. How clean are your vials and closures?

A. All Fisherbrand vials that carry a CleanPack label on the front side of the polypropylene box have been packed in a certified cleanroom after having passed the annealing oven at approx. 600°C. The CleanPack label on the box is a guarantee of clean, uncontaminated vials for a correct analysis. Additionally, tamper-proof evidence is given by the shrink-wrapping of the bottom part of the polypropylene box, plus its cover enables recloseability at any time during consumption in order to avoid any later contamination of the vials during usage.

Q. Why are glass vials available silanised?
A. Silanised vials are used to reduce the adsorption of polar compounds onto the normally polar surface of the glass container. Some compounds like amino-acids, proteins or phenols tend to react with the OH-groups of the glass, even if – as is common for chromatography – 1st hydrolytic class glass is used. Through the silanisation process the glass surface is deactivated and so possible reactions between the polar compounds and the glass are eliminated.

Q. Which septa should I choose for my temperature range?
A. The right choice of septa depends on the application. Almost all septa are laminated on one side with PTFE, which has a high chemical resistance and forms an inert barrier between sample and carrier material of the septa. The carrier materials have different physical and chemical properties, such as temperature resistance, resealability properties, cleanliness, hardness, thickness, etc. To help you identify the most appropriate septa for your temperature range and application, please refer to the guide on page 13 of this brochure.

Q. Which septa are chemically compatible with my sample or solvents?
A. Please refer to table 4: Chemical compatibility of vial and closure materials on page 16 to 17 of this brochure. This table is for reference purposes only. Many factors affect the chemical resistance of vials and closures and we would kindly remind you that it is your responsibility to do a test under your own conditions to ensure that the product you are using is fully compatible.

Q. Why is seal hardness important?
A. The hardness testing of plastics is most commonly measured by the Shore (Durometer) test. This method measures the resistance of plastics toward indentation and provides an empirical hardness value. Shore hardness is measured using either the Shore 'A' or 'D' scales. It is the preferred method for rubbers/elastomers and is also commonly used for 'softer' plastics such as polyolefins, fluoropolymers and vinyl. The Shore A scale is used for 'softer' rubbers while the 'D' scale is used for 'harder' ones. Most septa hardness values are covered by Shore A, although exceptions are some PTFE and PE hardnesses measured using Shore D. The results obtained from this test are a useful measure of relative resistance to piercing of various grades of polymers. This gives guidance on the type of needle that will penetrate the seal and whether thinner gauge needles may be used.

Q. What are the different certifications available? Are these really beneficial?
A. Certifications become more and more important in order to make processes more reproducible and avoid possible sources of errors right from the beginning. Highest quality, consistency and quality control have always been very important and are highlighted in three certifications, 'Specification Certified', 'HPLC and GC Certified Kits' and 'LC/MS and GC/MS Certified Kits'. For further information please refer to page 15 of this brochure.

Q. What is the difference between the types of closures? Is there an impact on evaporation rate?
A. At the moment the market offers, in general, three different closures systems for sealing an autosampler vial:
- Crimp cap in 8, 11, 13, 20mm diameter
- Screw cap; 8-425, 9mm short screw, 10-425, 13-425, 15-425, 18mm, 24-400, 24-414
- Snap cap: 8mm, 11mm, 13mm

From the evaporation rate point of view, a crimp cap provides the tightest seal, followed by the screw cap and then the snap caps. However, from the handling point of view, screw and snap caps are more convenient, as no crimper and de-crimper has to be used.

If convenience of handling is desired, together with high sample integrity and reproducibility of a crimped vial, then the screw thread vial with a stop ring is the best alternative. This screw thread vial not only offers the lowest evaporation rate, it also removes cap tilt and guarantees less autosampler interruptions due to mishandled vials.

Magnetic vial transport systems of state of the art autosampler require magnetisable closures. This type is available for crimp and screw thread closures.

Q. Is there a specific risk in reusing or using re-washed vials and closures?
A. Re-use or washing of vials is definitely a risk for your sample integrity, as the surface of the vial changes during the cleaning process (grade of adsorption of critical compounds increases) and the complete removal of the former analytes cannot be guaranteed 100%, so cross-contamination and/or ghost peaks can be the consequence. Chromatographers requiring uncompromising sample integrity would be best advised to always use new vials and septa for each analysis.

FAQ's - Chromatography solvents and reagents

Fisher Chemical

Q. Why are Optima™ UHPLC-MS solvents packed in borosilicate glass bottles?

A. Borosilicate glass reduces the potential for metal adduct contamination, ensuring reliable chromatograms even after the product has been in use for a period of time.

Q. Why do I need to run my LC-MS analysis with Optima™ LC-MS grade?

A. Optima™ LC-MS products (solvents, blends, additives and reagents) have been specifically developed to allow the most sensitive of instruments to operate to the peak of their performance. Smooth baselines and background are assured through an LC gradient test with PDA detector. Testing also ensures neither positive nor negative ion impurities are present. As presence of metal anions and analytes complicate the spectra, our manufacturing process has been developed to ensure that impurities are minimal. For more routine analytical applications a 'standard' LC-MS grade product is offered.

Q. From amongst the many different grades that are available from Fisher Chemical, how can I choose the most suitable grade for my own chromatography application?

A. Diverse chromatographer requirements have led us to look for ways to improve our purification processes and to develop a series of solvents and buffers that meet the needs of specific instrumentation. Fisher Chemical solvent grades are developed and tested to optimize chromatography performance through choice of grade to suit both instrument and detector type.

Chromatography Application	Instrument and Detector Type	Fisher Chemical Solvent Grade
UHPLC-MS	UHPLC coupled with Mass detector	Optima UHPLC-MS
High HPLC-MS	LC and UHPLC coupled with Mass detector	Optima LC/MS
HPLC-MS	LC coupled with Mass detector	LC-MS Grade
UHPLC	UHPLC coupled with UV detector	UHPLC Gradient Grade
High HPLC Gradient Analysis	LC gradient coupled with UV detector	HPLC Advanced grade
HPLC Gradient Analysis	LC gradient coupled with UV detector	HPLC Gradient Grade
HPLC (isocratic)	LC coupled with UV detector	HPLC Grade

Additionally, to support other specialty chromatography techniques, we also offer a range of specialty solvents, all specified and tested as appropriate: all specified and tested for HPLC:

- Advanced Gradient Grade featuring a very low baseline drift for method development
- HPLC grade for electrochemical detection
- HPLC grade for fluorescence detection
- GPC (Gel Permeation Chromatography) grade

Q. Why is Optima LC-MS grade formic acid packed in HDPE bottles?

A. Fisher Scientific Cat. No. 10596814 is packed in HDPE bottles for purposes of safety. Use of an HDPE bottle avoids the dangers of pressure build-up from carbon monoxide which is a natural decomposition product of formic acid. Customers should not be concerned about possible contamination by plasticisers because a proprietary surface treatment is applied to the HDPE bottle to create a barrier between the bottle surfaces and formic acid thus preventing contamination. It is good laboratory practice to store this product at 4°C to slow down this natural decomposition process.

Optima™ LC-MS grade formic acid is also available packaged in 0.5mL, 1mL and 2mL glass (borosilicate) ampoules, Fisher Scientific Cat. Nos. 10780320, 10473038 and 10063427 respectively. Note – the ampoules are pre-scored for easy opening.

Q. I notice the label on my formic acid and TFA bottles says store at 4°C. Will leaving the product out on the lab bench for a few days cause a problem?

A. No, temporary storage under ambient conditions will not impact the reagent. However, for long term storage, we again recommend that the product is held in cool conditions at 4°C in order to maintain product integrity longer.

Fisherbrand Supplement

This section features key Fisherbrand consumables and apparatus to supplement your chromatography workflow. However, for a more complete overview of our range of glassware and plasticware, pH meters, Traceable™ timers and thermometers, refer to our Fisherbrand Focus brochures by visiting www.eu.fishersci.com/go/fisherbrand. Once again, Fisherbrand demonstrates that it's going that extra mile to continually deliver you quality, affordable products.

SAMPLE COLLECTION

Bottles, reagent and media, borosilicate clear glass, wide screw neck

- Graduated and supplied with blue polypropylene cap and pouring ring
- ISO/GL45 screw thread standard to all sizes, conforms to ISO R1115 and DIN 168
- Chemically resistant and can be repeatedly sterilised to 140°C
- Autoclavable, do not autoclave bottles with a tightly screwed cap

Cat. No	Capacity, mL	Height, mm (bottle only)	O.D., mm	Wall thickness, mm	Internal neck diameter, mm	Pack qty
15446113	100	100	56	1.5	27	10
15456113	250	138	70	1.5	27	10
15476113	500	176	86	1.5	27	10
15486113	1,000	225	101	1.7	27	10
15406123	2,000	260	136	2.0	27	1
15416123	5,000	330	181	2.0	27	1
15436123	10,000	410	227	2.7	27	1

Accessories

Polypropylene screw caps, with lip seal, autoclavable to 140°C

Cat. No	ISO thread GL	Colour	Pack qty
11527033	45	Blue	10
11537033	45	Green	10
11547033	45	Yellow	10

Polypropylene pouring rings, autoclavable to 140°C

11587033	45	Green	10
11597033	45	Yellow	10

Bottles, wide mouth, HDPE

Cat. No	Capacity, mL	Dimensions, mm (dia. x h)	Pack qty
Clear			
11775243	30	36 x 64	72
11785243	60	38 x 86	72
11795253	250	62 x 132	72
11775253	500	74 x 168	48
11745253	1,000	81 x 201	24
Translucent			
11917974	125	51 x 99	500
11947964	250	62 x 132	250
11907964	500	74 x 168	125
11987924	1,000	81 x 201	50

Bottles, wide mouth, HDPE, amber

Cat. No	Capacity, mL	Dimensions, mm (dia. x h)	Pack qty
11957944	60	36 x 64	72
11967944	125	38 x 86	72
11977944	250	62 x 132	72
11957924	500	74 x 168	48
11937914	1,000	81 x 201	24

Bottles, polyethylene, jerrycans, narrow neck

- Integrally moulded handle and tamper evident screw cap

Cat. No	Capacity, mL	Height, mm	Neck O.D., mm	Neck I.D., mm	Pack qty
11597433	2,500	165	38	125	1
11507443	2,500	205	45	150	1
11517443	5,000	282	38	189	1
11527443	10,000	314	61	230	1
11537443	25,000	470	61	295	1

Wash bottles, LDPE

- Labelled and colour coded for most commonly used solvents
- Translucent with coloured closure
- Comes with vented 38mm closure to prevent solvent drips
- 500mL capacity

Cat. No	Label	Closure colour	Pack qty
11755233	Bleach	White	6
11765233	Deionised water	Natural	6
11775233	Distilled water	Natural	6
11785233	Ethanol	Natural	6
11795233	Isopropanol	Yellow	6
11705243	Methanol	Green	6
11715243	Saline	Natural	6
11725243	Soap	Natural	6
11735243	Universal	Natural	6
11745243	Water Solvent	Natural	6
11765243	Cleaning	Natural	6
11745233	Acetone	Red	6

Microplates, polypropylene, storage, 96 and 384 well

- Resistant to most reagents
- Withstand temperatures from -80°C to 121°C making these plates ideal for storage
- Choose round-bottom wells for optimal sample recovery
- Come in a variety of colours for quick identification during storage

Cat. No	Material	N° of wells	Colour	Well shape	Sterile	Well volume	Pack qty
11907954	PP	96	Natural	Round	N	500µL	80
11917954	PP	96	Red	Round	N	500µL	80
11927954	PP	96	Yellow	Round	N	500µL	80
11937954	PP	96	Blue	Round	N	500µL	80
13505450	PP	96	Natural	Round	Y	500µL	120
13515450	PP	96	Natural	Round	Y	1mL	50
13535450	PP	96	Natural	Round	N	2mL	60
13545450	PP	96	Natural	Round	Y	2mL	60
13555450	PP	384	Natural	Flat	N	250µL	60
13565450	PP	384	Natural	Conical	N	35µL	100
13575450	PP	384	Natural	Conical	Y	35µL	100
13595450	PP	384	Black	Conical	N	35µL	100
13585450	PP	384	White	Conical	N	35µL	100
11957954	PP	384	Natural	Round	N	120µL	120
11967954	PP	384	Red	Round	N	120µL	120
11977954	PP	384	Yellow	Round	N	120µL	120
11987954	PP	384	Blue	Round	N	120µL	120

Test tubes, borosilicate glass, round bottom, screw thread with polypropylene caps, disposable

- Ideal for tissue culture, bacteriology, clinical chemistry, blood typing and cross matching procedures
- With natural, linerless, polypropylene screw cap and marking spot
- Tubes packed in shrink wrapped trays with caps packed separately

Cat. No	Diameter [external], mm	Length, mm	GPI thread finish	Pack qty
11517413	13	100	13-415	1,000
11527413	16	100	15-415	1,000
10421541	16	125	15-415	1,000
11557413	16	150	15-415	1,000
11567413	20	125	18-415	500
11577413	20	150	18-415	500

Test tubes, borosilicate glass, light walled, rimless

- Premium quality tubes with sturdy, uniform bottoms and consistent lengths
- The 10mm x 75mm and 12mm x 75mm sizes are suitable for cell washing procedures
- The 6mm x 50mm size is often referred to as a 'Durham tube'
- Approximate wall thickness is 0.6mm
- 10022253* is manufactured from flint glass

Cat. No	Diameter [external], mm	Length, mm	Pack qty
10022253*	6	50	1,000
12347279	10	75	1,000
11517403	12	75	1,000
11527403	13	100	1,000
11537403	15	85	1,000
11547403	16	100	1,000
11557403	16	125	1,000
11577403	16	150	1,000
11587403	18	150	500
11597403	20	150	500
11507413	25	150	500

Test tubes, soda lime glass

- Soda lime glass test tubes
- All ISO 4142 (except 11912218, 11922218 and 11932218)

Cat. No	Length, mm	Diameter [external], mm	Wall thickness, mm	Pack qty
Light walled, rimmed				
11922188	75	10	0.60	100
11932188	75	12	0.60	100
11942188	100	12	0.60	100
11952188	125	16	0.60	100
11962188	150	16	0.60	100
11972188	150	18	0.80	100
11962178	150	24	1.0	50
Light walled, "Durham" rimless				
11912218	30	6.5	0.65	300
11922218	35	8.0	0.65	300
11932218	50	7.5	0.65	1,000
Medium walled, rimless				
11982188	75	10	1.0	100
11992188	75	12	1.0	100
12961031	100	12	1.0	100
11902198	125	16	1.0	100
11912198	150	16	1.0	100
11922198	150	18	1.0	100
11972178	150	24	1.2	50

Test tubes, borosilicate glass, medium walled

- Borosilicate glass test tubes, grade 3.3
- All ISO 4142

Cat. No	Length, mm	Diameter [external], mm	Wall thickness, mm	Pack qty
Medium walled, rimmed, ISO 4142:2002				
11932198	75	10	1.0	100
11942198	75	12	1.0	100
11952198	100	12	1.0	100
11962198	100	16	1.2	100
11972198	125	16	1.2	100
11982198	150	18	1.2	100
11992198	150	24	1.2	100
11982178	150	18	1.2	50
Medium walled, rimless, ISO 4142:2002				
11912208	75	10	1.0	100
11922208	75	12	1.0	100
11932208	100	12	1.0	100
11942208	100	16	1.2	100
11952208	125	16	1.2	100
12088099	150	16	1.2	100
11972208	150	18	1.2	100
11992178	150	24	1.2	50

Tubes, microtube

- Use between -80°C to 120°C
- Flat cap
- Withstand speeds up to 30,000xg
- DNase, RNase free
- Polypropylene
- Graduation moulded
- Autoclavable
- Non-sterile

1

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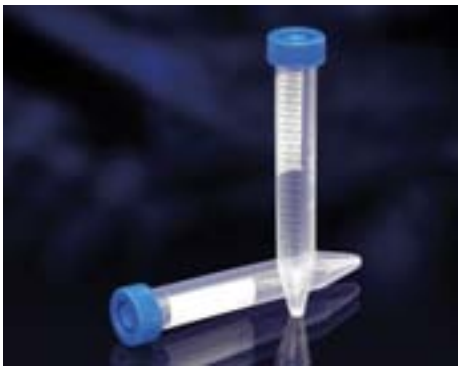
3

	Cat. No	Capacity, mL	Colour	Dia. x height, mm	Max. rcf (xg)	Pack qty
	Graduated microtube					
1	**11916955**	0.6	Natural	8 x 30	30,000	500
	11926955	1.5	Natural	11 x 40	26,000	500
	11393613	2.0	Natural	11 x 40	25,000	500
	Graduated safelock microtube					
2	**11976955**	0.6	Natural	-	30,000	1,000
	11706467	1.5	Natural	-	26,000	500
	11966955	1.5	Mix	-	26,000	500
	11956955	2.0	Natural	-	25,000	500
	Graduated low binding microtube					
3	**11996955**	0.6	Natural	10 x 30	-	500
	11986955	1.5	Natural	13 x 40	-	250
	11906965	2.0	Natural	13 x 40	-	250

Tubes, centrifuge, 15mL and 50mL

- 15mL and 50mL capacity
- Available in PP and PET
- Black graduation
- White marking area
- Flat cap and plug seal cap
- Gamma irradiation sterilisation
- Bulk or rack version



Bulk

Cap flat top	Cap plug seal	Capacity, mL	Max. rcf, xg	Material	Dia. x H, mm	Sterile	Inner pack qty	Pack qty
11755075	**11765075**	15	6,000	PP	17 x 119	Yes	25	500
11512303	**11809650**	50	9,400	PP	29 x 114	Yes	25	500
-	**11829650**	50	9,400	PP	29 x 114	No	25	500

Rack

Cap flat top	Cap plug seal	Capacity, mL	Max. rcf, xg	Material	Dia. x H, mm	Sterile	Inner pack qty	Pack qty
-	**11879640**	15	1,800	PET	17 x 119	Yes	50	500
11849650	**11889640**	15	6,000	PP	17 x 119	Yes	50	500
-	**11839650**	50	1,800	PET	29 x 114	Yes	50	500
11819650	**11899640**	50	9,400	PP	29 x 117	Yes	50	500

Tube rack, four way

- Each rack can hold 4 x 50mL conical tubes, 12 x 15mL conical tubes, 32 x 1.5mL microtubes or 32 x 0.5mL microtubes
- Dimensions (l x w x h), mm: 174 x 95 x 52
- Autoclavable

Cat. No	Description	Pack qty
11700055	Four way tube rack, assorted colours (blue, green, pink, yellow and orange)	1

Tube racks, Rota Rack™

- Each module of the small Rota-Rack™ holds 6 x 15mL tubes, 9 x 1.5/2mL tubes, 12 x 0.5/0.6mL tubes or 32 independent 0.2mL PCR* tubes or 4 x 8 tube strips
- Each rack has modules in green, purple, blue and yellow, and is fully autoclavable

Cat. No	Description	Pack qty
11394085	Rota-Rack™, small	1

*Polymerase Chain Reaction (PCR) is a process covered by patents owned by Hoffmann-La Roche

Test tube racks

- Made from Delrin™ fibreglass-reinforced polyoxymethylene (POM)
- Tough and more highly resistant to acids, bases, solvents and heat
- Offers the highest chemical and heat resistance (-40°C to +140°C)
- Available in half and full rack sizes for five different tube diameters
- Moulded in a single, continuous piece so no assembly required
- Autoclavable

Cat. No	Tubes	Wells	Well diameter mm	L x W x H, mm	Colour	Pack qty
Full size						
15340380	5 to 10mL	72	13	104 x 202 x 59	White	1
15390380	5 to 10mL	72	16	127 x 250 x 70	White	1
15340390	10 to 18mL	40	20	100 x 252 x 83	White	1
15370390	10 to 18mL	40	25	120 x 300 x 92	White	1
15310400	15 to 50mL	24	30	110 x 282 x 85	White	1
15350380	5 to 10mL	72	13	104 x 202 x 59	Blue	1
15300390	5 to 10mL	72	16	127 x 250 x 70	Blue	1
12327629	10 to 18mL	40	20	100 x 252 x 83	Blue	1
15380390	10 to 18mL	40	25	120 x 300 x 92	Blue	1
10257963	15 to 50mL	24	30	110 x 282 x 85	Blue	1
15360380	5 to 10mL	72	13	104 x 202 x 59	Green	1
15310390	5 to 10mL	72	16	127 x 250 x 70	Green	1
15350390	10 to 18mL	40	20	100 x 252 x 83	Green	1
15390390	10 to 18mL	40	25	120 x 300 x 92	Green	1
15330400	15 to 50mL	24	30	110 x 282 x 85	Green	1
15370380	5 to 10mL	72	13	104 x 202 x 59	Magenta	1
15320390	5 to 10mL	72	16	127 x 250 x 70	Magenta	1
15360390	10 to 18mL	40	20	100 x 252 x 83	Magenta	1
15300400	10 to 18mL	40	25	120 x 300 x 92	Magenta	1
15350400	15 to 50mL	24	30	110 x 282 x 85	Magenta	1
15380380	5 to 10mL	72	13	104 x 202 x 59	Yellow	1
15330390	5 to 10mL	72	16	127 x 250 x 70	Yellow	1
15360400	10 to 18mL	40	20	100 x 252 x 83	Yellow	1
Half size						
15390400	5 to 10mL	36	13	104 x 202 x 59	White	1
15340410	5 to 10mL	36	16	127 x 127 x 70	White	1
15310420	10 to 18mL	20	20	100 x 127 x 83	White	1
15380420	10 to 18mL	16	25	120 x 122 x 92	White	1
15330430	15 to 50mL	9	30	110 x 110 x 85	White	1
15300410	5 to 10mL	36	13	104 x 202 x 59	Blue	1
15360410	5 to 10mL	36	16	127 x 127 x 70	Blue	1
15340420	10 to 18mL	20	20	100 x 127 x 83	Blue	1
15300430	10 to 18mL	16	25	120 x 122 x 92	Blue	1
12317629	15 to 50mL	9	30	110 x 110 x 85	Blue	1
15310410	5 to 10mL	36	13	104 x 202 x 59	Green	1
15380410	5 to 10mL	36	16	127 x 127 x 70	Green	1
15350420	10 to 18mL	20	20	100 x 127 x 83	Green	1
15310430	10 to 18mL	16	25	120 x 122 x 92	Green	1
15340430	15 to 50mL	9	30	110 x 110 x 85	Green	1
15330410	5 to 10mL	36	13	104 x 202 x 59	Magenta	1
15390410	5 to 10mL	36	16	127 x 127 x 70	Magenta	1
15370420	10 to 18mL	20	20	100 x 127 x 83	Magenta	1
15320430	10 to 18mL	16	25	120 x 122 x 92	Magenta	1
15360430	15 to 50mL	9	30	110 x 110 x 85	Magenta	1
Polypropylene full size						
15370430	5 to 10mL	72	13	104 x 202 x 59	White	8
15310440	5 to 10mL	72	16	127 x 250 x 70	White	8
15380430	5 to 10mL	72	13	104 x 202 x 59	Blue	8
15320440	5 to 10mL	72	16	127 x 250 x 70	Blue	8
15390430	5 to 10mL	72	13	104 x 202 x 59	Green	8
15340440	5 to 10mL	72	16	127 x 250 x 70	Green	8
15300440	5 to 10mL	72	13	104 x 202 x 59	Magenta	8
15360440	5 to 10mL	72	16	127 x 250 x 70	Magenta	8

Tubing, natural red rubber

- Higher resilience than most other polymers
- Temperature range: -40°C to +70°C
- Light and flexible, for transferring liquids, gases and dilute acids
- Heavy wall recommended for vacuum use
- Not suitable for use with petroleum oils and hydrocarbon solvents

Cat. No	Bore size, mm	Wall thickness, mm	Length, m	Pack qty
11855512	3.0	0.75	10	
11885512	8.0	2.0	10	
11895512	10.0	2.0	10	
11805522	12.5	2.25	10	
11815522	16.0	3.25	10	
11825522	20.0	3.25	10	
11835522	25.0	3.25	10	

Tubing, natural red rubber, to BS2775: 1987

- Higher resilience than most other polymers
- Temperature range: -40°C to +70°C
- Light and flexible, for transferring liquids, gases and dilute acids
- Heavy wall recommended for vacuum use
- Not suitable for use with petroleum oils and hydrocarbon solvents

Cat. No	Bore size, mm	Wall thickness, mm	Length, m	Pack qty
Normal wall, BS2775: 1987				
11875512	6.5	1.5	10	1
Heavy wall, BS2775: 1987				
11587562	6.5	5	10	1

SAMPLE PREPARATION - CONSUMABLES

Beakers, squat form

- Borosilicate glass
- Squat form with spout and graduations
- ISO 3819 DIN 12331

Cat. No	Capacity, mL	Height, mm	Exterior diameter, mm	Pack qty
15469073	25	50	34	10
15479073	50	60	42	10
15489073	100	70	50	10
15499073	150	80	60	10
15409083	250	95	70	10
15419083	400	110	80	10
15429083	600	125	90	10
15439083	800	135	100	10
15449083	1,000	143	105	1
15459083	2,000	185	130	1
15469083	3,000	210	150	1
15479083	5,000	270	170	1
15489083	10,000	350	217	1

Beakers, polypropylene, tri-cornered

- Suitable for use with commonly used acids, alkalis and solvents
- Each beaker has three drip-free pouring spouts
- Moulded graduations, stackable

Cat. No	Capacity, mL	Subdivisions, mL	Height, mm	O.D., mm	Pack qty
11749398	50	5	57	49	100
11759398	100	10	72	58	100
11769398	250	10	90	76	100
11779398	400	20	108	85	100
11789398	800	50	133	107	100
11799398	1,000	50	145	115	100

Cylinders, borosilicate glass, Class A, spouted

- Graduated in blue ceramic markings
- Hexagonal base
- Individual reorder code on each item
- DIN 12680 BS 604 ISO 4788
- Pouring spout

Cat. No	Capacity, mL	Graduations, mL	Pack qty
12952310	5	0.1	2
11517832	10	0.2	2
11527832	25	0.5	2
11537832	50	1	2
11547832	100	1	2
11557832	250	2	2
11567832	500	5.0	2
11577832	1,000	10	2
12962320	2,000	20	2

Cylinders, borosilicate glass, Class B, spouted

- Graduated in blue ceramic markings
- Hexagonal base
- Individual reorder code on each item
- DIN 12680 BS 604 ISO 4788
- Pouring spout

Cat. No	Capacity, mL	Graduations, mL	Pack qty
11507702	5	0.1	2
11517702	10	0.2	2
11527702	25	0.5	2
11537702	50	1.0	2
11547702	100	1.0	2
11557702	250	2.0	2
11567702	500	5.0	2
11577702	1,000	10.0	2
11587702	2,000	20.0	1

Filter papers, glass microfibre, MF300

- High loading capacity
- Made from 100% borosilicate glass
- Compatible with many solvents and reagents
- Contain no binder
- Not affected by humidity
- Suitable for use at and up to +500°C

This filter is suitable for general filtration of solvents, analysis of HPLC samples, filtration of proteins and biochemical solutions plus other applications where fine particulates are involved.

Cat. No	Diameter	Pack qty
11754083	25	100
11798553	42.5	100
11764083	47	100
11778553	55	100
11764093	90	25
11774093	110	25
11784093	125	25
11794093	150	25

Funnels, borosilicate glass, conical, sintered, filter

- With sintered glass disc

Cat. No	Capacity, mL	Porosity	Disc diameter, mm
11902148	35	3	30
11912148	35	4	30
11922148	80	3	40
11932148	80	4	40
11942148	125	3	65
11952148	125	4	65
11962148	500	3	95

Funnels, borosilicate glass, conical

Cat. No	Top diameter, mm	Stem length, mm	Stem O.D., mm	Pack qty
11572423	55	60	8	10
11582423	75	80	9	10
11592423	100	110	12	10
11502433	155	150	19	1
11512433	215	180	24	1

Funnels, borosilicate glass, short stem

Cat. No	Top diameter, mm	Stem length, mm	Stem outer diameter, mm	Pack qty
10710105	30	35	6	10
10042222	35	40	7	10
10720295	45	50	7	10
10730295	50	55	7	10
10124352	55	60	8	10
10134352	60	65	8	10
10082242	75	80	9	10
10767414	80	85	9	10
10123682	100	110	12	10
10082252	120	120	17	10

Dispensers, bottle top

- Excellent chemical compatibility
- Fully autoclavable
- Easy to calibrate
- Removable piston
- Springless precision valve mechanism
- Anti-drip cap
- Fits on most common sizes of bottle
- Traceability to an NABL accredited laboratory

Cat. No	Capacity, mL	Pack qty
12867913	0.25 to 2.5	each
12877913	0.5 to 5	each
12887913	1 to 10	each
12897913	2.5 to 30	each
12807923	5 to 60	each
12817923	10 to 100	each

Pipettors kit, variable volume, Elite™

- Ergonomically designed, comfortable pipetting
- Low pipetting and tip ejection forces reducing RSI risks
- Autoclavable at 121°C (20 min) without disassembly

Cat. No	Capacity, mL
15268638	Elite pipettors kit: four popular pipette sizes (2, 20, 200, 1,000µL) and stand

Pipettors, manual, Elite™

- Soft-touch tip ejector
- Optimal fit to SureOne™ pipettor tips
- Fully autoclavable
- Comfortable, lightweight handle with finger rest
- Extremely low plunger forces

Cat. No	Capacity, µL	Pack qty
Single channel		
11815762	0.2 to 2	1
11825762	0.5 to 5	1
11835762	1 to 10	1
11845762	2 to 20	1
11855762	5 to 50	1
11865762	10 to 100	1
11875762	20 to 200	1
11885762	100 to 1,000	1
Multichannel		
11815772	1 to 10	1
11825772	2 to 20	1
11835772	5 to 50	1
11845772	10 to 100	1
11855772	20 to 200	1
11865772	100 to 1,000	1
11875772	500 to 5,000	1
11885772	1,000 to 10,000	1

Pipettor tips, standard, universal fit, SureOne™

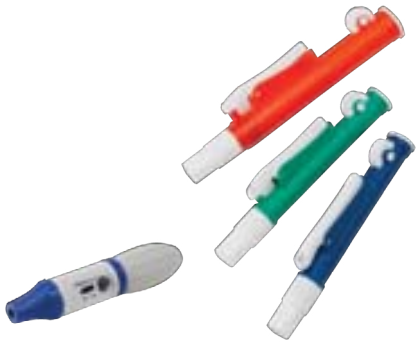
- Non-sterile products - certified to be free of RNase/DNase and DNA
- Fisherbrand™ SureOne™ pipettor tips are a comprehensive line of universal fit pipettor tips, available in a range of volumes, from 5µL to 10mL, in bulk, racked, sterile racked and the environmentally friendly reload system
- Compatible with most popular brands of pipettor, SureOne™ achieves optimal fit with Fisherbrand™ Elite™ pipettors

Cat. No	Volume, µL	Pack type	Colour	Inner pack qty	Pack qty
5µL nano micropoint tip, graduated at 2.5µL					
11987724	0.1 to 5	Bulk	Clear	-	1,000
11997724	0.1 to 5	Racked	Clear	96	960
10µL micropoint tip, graduated at 2µL					
11933416	0.1 to 10	Bulk	Clear	-	1,000
11953416	0.1 to 10	Racked	Clear	96	960
11973416	0.1 to 10	Reload	Clear	96	960
10µL extended length micropoint tip, graduated at 2.5µL					
11983416	0.1 to 10	Bulk	Clear	-	1,000
11588402	0.1 to 10	Racked	Clear	96	960
11967714	0.1 to 10	Reload	Clear	96	960
200µL universal bevelled tip					
11933426	1 to 200	Bulk	Clear	-	1,000
10678325	1 to 200	Racked	Clear	96	960
11578412	1 to 200	Reload	Clear	96	960
10124314	1 to 200	Bulk	Yellow	-	1,000
11983426	1 to 200	Racked	Yellow	96	960
11913436	1 to 200	Reload	Yellow	96	960
200µL universal thin wall micropoint tip					
11538422	1 to 200	Bulk	Clear	-	1,000
11933436	1 to 200	Racked	Clear	96	960
11953436	1 to 200	Reload	Clear	96	960
11963436	1 to 200	Bulk	Yellow	-	1,000
11973436	1 to 200	Racked	Yellow	96	960
11993436	1 to 200	Reload	Yellow	96	960
200µL universal bevelled tip, graduated at 10µL, 50µL and 100µL					
11943446	1 to 200	Bulk	Clear	-	1,000
11953446	1 to 200	Racked	Clear	96	960
12922521	1 to 200	Reload	Clear	96	960
11903446	1 to 200	Bulk	Yellow	-	1,000
11913446	1 to 200	Racked	Yellow	96	960
11933446	1 to 200	Reload	Yellow	96	960
300µL universal bevelled/micropoint tip, graduated at 10µL, 50µL, 100µL and 200µL					
11993446	5 to 300 bevelled tip	Bulk	Clear	-	1,000
11903456	5 to 300 bevelled tip	Racked	Clear	96	960
11538442	5 to 300 micropoint tip	Reload	Clear	96	960
1,250µL universal micropoint tip, graduated at 100µL, 200µL, 500µL and 1,000µL					
11548442	100 to 1,250	Bulk	Clear	-	1,000
11568442	100 to 1,250	Racked	Clear	96	960
11588442	100 to 1,250	Reload	Clear	96	960
11963466	100 to 1,250	Filtered, bulk	Clear	-	1,000
10778535	100 to 1,250	Bulk	Blue	-	1,000
10537014	100 to 1,250	Racked	Blue	96	960
11963456	100 to 1,250	Reload	Blue	96	960
2,500µL tips					
11987744	250 to 2,500	Bulk	Clear	Fits Rainin EDP2™	500
11997744	250 to 2,500	Bulk	Clear	Fits Eppendorf™ and Biohit style pipettors	500
5,000µL tips					
11648138	1,000 to 5,000	Bulk	Clear	Fits Eppendorf™ and Biohit style pipettors	250
11937754	1,000 to 5,000	Bulk	Clear	Fits Fisherbrand™ Elite and Finnpipette™ style pipettors	250
10,000µL tips					
11947754	1,000 to 10,000	Bulk	Clear	Fits Gilson style pipettors	200
11957754	1,000 to 10,000	Bulk	Clear	Fits Fisherbrand™ Elite and Finnpipette™ style pipettors	100

Accessories

Cat. No	Description	Pack qty
11973456	SureOne™ empty rack boxes for reloads of 10µL to 20µL tips	10
11983456	SureOne™ empty rack boxes for reloads of 20µL to 300µL tips	10
11993456	SureOne™ empty rack boxes for reloads of 1,250µL tips	10

Pipette fillers, universal



- The side-mounted thumbwheel is effortlessly manipulated for exact aspiration or drop-wise delivery
- The plunger is easily depressed for quick dispensing
- Colour coded barrel indicates pipette size

Cat. No	Description	Pack qty
15209805	Pipette filler, universal, blue, 2mL	1
15239805	Pipette filler, universal, green, 10mL	1
15229805	Pipette filler, universal, red, 25mL	1
15219805	Pipette controller	1

Pipettes, Pasteur, soda lime glass

Cat. No	Length, mm	Type	Inner pack qty	Pack qty
11546963	150	Unplugged	250	1,000
11566963	230	Unplugged	250	1,000
11755108	270	Unplugged	250	1,000
11506973	150	Plugged	250	1,000
11765098	230	Plugged	250	1,000
11795098	270	Plugged	250	1,000

Pipettes, transfer

- Low density polyethylene
- Transparent
- Graduated or non-graduated
- Sterile options available
- Various packaging formats

	Cat. No	Description	Sterile	Length, mm	Drop volume, µL	Drop per mL	Pack qty
	13469118	Transfer pipette PE, 1mL	No	104	33	30	400
1	**13499108**	Transfer pipette PE, 1mL, graduated	No	150	33	30	500
2	**13439118**	Transfer pipette PE, 1mL, graduated, extended tip	No	150	33	30	500
3	**13489108**	Transfer pipette PE, 1mL, graduated	Yes	150	33	30	500
	13419118	Transfer pipette PE, 1mL, graduated, inner pack of 10	Yes	150	33	30	500
	13429118	Transfer pipette PE, 1mL, graduated, inner pack of 20	Yes	150	33	30	500
	13439108	Transfer pipette PE, 3mL, graduated	No	155	40	25	500
4	**13469108**	Transfer pipette PE, 3mL, graduated	Yes	155	40	25	500
	13479108	Transfer pipette PE, 3mL, graduated, inner pack of 10	Yes	155	40	25	500
	13409118	Transfer pipette PE, 3mL, graduated, inner pack of 20	Yes	155	40	25	500
5	**13459118**	Transfer pipette PE, 4mL, thin stem	No	150	33	30	500
6	**13459108**	Transfer pipette PE, 4mL	No	150	33	50	500
7	**13449108**	Transfer pipette PE, 7mL, extra long	No	300	50	20	100
8	**13449118**	Transfer pipette PE, 10mL, jumbo	No	170	56	18	200

Filter units, syringe

- Perfect for daily analysis routines
- Nylon membranes for aggressive aqueous solutions or hydrophobic PTFE for aggressive chemicals

Cat. No	OD, mm	Pore size, µm	Membrane	Pack qty
15181489	25	0.2	PTFE	100
15101499	25	0.45	PTFE	100
15121499	25	0.2	Nylon	100
15131499	25	0.45	Nylon	100
15141499	25	0.2	PTFE	100
15151499	25	0.45	PTFE	100
15161499	13	0.2	PTFE	100
15171499	13	0.45	PTFE	100

SAMPLE PREPARATION - EQUIPMENT

Balances, compact series

Rugged housing design provides best overall overload protection and durability in its class. Uniquely designed for a wide variety of applications, these balances feature easy operation, long battery life and great performance.

- Sleek, low profile design
- Large, high contrast LCD
- Energy saving auto shut-off feature
- Two button keypad
- Storage made easy with a stackable design
- Integrated load cell lock
- Over-load and under-load indicators
- Digital calibration from keypad
- Low battery indicator
- Three AA batteries (included) or optional a.c. adapter
- Two year warranty

Cat. No	Capacity	Readability	Linearity	Repeatability	Weighing modes	Pan shape	Dimensions, mm (w x d x h)	Stabilisation time	Platform size	Calibration	Pack qty
15305103	200g	0.1g	0.1g	0.1g	Weighing	Round	140 x 200 x 40	3secs	120mm dia.	External	1
15315103	500g	0.1g	0.1g	0.1g	Weighing	Round	140 x 200 x 40	3secs	120mm dia.	External	1
15325103	2,000g	1.0g	1.0g	1.0g	Weighing	Round	140 x 200 x 40	3secs	120mm dia.	External	1
15335103	5,000g	1.0g	1.0g	1.0g	Weighing	Round	140 x 200 x 40	3secs	120mm dia.	External	1

Balances, portable series

Fisher Scientific's best selling portable balance, featuring easy to use two button operation, high contrast LCD display, multiple weighing units and the option of either RS232 or USB connectivity.

- Excellent shock resistance and overload protection
- 50 hour battery life with auto shut-off
- Shipping and calibration locks
- Large, high contrast LCD
- Two button operation
- a.c. adapter (included) or requires four AA batteries (not included)
- Integral weigh-below hook, critical for density or specific gravity determination
- Optional RS232 or USB snap-in module allows data connection to PC or printer
- Two year warranty

Cat. No	Capacity	Readability	Linearity	Repeatability	Weighing modes	Pan shape	Dimensions, mm (w x d x h)	Stabilisation time	Platform size	Compliance	Communication interface	Calibration	Pack qty
15365103	120g	0.001g	0.003g	0.003g	Parts counting, percentage weighing, totalisation, display hold	Round	192 x 210 x 54	3secs	120mm dia.	GLP with optional printer	Optional USB or RS232	External	1
15345103	400g	0.01g	0.01g	0.01g	Parts counting, percentage weighing, totalisation, display hold	Round	192 x 210 x 54	3secs	120mm dia.	GLP with optional printer	Optional USB or RS232	External	1
15355103	600g	0.01g	0.02g	0.01g	Parts counting, percentage weighing, totalisation, display hold	Round	192 x 210 x 54	3secs	120mm dia.	GLP with optional printer	Optional USB or RS232	External	1
15375103	2,000g	0.1g	0.1g	0.1g	Parts counting, percentage weighing, totalisation, display hold	Square	192 x 210 x 54	3secs	165mm x 142mm	GLP with optional printer	Optional USB or RS232	External	1
15385103	6,000g	0.1g	0.2g	0.1g	Parts counting, percentage weighing, totalisation, display hold	Square	192 x 210 x 54	3secs	165mm x 142mm	GLP with optional printer	Ooptional USB or RS232	External	1

Balances, analytical series

The easy to clean draft shield, upfront level indicator and selectable environmental settings make the Fisherbrand range of analytical balances ideally suited to meet the routine weighing needs of most labs.

- Weighing modes include weighing, parts counting and percentage weighing
- Large draft shield with sliding top and side doors
- Single line LCD
- Three button operation
- RS232 bi-directional interface
- Front level indicator - no need to look in back of balance during levelling process
- Solid diecast metal base, stainless steel pan
- Works well in harsh environments; settings can be adjusted to compensate for vibrations and other disturbances
- Calibration lockout
- Integral menu lock - a combination of software and a mechanical switch locks menus, including calibration
- Security loop in rear of balance
- a.c. adapter (included), balance power input 8 to 14.5V a.c., 50/60Hz 4VA or 8 to 20V d.c., 4W
- Two year warranty

Cat. No	Capacity	Readability	Linearity	Repeatability	Weighing modes	Pan shape	Dimensions, mm (w x d x h)	Stabilisation time	Platform size	Compliance	Communication interface	Calibration	Pack qty
15395103	65g	0.1mg	0.2mg	0.1mg	Weighing, parts counting, percentage weighing	Round	196 x 320 x 187	3secs	90mm dia.	GLP with optional printer	RS232	Internal	1
15305113	210g	0.1mg	0.2mg	0.1mg	Weighing, parts counting, percentage weighing	Round	196 x 320 x 187	3secs	90mm dia.	GLP with optional printer	RS232	External	1
15315113	210g	0.1mg	0.2mg	0.1mg	Weighing, parts counting, percentage weighing	Round	196 x 320 x 187	3secs	90mm dia.	GLP with optional printer	RS232	Internal	1

Balance, moisture series

The Fisherbrand Moisture Analyser features high quality durable construction and easy one button set up. With a large backlit LCD display, standard RS232 port, 60g capacity with a readability of 0.005g/0.05% and halogen heating, it is ideal for food analysis, quality control, waste water analysis, and an endless number of industrial, environmental and life science applications.

- Large backlit LCD display
- RS232 bi-directional interface
- Easy to clean heating chambers ideal for frequent use and inexpensive maintenance
- Compact footprint designed to take up less space
- Heating technology: Halogen (50°C to 160°C in 5° increments)
- Repeatability (Std. Dev., g): 0.2% (3g sample) 0.05% (10g sample)
- 200V a.c. to 240V a.c., 3A, 50/60Hz
- Two year warranty

Cat. No	Capacity	Readability	Repeatability	Pan shape	Dimensions, mm (w x d x h)	Platform size	Compliance	Communication interface	Calibration	Pack qty
15305123	60g	0.005g	0.05%	Round	170 x 280 x 130	90mm dia.	GLP with optional printer	RS232	External	1

Weighing boats, polystyrene, disposable

- Available as standard or anti-static
- Diamond or square shaped
- In black or white
- 5mL to 280mL capacity

Cat. No	Shape	Capacity, mL	Pack qty
Standard black			
12952850	Diamond	5	500
12962850	Diamond	30	500
12972850	Diamond	100	500
12982850	Square	10	500
12992850	Square	85	500
12902860	Square	280	500
Anti-static black			
12912860	Diamond	5	500
12922860	Diamond	30	500
12932860	Diamond	100	500
12942860	Square	10	500
12952860	Square	85	500
12962860	Square	280	500
Standard white			
12932840	Diamond	5	500
11573422	Diamond	30	500
12387552	Diamond	100	500
11593422	Square	10	500
11503432	Square	85	500
11513432	Square	280	500
Anti-static white			
12992840	Diamond	5	500
11533432	Diamond	30	500
11543432	Diamond	100	500
12922850	Square	10	500
11680302	Square	85	500
12608513	Square	280	500

1 2 3 4 5 6

Isotemp general purpose water baths

- New timer for worry free operation
- New addition of three presets for quick set up
- Advanced temperature controller with LCD display shows set-point and actual temperature
- Global voltage – each bath works anywhere in the world exactly the same
- Corrosion-resistant exterior with easy-to-clean enamel coating
- Display shows °C or °F and is readable from a distance
- Open tank design makes the bath easy to clean
- Adjustable over temperature protection
- Low fluid start protection capability
- CE and UL listed
- Audible alarms for timer, low fluid detection, over temperature and safety
- Rounded reservoir corner and sample tray with finger holes allow for easy removal and cleaning
- Hinged polycarbonate cover that lifts to a 90°C stay-open position or can be removed completely
- Baths come with diffuser tray and gable cover

	Cat. No	Chamber capacity	Temperature range	Temperature stability/ uniformity @ 70°C	Work area (L x W x H)	Overall dimensions without cover (L x W x H)	Heater output	Pack qty
1	**15355877**	2L	Amb. to 90°C	±0.1°C / ±0.2°C	138 x 155 x 150mm	230 x 199 x 233mm	200W	1
	15365877	2L (Shallow)	Amb. to 100°C	±0.1°C / ±0.2°C	153 x 300 x 65mm	246 x 355 x 232mm	300W	1
2	**15375877**	5L	Amb. to 100°C	±0.1°C / ±0.2°C	154 x 300 x 150mm	246 x 355 x 232mm	300W	1
3	**15385877**	10L	Amb. to 100°C	±0.1°C / ±0.2°C	301 x 330 x 150mm	393 x 383 x 233mm	800W	1
4	**15395877**	20L	Amb. to 100°C	±0.1°C / ±0.2°C	297 x 500 x 150mm	392 x 555 x 233mm	1200W	1
5	**15305887**	28L	Amb. to 100°C	±0.1°C / ±0.2°C	297 x 500 x 200mm	392 x 555 x 282mm	1200W	1
6	**15315887**	5L & 10L (Dual)	Amb. to 100°C	±0.1°C / ±0.2°C	refer to 15375877 & 15385877	392 x 587 x 233mm	300W & 800W	1

Accessories

Description	For use with 15355877	For use with 15365877	For use with 15375877	For use with 15385877	For use with 15395877	For use with 15395877	For use with 15315887
Stainless steel cover	15385887	15305897	15305897	15315897	15325897	15325897	15305897 and 15315897
Concentric ring cover	-	-	-	15355897	15365897	-	-
Replacement acrylic cover	15345887	15355887	15355887	15365887	15375887	15375887	15355887 and 15365887
Stainless steel petri dish rack	-	-	-	-	15385897	15385897	-
Stainless steel test tube rack	-	-	-	-	15395897	15395897	-
Hand pump	15365927	-	-	15365927	15365927	15365927	15365927

1

2

Isotemp shaking water baths

- New hinged stainless steel cover that lifts to a 90°C stay-open position or can be removed completely
- Accurate temperature control and quiet reciprocal shaking action
- Adjustable shaking speed from 30 to 200 oscillations/min (OPM)
- Timer for worry free operation
- Three presets for quick set up of temperature and shaking speed
- Advanced temperature controller with LCD display shows set-point and actual temperature
- Global voltage – each bath works anywhere in the world exactly the same
- Corrosion-resistant exterior with easy-to-clean enamel coating
- Display shows °C or °F and is readable from a distance
- Open tank design makes the bath easy to clean
- Adjustable over temperature protection
- Low fluid start protection capability
- CE and UL listed
- Audible alarms for timer, low fluid detection, over temperature and safety
- Baths come with shaking tray and gable cover

	Cat. No	Chamber capacity	Temperature range	Temperature stability/ uniformity @ 70°C	Work area (L x W x H)	Overall dimensions without cover (L x W x H)	Heater output	Pack qty
1	**15325887**	15L	Amb. + 5°C to 100°C	±0.1°C / ±0.05°C	292 x 305 x 165mm	394 x 632 x 249mm	1200W	1
2	**15335887**	27L	Amb. + 5°C to 100°C	±0.1°C / ±0.05°C	292 x 610 x 165mm	394 x 938 x 249mm	1500W	1

Accessories

Description	For use with 15325887	For use with 15335887
Microfuge tube rack, 0.5mL	15305917	15305917
Microfuge tube rack, 1.0mL	15315917	15315917
Water regulation kit	15355927	15355927
Test tube tray 13-25mm	15325917	15325917
Flask tray 25mL	15335917	15335917
Flask tray 50mL	15345917	15345917
High wall tray – small	15325927	-
High wall tray – large	-	15335927
Test tube clip 13mm-25mm*	15355917	15355917
Flask clips – 25mL*	15365917	15365917
Flask clips – 50mL*	15375917	15375917
Flask clips – 125mL*	15385917	15385917
Flask clips – 250mL*	15395917	15395917
Flask clips – 500mL*	15305927	15305927
Flask clips – 1,000mL*	15315927	15315927
Fasteners (packs of 25)	15345927	15345927

*Need fasteners

Baths, ultrasonic, analogue

- State of the art microprocessor controlled ultrasonic cleaning and sweep technology
- Long lifespan from cavitation resistant stainless steel tanks
- LED display showing set and remaining time and pre-set and actual temperature
- Ergonomically shaped plastic carrying handles
- Newly developed cover reduces noise and accelerates the heating up process
- Easy draining of cleaning liquid though the drain duct via a dial on the side
- Operating panel arranged so that liquid cannot enter the electronics
- Degas function key

Cat. No	Volume, L	Dimensions, external [w x d x h], mm	Dimensions, internal [w x d x h], mm	Carrying handles	Power, W	Mass, kg	Pack qty
10611983	0.8	206 x 116 x 178	190 x 85 x 60	No	30	2.0	1
10708304	1.75	175 x 180 x 212	151 x 137 x 100	No	35	2.1	1
10692353	2.75	300 x 179 x 214	240 x 137 x 100	Yes	80	3.3	1
10602363	4.25	300 x 179 x 214	240 x 137 x 150	Yes	140	4.0	1
10335822	5.75	365 x 186 x 264	300 x 151 x 150	Yes	150	5.1	1
10758684	6.9	568 x 179 x 214	505 x 137 x 100	Yes	150	5.6	1
10592163	9.4	568 x 179 x 264	505 x 137 x 150	Yes	150	6.4	1
10192512	9.5	365 x 278 x 264	300 x 240 x 150	Yes	150	5.9	1
10071012	12.75	365 x 278 x 321	300 x 240 x 200	Yes	200	7.5	1
11832370	14	568 x 340 x 224	240 x 137 x 100	Yes	200	3.3	1
10623683	18	390 x 340 x 321	327 x 300 x 200	Yes	200	8.5	1
10485982	28	568 x 340 x 321	505 x 300 x 200	Yes	300	11.0	1

Lids, plastic, for ultrasonic baths

- Spare lids for the Fisherbrand analogue ultrasonic bath range

Cat. No	For use with	Pack qty
10060892	0.8L baths	1
10235232	1.75L baths	1
10560243	2.75L and 4.25L baths	1
10798294	5.75L baths	1
11846244	6.9L and 9.4L baths	1
10487912	9.5L and 12.75L baths	1
10798484	18L baths	1
10345962	28L baths	1
11706208	45L baths	1
11716208	90L baths	1

Baskets, stainless steel, for use with ultrasonic baths

- Baskets for the Fisherbrand analogue ultrasonic bath range

Cat. No	For use with	Pack qty
11726188	0.8L	1
11736188	1.75L	1
10241320	2.75L	1
11746188	4.25L	1
11756188	5.75L	1
11766188	6.9L	1
11776188	9.4L	1
11786188	9.5L	1
11796188	12.75L	1
11709118	14L	1
10614913	18L	1
11706198	28L	1
11786198	45L	1
11796198	50L	1

Dry bath, Mini

- Compact, (D x L x H), mm: 120 x 140 x 60
- Stability at 37°C ±0.1°C
- Homogeneity: ±0.1°C to 37°C
- Timer: 0 to 19h:59min, or continuous

Cat. No	Description	Pack qty
12186560	Mini dry bath digital block heater, integral 12 x 1.5mL block, anodised aluminium, optional rack for rapid loading/unloading	1

Mini centrifuge

- Constructed from durable UV resistant plastic
- Includes six place rotor for 1.5mL/2.0mL tubes and an eight place rotor for two tube strip
- Spins to 6,000rpm maximum

Cat. No	Description	Pack qty
15358266	Mini centrifuge	1

Midi centrifuge

- Speed, rpm: 500 to 12,500
- Dimensions (W x D x H), mm: 203 x 171 x 114
- Tool-free quick change rotor system
- Supplied with two rotors:
  - twelve place standard rotor with lid for 1.5/2.0mL tubes
  - eight place strip rotor for four 0.2mL tube strips or 32 single tubes
  - twelve 0.2mL and 0.5mL adapters for customised use

Cat. No	Description	Pack qty
12972041	Midi centrifuge	1

Microcentrifuge, Micro 17/17R

- Capacity: 48mL (24 x 15/2mL tubes)
- Maximum speed/RCF: 13,300rpm/17,000xg
- Adjustable 99 minute timer and quick-spin feature for short runs
- Supplied with rotor and biocontainment lid

Cat. No	Description	Pack qty
11516873	Microcentrifuge Micro 17, ventilated	1
11526873	Microcentrifuge Micro 17R, refrigerated	1

Heating mantles, EM series

- The safest heating mantles on the market
- Use with round bottom flasks from 50mL to 500mL
- Innovative design to prevent outer casing from getting hot
- Maximum element temperature of 450°C
- Built-in controller
- Replaceable insulated heater cartridge
- A chemically resistant polypropylene outer casing

Cat. No	Diameter	Pack qty
10332290	Heating mantle EM50, controlled, 50mL	1
10250590	Heating mantle EM100, controlled, 100mL	1
10884191	Heating mantle EM250, controlled, 250mL	1
10200260	Heating mantle EM500, controlled, 500mL	1

Hotplates, stirrers and hotplate stirrers, Isotemp series

- Isotemp stirrers, hotplates and stirring hotplates are designed to provide precise stirring control, exceptional safety and temperature performance for your routine protocols
- Available in three sizes, providing flexibility from microscale chemistries to production operations

Cat. No.	Description	Surface type	Volts/Hz	Stir range (rpm)	Max surface temp °C	Pack qty
Isotemp Series, Small Sized Models Working Surface: 10.8 x 10.8cm - Overall Dimensions: 12.7 x 25.4 x 9.1cm						
15363508	Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	N/A	1
15383508	Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	N/A	1
Isotemp Series, Medium Sized Models Working Surface: 18.4 x 18.4cm - Overall Dimensions: 20.8 x 33 x 9.7cm						
15333518	Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	N/A	1
15343518	Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	N/A	1
15393518	Stirrer	Aluminium	230V 50/60Hz (EU Plug)	50-1500	N/A	1
15303528	Stirrer	Aluminium	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	N/A	1
15323528	Hotplate Stirrer	Aluminium	230V 50/60Hz (EU Plug)	50-1500	300	1
15343528	Hotplate Stirrer	Aluminium	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	300	1
Isotemp Series, Large Sized Models Working Surface: 26.0 x 26.0cm - Overall Dimensions: 28.7 x 41.1 x 10.2cm						
15313538	Hotplate	Ceramic	230V 50/60Hz (EU Plug)	N/A	400	1
15323538	Hotplate	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	N/A	400	1
15333538	Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	N/A	1
15343538	Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	N/A	1
15353538	Hotplate Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	400	1
15363538	Hotplate Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	400	1

Hotplates, stirrers and hotplate stirrers, Isotemp Advanced series

- The Isotemp Advanced series of stirrers, hotplates and stirring hotplates are designed to provide reliable performance, dependable safety and precise control
- Available with optimised controls and settings for applications that demand advanced precision

Cat. No.	Description	Surface type	Volts/Hz	Stir range (rpm)	Max surface temp °C	Pack qty
Working Surface: 18.4 x 18.4cm - Overall Dimensions: 20.8 x 33 x 9.7cm						
15353528	Hotplate	Ceramic	230V 50/60Hz (EU Plug)	N/A	450	1
15363528	Hotplate	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	N/A	450	1
15373528	Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	N/A	1
15383528	Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	N/A	1
15393528	Hotplate Stirrer	Ceramic	230V 50/60Hz (EU Plug)	50-1500	450	1
15303538	Hotplate Stirrer	Ceramic	230V 50/60Hz (UK/AUS/CN Plug)	50-1500	450	1
Cat. No.	**Accessories**					
15373538	Splash guard protection shield for all Isotemp 10.8cm x 10.8cm stirrers, hotplates and hotplate stirrers					
15383538	Splash guard protection shield for all Isotemp 18.4cm x 18.4cm stirrers, hotplates and hotplate stirrers					
15393538	Splash guard protection shield for all Isotemp 26cm x 26cm stirrers, hotplates and hotplate stirrers					
15303548	PT100 external probe, 0-400°C, stainless steel, for all sizes of Isotemp hotplates and hotplate stirrers					
15313548	PT1000 external probe (for better accuracy), 0-400°C, stainless steel, for all sizes of Isotemp hotplates and hotplate stirrers					
15323548	PT1000 external probe (for use with acids), 0-400°C, Hastelloy, for all sizes of Isotemp hotplates and hotplate stirrers					
15386607	Support rod to be used together with clamps and clamp holder to hold apparatus suitable for all Isotemp hotplates, stirrers and stirring hotplates					
15346617	Clamp and clamp holder to attach to supporting rod, suitable for all Isotemp hotplates, stirrers and stirring hotplates					
15353548	Power cord 1MM-2 BRIT 240 10A PE					
15343548	Power cord 18-3 HSJO 10A EURO 86 PE					

RT Basic series magnetic stirrers

- Strong magnetic coupling to ensure consistent stirring during experimental procedures
- Three size options: 120mm, 170mm, 220mm
- Low profile lightweight design with small footprint
- Speed control: 150 to 2500rpm
- Two non-slip silicone plate covers included with all units (1 black, 1 white)

Cat. No.	Stirring capacity (water)	Speed range	Maximum load (vessel)	Top plate dimensions	Overall dimensions (w x d x h)	Power consumption	Pack qty
15336607	2L	150 to 2500rpm	15kg	120mm	130 x 130 x 65mm	5W	1
15346607	4L	150 to 2500rpm	20kg	170mm	185 x 185 x 65mm	5W	1
15356607	5L	150 to 2500rpm	25kg	220mm	230 x 230 x 65mm	6W	1
Accessories							
Cat. No.	**Description**						
15396607	Non-slip silicone plate cover for 15336607 (white, diameter 120cm)						1
15316617	Non-slip silicone plate cover for 15346607 (white, diameter 170cm)						1
15326617	Non-slip silicone plate cover for 15356607 (white, diameter 220cm)						1

Isotemp RT digital hotplate

- Precise digital control to 0.1°C
- Automatic over-temperature safety shut off at 450°C
- HOT TOP warning indicator
- Microprocessor PID temperature control
- Non-slip heating bath (optional)
- Transparent safety shield (optional)
- Two threaded holes for support rods
- Keypad lock
- Heating rate can be set from 0 to 100% at 1% intervals
- View current and set temperature simultaneously
- Timer can be set to start immediately, count down or start when top plate reaches desired set point
- Aluminium top provides excellent temperature uniformity while the thin ceramic coating provides excellent corrosion resistance and a white surface for optimal sample viewing

Cat. No	Temperature range	Heating control	Maximum load (vessel)	Top plate dimensions	Overall dimensions (w x d x h)	Heating power	Pack qty
15306607	Max 350°C /662°F	Feedback Control with PID	25kg	140mm	161 x 290 x 100mm	600W	1
Accessories							
Cat. No	Description						
15366607	Heating bath						1
15376607	Transparent shield (PC)						1
15386607	Support rod (Ø12mm, 400mm, M10)						1

Isotemp RT Basic hotplate stirrer

- Automatic over-temperature safety shut off at 450°C
- Hot top warning indicator
- Max temperature of 350°C
- Non-slip heating bath (optional)
- Transparent safety shield (optional)
- Supporting rod (optional)
- Two threaded holes for support rods
- Aluminium top provides excellent temperature uniformity while the thin ceramic coating provides excellent corrosion resistance and a white surface for optimal sample viewing.
- 20L stirring capacity

Cat. No	Temperature range	Heating control	Stirring speed range	Stirring capacity (water)	Maximum load (vessel)	Top plate dimensions	Overall dimensions (w x d x h)	Heating power	Pack qty
15306607	Max 350°C /662°F	Scale	50 to 2000rpm	20L	25kg	140mm	161 x 290 x 100mm	600W	1
Accessories									
Cat. No	Description								
15366607	Heating bath								1
15376607	Transparent shield (PC)								1
15386607	Support rod (Ø12mm, 400mm, M10)								1

Stirrer, ultra thin, magnetic

- Modern magnetic coil technology
- Flat surface
- Ultra thin design - just 12mm high
- Simple control panel with easy to use interface
- Variable speed setting from 15 to 1,500rpm
- Speed indicator during operation
- Anti-skid pads
- Wearfree drive (no moving parts) so relatively maintenance free
- Set-up plate and casing made from chemically resistant materials
- Stir bar docking location to place or attach magnetic stir bar
- Power supply - supplied with UK and EU adapter
- Pulse function provides better mixing (stir bar alternates rotating clockwise and counter clockwise every 30s)

Cat. No	Description	Pack qty
15361901	Ultra thin magnetic stirrer	1

Isotemp RT Advanced hotplate stirrer

- Precise digital control with 0.1°C resolution
- HOT TOP warning indicator
- Microprocessor PID temperature control
- User configurable temperature limit setting
- Non-slip heating bath (optional)
- Transparent safety shield (optional)
- Two threaded holes for support rods
- Keypad lock
- Automatic over-temperature safety shut off at 450°C
- Heating rate can be set from 0 to 100% at 1% intervals
- View current and set temperature simultaneously
- Timer: start immediately or when desired temperature is reached
- Aluminium top provides excellent temperature uniformity while the thin ceramic coating provides excellent corrosion resistance and a white surface for optimal sample viewing
- 20L stirring capacity
- Stir speed range: 30-2000rpm
- If stirring viscosity changes, the feedback function allows unit to maintain set speed
- Temperature probe (included) when coupled, automatically changes to external sensor mode, user can check sample temperature also control via probe on digital display

Cat. No	Temperature range	Heating control	Stirring speed range	Stirring capacity (water)	Maximum load (vessel)	Top plate dimensions	Overall dimensions (w x d x h)	Heating power	Pack qty
15306607	Ambient 50°C to 350°C / 122°F to 662°F	Feedback Control with PID / Scale	30 to 2000rpm	20L	25kg	140mm	161 x 290 x 100mm	600W	1

Accessories	
Cat. No	Description
15366607	Heating bath
15376607	Transparent shield (PC)
15386607	Support rod (Ø12mm, 400mm, M10)
15366617	Temperature probe (PT 100, SN-8-4 connector sensor)
15346617	C-5, Clamp holder (PP body, Ø12 mm)
15356617	Three-prong clamp (60mm grip)

Magnetic followers, set, PTFE, cylindrical

- Set of 18 cylindrical followers in a compartmented box, comprising two each of the following sizes: 10mm x 6mm, 15mm x 4.5mm, 20mm x 6mm, 25mm x 6mm, 30mm x 6mm, 40mm x 8mm, 60mm x 10mm, 70mm x 10mm

Cat. No	Description	Pack qty
10226853	Magnetic followers	1

Magnetic follower restrainer

- Retrieve magnetic stirring bars easily from vessels with the handheld Spinbar™ restrainer

Cat. No	Description	Pack qty
11532912	Magnetic follower restrainer	1

Rotating mixer

A rotator with the option to add accessory heads for mixing micro-tubes, tubes and flasks. Heads are quick and easy to change.

- Suitable for continuous mixing, at variable speeds
- A small footprint rotator for general use
- Angle of the mixing disc is fully adjustable from horizontal to vertical
- Unit is benchtop or wall mountable

The three-layered mixing disc assembly is supplied ready for tube mixing. With the perforated mixing disc it is possible to 'mix and match' a variety of flask clips to suit different applications. Clips are supplied with all necessary fixings to enable them to be attached to the mixing disc.

Technical Specification

Speed range, rpm.....5 to 30
Dimensions [w x d x h], mm .....200 x 250 x 175
Mass, kg 3
Electrical supply.....230V, 50/60Hz

Cat. No	Description	Pack qty
11796587	Mixer rotator	1

Cat. No	Description	Pack qty
Accessories		
12377488	24 clip disc for tube diameter 8mm to 11mm	1
12387488	12 clip disc for tube diameter 15mm to 17mm	1
12397488	6 clip disc for tube diameter 27mm to 30mm	1
11706597	Carousel for 16mm tubes	1
12317498	Carousel for 25mm tubes	1
11756577	Flask clip, 100mL to 11mm	1
11766577	Flask clip, 250mL to 17mm	1

Vortexer, mini, fixed speed

- Small, compact vortex mixer
- Fixed speed 2,800rpm
- Orbit 4.5mm
- Touch function activates the motor immediately upon contact with a tube or vessel
- The unique cup design accepts tubes and vessels of all sizes, including 15 and 50mL conical tubes
- Power supply – supplied with both UK and EU adapters
- Two year warranty

Cat. No	Description	Pack qty
15212985	Vortexer, mini	1

Vortexer, mini, variable speed

NEW

- Small, compact vortex mixer
- Adjustable speed from 500 to 2,800rpm
- Orbit 4.5mm
- Touch-function activates the motor immediately upon contact with a tube or vessel
- The unique cup design accepts tubes and vessels of all sizes, including 15 and 50mL conical tubes
- Power supply - supplied with both UK and EU adapters
- Two year warranty

Cat. No	Description	Pack qty
15494960	Mini Vortexer, variable speed mixer 500-2800rpm	1

Vortex mixers, Classic and Wizard

- Wizard model features unique infrared tube sensing system
- Protection: IP42
- Speed, rpm: 0 to 3,000
- Orbit diameter, mm: 4.5
- Dimensions [w x d x h], mm: 180 x 220 x 70
- Mass, kg: 2.4
- Electrical supply: 230V, 50Hz

Cat. No	Description
11726744	Vortex mixer, Classic
11746744	Vortex mixer, Wizard

pH Meter, AB150

pH
- Range .....-2.000 to 20.000pH
- Resolution 0.1/0.01/0.001pH
- Accuracy.....±0.002pH + 1LSD
- Buffer Sets .....USA: 2.000, 4.010, 6.997, 10.013, 12.000
  NIST: 1.678, 4.010, 6.865, 9.184, 12.460
  DIN: 1.090, 3.060, 4.650, 6.790, 9.230, 12.750
  FSCI: 1.000, 3.000, 6.000, 8.000, 10.000, 13.000
  CUSTOM: Any 2-5 values, ≥1.0pH unit apart
- Slope Display .....Yes, up to 5 different slopes with offset
- Temp Compensation.....Automatic or manual (0 to 100°C / 32 to 212°F)

mV Mode
- Range .....±2000.0mV / Rel.mV
- Resolution 0.1mV
- Accuracy.....±0.2mV or ±0.05% whichever is greater
- Offer Adjustment.....Up to ±150mV

Temperature Mode
- Resolution .....0.1°C / 0.1°F
- Accuracy.....±0.3°C / ±0.5°F
- Calibration.....Offset in 0.1° increments; offset range: ±5°C / 9°F

Output.....RS-232 (phono plug), mini-B USB, stirrer
Language Selection.....English, French, Spanish, German, Italian, Chinese, Korean, Portuguese
Memory.....500 data sets, viewable
Datalogging .....Manual, timed (selectable every 3 to 3600 seconds).
Printer or CSV format

Cat. No	Description	Pack qty
12840633	AB150 Meter - Includes meter, electrode arm, RS232 & USB cables, 100/240V power supply, and manual	1
12870633	AB150 Kit - Includes meter, TRIS compatible pH/ATC electrode (Cat. No 11500194), electrode arm, RS232 & USB cables, 100/240V power supply, and manual	1
12880633	AB150 BioBasic Kit - Includes meter, TRIS compatible accuTupH pH electrode (Cat. No 11550174), ATC probe (Cat. No 10236064), electrode arm, 110/220V power supply, and manual	1

11706358
11776348

11749798
11739798

11786338
11726358

11769798

11709818

11755638
11765638
11775638
11785638

pH electrodes

Cat. No	Electrolyte	Style	Body material	pH range	Temperature range°C	Dimen-sions, mm	Cable	Con-nector	Sample/ application type	Pack qty
11706358	Gel	-	Plastic	0 to 13	0 to 80	12 x 120	1m	BNC	General/field purpose	1
11776348	Gel	-	Plastic	0 to 13	0 to 80	12 x 120	1m	DIN	General/field purpose	1
11786348	Gel	-	Plastic	0 to 14	0 to 80	12 x 120	-	S7	General/field purpose	1
11749798	KCL 4M + AgCl	-	Glass	0 to 13	0 to 80	12 x 120	1m	BNC	General/laboratory purpose	1
11739798	KCL 4M + AgCl	-	Glass	0 to 13	0 to 80	12 x 120	1m	DIN	General/laboratory purpose	1
11786338	KCL 4M + AgCl	-	Glass	0 to 14	0 to 80	12 x 160	-	S7	Laboratory purpose	1
11726358	KCL 3M + AgCl	Sleeve junction	Glass	0 to 14	0 to 80	12 x 120	-	S7	Laboratory purpose Low ionic strength Nonaqueous/viscous samples	1
11769798	KCL 4M + AgCl	Micro electrode	Glass	0 to 13	0 to 80	6 x 115	1m	BNC	Small samples	1
11709818	KCL 4M + AgCl	Micro electrode	Glass	0 to 13	0 to 80	6 x 115	1m	DIN	Small samples	1
11736209	Gel	Spear tip	Glass	1 to 11	0 to 70	6 x 92	-	S7	Food and drink	1
11755638	Gel	Tuff-Tip	Plastic	0 to 14	-5 to 100	12 x 120	1m	BNC	Environmental samples	1
11765638	Gel	Tuff-Tip	Plastic	0 to 14	-5 to 100	12 x 120	1m	DIN	Environmental samples	1
11775638	Gel	Tuff-Tip, double junction	Plastic	0 to 13	-5 to 100	12 x 120	1m	BNC	Environmental samples	1
11785638	Gel	Tuff-Tip, double junction	Plastic	0 to 13	-5 to 100	12 x 120	1m	DIN	Environmental samples	1

** Tuff-Tip is a robust alternative to conventional laboratory pH electrodes where membrane breakage is a problem. The rugged pH bulb is protected by unique Tuff-Tip shape making this electrode shock proof*

11768452

11778452

11758452

ORP electrodes

Cat. No	Electrolyte	Body material	mV range	Temperature range °C	Dimensions, mm	Cable	Connector	Pack qty
11768452	Gel	Plastic	±1500 mV	0 to 80	12 x 120	1m	BNC	1
11778452	Gel	Plastic	±1500 mV	0 to 80	12 x 120	1m	DIN	1
11758452	Gel	Plastic	±1500 mV	0 to 80	12 x 120	-	S7	1

Traceable™ four channel alarm timer

- Features: count up/down, time in/out, memories, alarm, 12/24 hour clock
- Large high display allows viewing from a distance
- Remarkable memory returns display to previously programmed countdown time at the touch of a button
- Extra-loud, high decibel alarms for 1 minute or can be silenced manually
- Timing capacity: 99 hours, 59 minutes, 59 seconds
- Resolution: 1 second
- Accuracy: 0.01%
- Supplied with clip, stand, magnet, battery, Traceable™ Certificate

Cat. No	Description	Pack qty
11745863	Traceable™ Four-Channel Alarm Timer	1

Traceable™ triple purpose timer

- Features: big digits, count-down alarm time, stopwatch, or 12/24 hour clock
- Always-ready memories on both countdown channels return display to previously programmed timing
- Timing capacity: 9 hours, 59 minutes, 59 seconds
- Resolution: 1 second
- Accuracy: 0.01%
- Supplied with battery, magnet, flip-open stand/clip, Traceable™ Certificate

Cat. No	Description	Pack qty
11507493	Traceable™ Triple Purpose Timer	1

Traceable™ Clip-It™ timer

- Features: count up/down, alarm, time in/out
- Memory saves last programmed setting for quick recall - useful for repetitive timing events
- Timing capacity: 99 hours, 59 minutes, 59 seconds
- Resolution: 1 second
- Accuracy: 0.005% quartz-crystal
- Supplied with clip, magnet, opening for lanyard, battery, Traceable™ Certificate

Cat. No	Description	Pack qty
11765873	Traceable™ Clip-It™ Timer	1

Traceable™ refrigerator/freezer thermometer

- Triple display simultaneously shows MIN/MAX and current temperatures, °C/°F switchable
- Accurately monitor temperatures in freezers, water baths, heating blocks, incubators and refrigerators with this enclosed temperature-buffered sensor
- Bottle insulates sensor from rapid temperature changes when refrigerator door is opened
- Minimum/maximum monitors high and low readings overnight, on weekends, or for any time period
- Alarm is programmable in 1° increments, sounds continuously when temperature rises above/falls below set points and can be turned off manually
- Visual and audible signals continue even if temperature returns to non-alarm range
- High-impact, chemical-resistant ABS plastic case: 70mm x 108mm x 19mm, weight 113g
- Supplied with stand, 3m micro cable, wall mounting, Velcro™, magnetic strips, Traceable™ Certificate

Cat. No	Range	Resolution	Accuracy	Probe	Pack qty
11873460	-50 to 70°C (-58 to 158°F)	1°	±1°C	Bottle (patented) specifically for refrigerator/freezer applications, 63mm length	1

Traceable™ alarm thermometer/alarm timer

- Unique thermometer/timer with alarms is perfect for monitoring liquids, air/gas, or semi-solids.
- Triple display simultaneously shows time remaining to zero, probe temperature, and temperature alarm setting. Large, 38 x 51 mm LCD may be read from 2.7 m away.
- Two distinctive alarms signal time and temperature.

Cat. No	Range	Resolution	Accuracy	Pack qty
11729735	0 to 200°C (32 to 392°F)	1°	±2°C	1

Traceable™ refrigerator/freezer Plus™ thermometer

- Triple display simultaneously shows MIN/MAX and current temperatures, °C/°F switchable
- Monitors high and low readings overnight, on weekends, or for any time period - a significant advantage over current read-only temperatures
- Alarm is programmable in 1° increments and alerts user when temperature rises above or falls below a set point
- Supplied with battery, Velcro™, magnetic strips, 3m cable, Traceable™ Certificate

Cat. No	Range	Resolution	Accuracy	Probe	Pack qty
11705853	-50 to 70°C (-58 to 158°F)	0.1°	±0.5°C (±0.9°F)	Bottle (patented) specifically for refrigerator/freezer applications, 63mm length	1

Traceable™ high-accuracy refrigerator/freezer thermometer

- Reads to 0.01° while monitoring temperatures in refrigerator and freezer simultaneously or two refrigerator locations, °C/°F switchable
- Visual and audible signals continue even if temperature returns to non-alarm range
- Triple display shows minimum, maximum and current temperatures
- Two channel alarms provide unique visual (LED's) and audio alerts when temperature rises above or falls below user-defined high and low set points
- Unit displays the exact time and date when dual thermometer alarms are triggered, alarms are programmable in 0.1° increments
- Monitors minimum and maximum readings and displays the exact time and date when minimum and maximum temperatures occurred for both probes
- Supplied with battery, 3m cable, magnetic strips, Velcro™, bench stand, Traceable™ Certificate

Cat. No	Range	Resolution	Accuracy	Probe	Pack qty
11725853	-50 to 70°C (-58 to 158°F)	0.01°	±0.30°C	Two bottle (patented)	1

Traceable™ thermometer, Lollipop, stainless steel

- Shock/waterproof unit delivers reading updates every second
- One-key operation recalls MIN/MAX temperature results, °C or °F switchable
- Supplied with battery, probe, probe cover with pocket clip, Traceable™ Certificate

Cat. No	Range	Resolution	Accuracy	Pack qty
11785853	-50 to 300°C (-58 to 572°F)	0.1° from -20 to 200°C; or 1°C elsewhere	±1°C	1

Traceable™ Digital-Bottle™ refrigerator/freezer thermometer

- MIN/MAX memory monitors high and low readings overnight, on weekends, or for any time period - a significant advantage over glass thermometers displaying only current temperature
- The entire unit, including the bottle and display, may be placed in any environment within the operating range of the thermometer
- MIN/MAX memory, °C/°F switchable
- Supplied with battery, holder, double-backed tape, Velcro™, Traceable™ Certificate

Cat. No	Range	Resolution	Accuracy	Probe	Pack qty
11709745	-30 to 50°C (-22 to 122°F)	0.1°	±1.0°C between -20.0 to 85°C	Glycol-filled bottle (patented)	1

Pumps, vacuum, double stages, rotary vane

For a wide range of laboratory applications and continuous running. These double stages rotary vane pumps provide a high water vapour tolerance. The low weight, small footprint and high pumping speed, together with increased chemical resistance, are ideal features for both research and routine applications.

- Compact design, low weight and easy to use
- Quiet running and excellent ultimate vacuum
- Active corrosion protection
- Easy maintenance
- Supplied with clamps and seals for the inlet and outlet
- Each pump comes with anti-suck back valve, gas ballast valve, oil charging, centring ring, clamping ring and motor overload protection

Cat. No	Flow rate, L/min	Vacuum [without gas ballast], mbar	Pack qty
12901141	30/36	1×10^{-2}	1
12911141	77/92	2×10^{-3}	1
12921141	97/110	2×10^{-3}	1
12931141	120/143	2×10^{-3}	1
12951141	183/220	2×10^{-3}	1

SAFETY

Paper, absorbent, surface protection

Ultra white absorbent paper, 100g/m^2, with polyethylene coating on one side. Protects laboratory benches from acids, toxic, corrosive and radioactive products and glass impact. Aids recovery of valuable materials such as precious metals.

- Grade 604 absorption capacity 170g/m^2
- Grade 606 absorption capacity 200g/m^2

Cat. No	Description	Pack qty
11728742	Grade 604, 46mm x 57mm sheets	100
11714916	Grade 604, 50mm x 50m roll	1
11749865	Grade 606, 92mm x 50m roll	1
11738742	Grade 606, 50mm x 60mm sheets	50

Gloves, latex, disposable, PPE Category III

- Latex examination gloves provide a protective barrier and contain soothing Aloe vera to help prevent skin from drying, cracking and chapping
- Textured to provide excellent grip
- Powder free
- EN 374:2003 (AQL 1.5)

Cat. No	Size	Pack qty
15153269	S	100
15173269	M	100
15163269	L	100
15183269	XL	100

Gloves, nitrile, disposable, aloe vera, PPE Category III

- Gloves feature a textured surface to provide ideal grip for dry and wet working conditions
- Aloe vera coating on the inner surface protects hands from drying, chapping and cracking, making this glove ideal for prolonged use
- Beaded cuff
- Mint green for easy identification

Cat. No	Size	Pack qty
15193269	S	100
15103279	M	100
15123279	L	100
15113279	XL	100

Gloves, nitrile, disposable, purple, PPE Category III

- Ergonomically designed and 100% nitrile. Latex and protein free with non-detectable residual accelerators
- Textured fingertips. Powder free

Cat. No	Size	Pack qty
250mm length		
11502723	XXS	100
11512723	XS	100
11522723	S	100
10223882	M	100
11542723	L	100
11552723	XL	100
300mm length		
10090812	XS	50
10611783	S	50
10000822	M	50
10769824	L	50
10580043	XL	50

Glove box holders, wire

- Epoxy coated steel wire racks which hold most major brands of glove boxes
- Available as a single box holder or as a three box holder
- Wall mount screws included

Cat. No	Description	Dimensions, (w x d x h), mm	Pack qty
11885843	One box holder	140 x 108 x 208	1
11895843	Three box holder	250 x 108 x 454	1

Laboratory coats, unisex

- Manufactured using a quality pre-shrunk polycotton fabric, it is suitable for industrial laundering at temperatures up to 85°C
- Features include two lower patch pockets, breast pocket with integral pen pocket, concealed stud fastened front, single rear vent for ease of movement
- Non-PPE product

Cat. No	Size	Pack qty
11558102	S	1
11568102	M	1
11578102	L	1
11588102	XL	1
11598102	XXL	1
11508112	XXXL	1

Lens cleaning tissues

- High quality lens cleaning tissues
- Very fine paper
- Non-scratching

Cat. No	Description	Pack qty
11507362	80mm x 100mm	50
11517362	95mm x 135mm	50

Fisherbrand™
QUALITY. RELIABILITY. VALUE.

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Whatever your application Fisherbrand has a solution for you

CHROMATOGRAPHY
Focus on vials, closures & chemicals

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