fisherbrand

# CHROMATOGRAPHY

## Focus on vials, closures & chemicals

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




fisher scientific
part of Thermo Fisher Scientific

# Focus on Chromatography Workflow

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




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# Focus on Chromatography Workflow

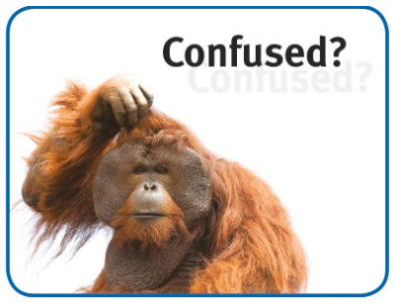
Depend on Fisherbrand and Fisher Chemical to provide products for every step of your chromatography workflow




This application brochure is dedicated to providing you with a comprehensive selection of key Fisherbrand items from our extensive chromatography consumables portfolio. 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.

If, however, you are unable to find the right product or simply need some further information then please contact our Product Support Advisors.







Check out our Frequently Asked Questions

## Contact our Product Support Advisors


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## Laboratory Reagents Handbook

For a fuller range of Fisher Chemical and Fisher BioReagents, please refer to our Laboratory Reagents handbook.
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For the analytical chemist:

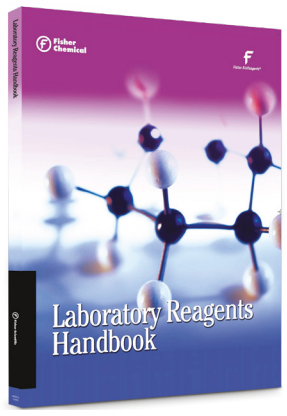
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  - Colour coded applications
  - Physical & chemical data
  - Hazard, packaging and storage information
  - Detailed specifications

For the life scientist:

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

Fisher Chemical

Fisher BioReagents®




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





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# Focus on Chromatography Workflow

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



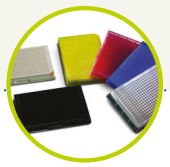

## Sample Collection



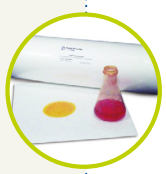
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- Headspace
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Stirrers and hotplates
Syringes
Syringe filters
Vacuum manifolds





## Complementary Pr

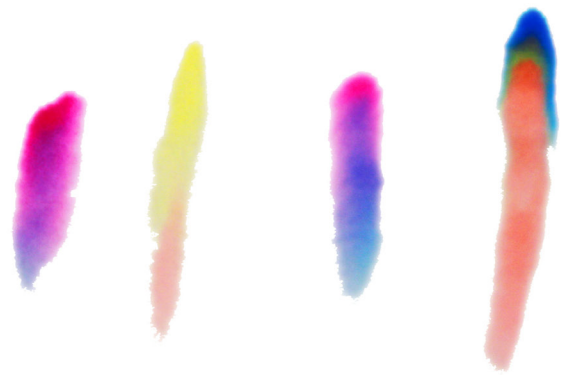
Flowmeters
Leak detectors
Regulators
Storage racks and bins
Syringes (digital, manual, a
Tubing





# General Introduction to Chromatography

Find out more about this separation technique and how it can be used to analyse and study proteins



## 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).

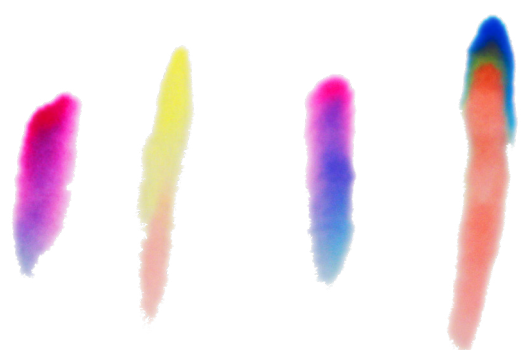


**Fig. 1 Using chromatography to separate the components of coloured marker pens**

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.

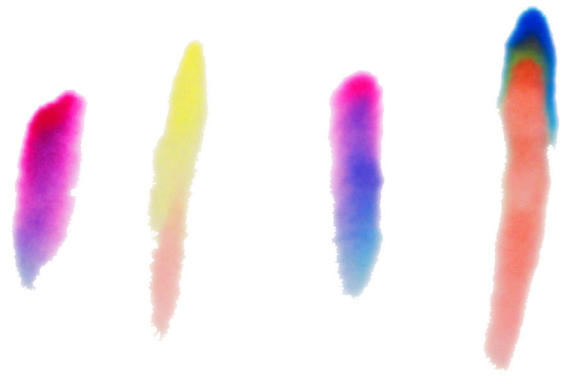
Chromatography can also be differentiated by virtue of the bed shape or configuration of the stationary phase, i.e. planar, or else columnar in a column or tube.

**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.

# General Introduction to Chromatography

Find out more about this separation technique and how it can be used to analyse and study proteins



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 Chemical 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 - an overview


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- Chromatography closures - an overview
- Types of caps
- Types of septa
- Seal hardness
- Vial certifications
- Characteristics and compatibilities




# Chromatography Vials and Closures - an overview

## Chromatography vials - an overview

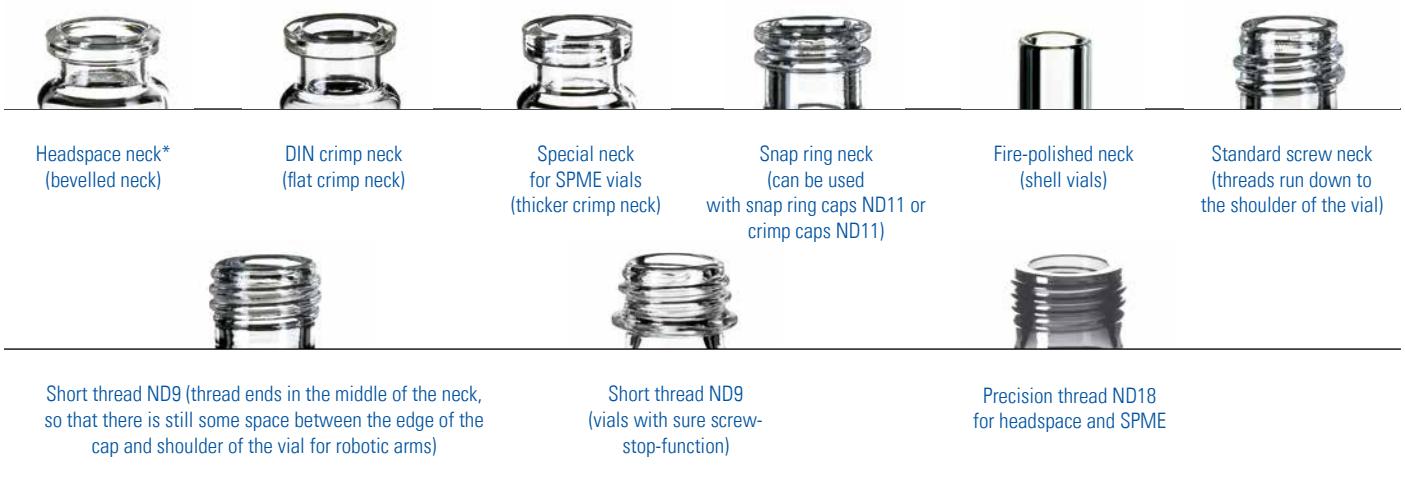
In chromatography, a broad variety of glass or plastic vials are used as containers for sample analysis, collection or storage. Since many vials are used with GC or LC autosamplers or other automated instruments, not only are their physical specifications and dimensions crucial for trouble-free operation, 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 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 1000°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**




*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.

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**Fig. 3 Base design**




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.

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## 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)



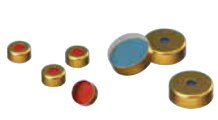
PE push-on caps
ND8 + ND11



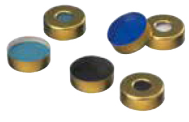
PE caps
(for crimp necks ND8, ND11 + ND20)



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.

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## Types of septa

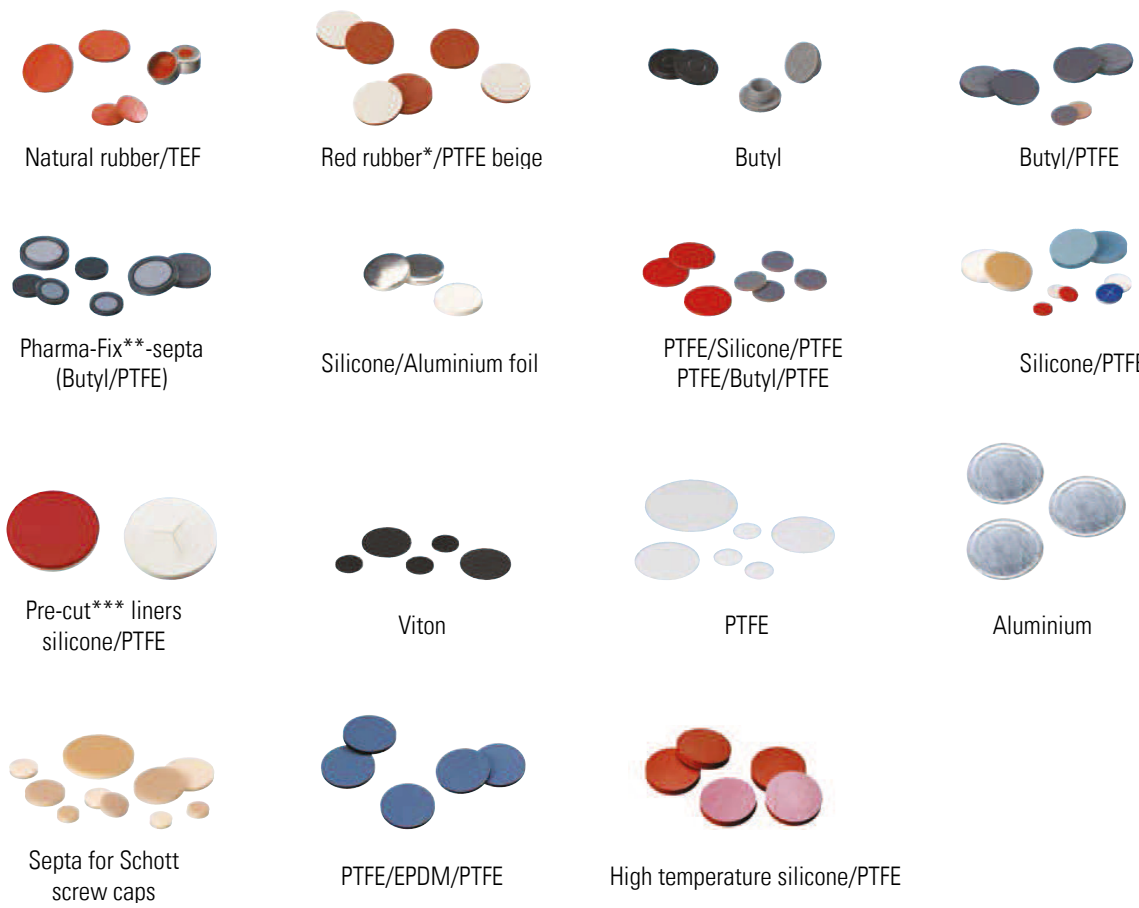
The right choice of septa depends on the application. Almost all septa are laminated on one side with PTFE, which has a high chemical resistance and forms an inert barrier between sample and carrier material of the septa. The carrier materials have different physical and chemical properties, such as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

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## 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 |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
- Types of septa
- Seal hardness
- Vial certifications
- Characteristics and compatibilities



## 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, micro-insert 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.

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## 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 | Polytetrafluorethylene | 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 |
|---|---|---|---|---|---|---|
| Acetaldehyde | GN | GF | GN | EE | GN | EE |
| Acetamide, Sat. | EE | EE | EE | EE | EE | EE |
| Acetic acid, 5% | EE | EE | EE | EE | EE | EE |
| Acetic acid, 50% | EE | EE | EE | EE | EE | EE |
| Acetic acid, Glacial | EG | EE | EG | EE | EG | EE |
| Acetic anhydride | NN | FF | GF | EE | EG | EE |
| Acetone | NN | NN | EG | EE | EE | EE |
| Acetonitrile | EE | EE | FN | EE | FN | EE |
| Acetophenone | NN | FF | FF | EE | GN | EE |
| Acrylonitrile | EE | EE | FN | EE | FN | EE |
| Adipic acid | EG | EE | EE | EE | EE | EE |
| Allyl alcohol | EE | EE | EE | EE | EG | EE |
| Aluminium Hydroxide | EG | EE | EG | EE | EG | SS |
| Amino acids | EE | EE | EE | EE | EE | EE |
| Ammonia | EE | EE | EE | EE | EE | SS |
| Ammonia, 25% | EE | EE | EE | EE | EE | SS |
| Ammonium glycolate | EG | EE | EG | EE | EG | EE |
| Ammonium hydroxide, 30% | EG | EE | EG | EE | EG | SS |
| Ammonium Hydroxide, 5% | EE | EE | EE | EE | EE | SS |
| Ammonium Oxalate | EG | EE | EG | EE | EG | EE |
| Ammonium Salts | EE | EE | EE | EE | EE | EE |

| Chemical | LDPE | HDPE | PP | PTFE | TPX | Glass |
|---|---|---|---|---|---|---|
| Amyl Alcohol | EE | EE | EE | EE | EE | EE |
| Amyl Chloride | NN | FN | EE | EE | NN | EE |
| Aniline | EG | EG | NN | EE | GF | EE |
| Aqua Regia | NN | NN | GF | EE | NN | SS |
| Arsenic Acid | GF | EG | NN | EE | EE | EE |
| Benzaldehyde | EG | GN | EE | EE | EG | EE |
| Benzenamine | EG | EG | EG | EE | GF | EE |
| Benzene | NN | NN | NN | EE | GF | EE |
| Benzoic Acid, Sat. | EE | EE | EG | EE | EG | EE |
| Benzyl Acetate | EG | EE | EG | EE | EG | EE |
| Benzyl Alcohol | NN | FN | NN | EE | NN | EE |
| Boric Acid | EE | EE | EE | EE | EE | EE |
| Bromine | NN | FN | NN | EE | NN | EE |
| Bromobenzene | NN | NN | NN | EE | NN | EE |
| Bromoform | NN | NN | NN | EE | NN | EE |
| Bromobenzene | NN | NN | NN | EE | NN | EE |
| Bromoform | NN | NN | NN | EE | NN | EE |
| 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 |

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## Table 4: Chemical compatibilities of vial and closure materials, continued

| Chemical | LDPE | HDPE | PP | PTFE | TPX | Glass |
|---|---|---|---|---|---|---|
| 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 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 |
| 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 |

| Chemical | LDPE | HDPE | PP | PTFE | TPX | Glass |
|---|---|---|---|---|---|---|
| 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 |

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## Table 5: Autosampler compatibility chart



1 Crimp Neck ND8

| | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11732408<br>11742408 | 11561364 | 11531374<br>11541374 | 11717567<br>11722408 | 11792408<br>11782408 | 11712408 | 11565874<br>10560053<br>11595874<br>11525884 | 11515884 | 11575884<br>10080952<br>11515894<br>10145714<br>12951011<br>15166425<br>15136425<br>15176425<br>11871653<br>11595914<br>11707597<br>11727597<br>11575894<br>11585894<br>11595894<br>11535914<br>15592310<br>11515924<br>11884930<br>11851673<br>11814940<br>11824940 | 11511474<br>10521593<br>11531474 | 10081022<br>10326042<br>11535884<br>11545884<br>11565894<br>10678005<br>11505894 | 11865813<br>11555894 | 11505884 | 11555894 |
| Agilent | 1050 | | | | | | | | | X | | X | | | |
| Agilent | 1050 (34 Pos. Tray) | | | | X | | | | | | | | | | |
| Agilent | 1090 | | | | | | | | | X | | X | | | |
| Agilent | 1090 (34 Pos. Tray) | | | | X | | | | | | | | | | |
| Agilent | 1100 | | | | | | | | | X | | X | | | |
| Agilent | 1200 | | | | | | | | | X | | X | | | |
| Agilent | 1260 Infinity | | | | | | | | | X | | X | | | |
| Agilent | 1290 Infinity | | | | | | | | | X | | X | | | |
| Agilent | G1888A | | | | | | | | | | | | | | |
| Agilent | 7673A | | | | X | | | | | X | | X | | | |
| Agilent | 7683A | | | | X | | X | | | X | | X | | | |
| Agilent | HS7694 | | | | | | | | | | | | | | |
| Agilent | 7695A | | | | | | | | | | | | | | |
| Agilent | 79855(A) | | | | | | | | | X | | X | | | |
| Agilent | 5880 | | | | | | | | | X | | X | | | |
| Agilent | 5890 | | | | | | | | | X | | X | | | |
| Agilent | 6850 (27 Pos. Tray) | | | | | | | | | X | | X | | | |
| Agilent | 6850 (22 Pos. Tray) | | | | | | | | | | | | | | |
| Agilent | 6890 | | | | | | | | | X | | X | | | |
| Agilent | CTC HTS+HTC PAL | X | | | X | X | | | | X | | X | | | |
| Agilent | CTC GC PAL | X | | | X | X | | | | X | | X | | | |
| Agilent | CTC Combi PAL | | | | | | | | | | | | | | |
| Agilent | Tekmar SOLATek72 | | | | | | | | | | | | | | |
| Agilent | Archon Pluge + Trap | | | | | | | | | | | | | | |
| Agilent | AQUATek 70 | | | | | | | | | | | | | | |
| Agilent | 7693A | | | | | | | X | | | | X | | | |
| Agilent | HS7694 | | | | | | | | | | | | | | |
| Agilent | 7697A | | | | | | | | | | | | | | |
| Analytik Jena | multi N/C 3000 (TOC) | | | | | | | | | | | | | | |
| Antec Leyden | Alexys | | | | | | | X | | X | | X | | | |
| Antec Leyden | AS 100 | | | | | | | X | | X | X | X | | | |
| Antek | 736 Unisampler | | | | | | | X | | X | X | X | | | |
| Antek | 738 | | | | | | | X | | X | X | X | | | |
| Atas | GL Focus | | | | | | | X | | X | | X | | | |
| Beckman | 501 | | | | X | | | X | | X | X | X | | | |
| Beckman | 502/502e | | | | X | | | X | | X | X | X | | | |
| Beckman | 504 | X | | | | X | | | | | | | | | |
| Beckman | 507/507e | | | | X | | | X | X | X | X | X | | | |
| Beckman | 508 (System Gold) | | | | | | | | | X | | | | | |
| Beckman | Marathon | | | | | | | X | X | X | | X | | X | |
| Beckman | Promis | | | | | | | X | X | X | | X | | X | |
| Beckman | Triathlon,Standard Tray | | | | | | | X | X | X | | X | | X | X |
| Beckman | Triathlon, LSV Tray | | | | X | | | | | | | | | | |
| Beckman | Triathlon, Super-LSV Tray | | | | | | | | | | | | | | |
| Beckman | Triathlon, Micro-Tray | X | | | | X | | | | | | | | | |
| Bruker | LC51 | | | | | | | | | | | | | | |
| Cambridge Scientific Instruments | 205 Series | | | | | | | X | | X | X | X | | | |
| Cambridge Scientific Instruments | 300 Series | | | | | | | X | | X | X | X | | | |
| Carlo Erba | AS100 | X | | | X | X | | X | X | X | | X | | X | |
| Carlo Erba | AS200 | X | | | | X | | X | | X | | X | | X | |
| Carlo Erba | A200LC | X | | | | X | | X | X | X | | X | | X | |
| Carlo Erba | AS200S | X | | | | X | | X | X | X | | X | | X | |
| Carlo Erba | AS300 | X | | | X | X | | X | X | X | | X | | X | |
| Carlo Erba | AS800, 42 vial tray | | | | | | | X | | X | | X | | X | X |
| Carlo Erba | AS800, 60 vial tray | | X | X | X | | | X | | X | | X | | | |
| Carlo Erba | HS250 | | | | | | | | | | | | | | |
| Carlo Erba | HS500 | | | | | | | | | | | | | | |
| Carlo Erba | HS800 | | | | | | | | | | | | | | |
| Carlo Erba | HS850 | | | | | | | | | | | | | | |
| Cecil Instruments | CE4800 | | | | | | | X | | X | X | X | | | |
| Cecil Instruments | AutoQuest | | | | | | | | X | | X | X | X | | |
| CTC (LEAP) | LC PAL (216 Pos.) | | | | | | | X | X | X | X | X | | X | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray) | X | | | | | | | | | | | | | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray) | | | | X | | | X | X | X | X | X | | X | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray) | | | | | | | | | | | | | | |
| CTC (LEAP) | Combi PAL (200 Pos. Tray), GC PAL (200Pos. Tray) | X | | | | | | | | | | | | | |
| CTC (LEAP) | Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray) | | | | X | | | | | X | | X | | X | |
| CTC (LEAP) | Combi PAL SPME Mode (98 Pos. Tray) | | | | | | | | | X | | X | | X | |
| 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 | X | | | | | | X | | X | X | X | | | |
| CTC | PAL Combi-xt Liqid Mode | X | | | | | | X | | X | X | X | | | |
| CTC | Combi-xt Headspace Option | | | | | | | | | | | X | | | |
| CTC | GC-xt Headspace Option | X | | | | | | X | | X | X | X | | | |
| CTC | PAL HTC-xt | X | | | | | | X | | X | X | X | | | |
| CTC | HTS-xt | X | | | | | | X | | X | X | X | | | |
| CTC | HTX-xt | X | | | | | | X | | X | X | X | | | |
| CTC | Combi-xt SPME Options | | | | | | | | | | | X | | | |
| CTC | A200S | X | | | | X | | X | | X | X | X | | | |
| CTC | A200 LC | X | | | | X | | X | X | X | X | X | | X | |
| CTC | HS 500 | | | | | | | | | | | | | | |
| DANI | ALS 39.80 | | | | | | | | | X | | X | | | |
| DANI | ALS 86.80 | | | | | | | | | X | | X | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
- Types of septa
- Seal hardness
- Vial certifications
- Characteristics and compatibilities



## Table 5: Autosampler compatibility chart, continued



2 Snap Ring ND11

| | | Snap Ring ND11 [2] | 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 (EPA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11525894<br>11535894<br>11545894<br>11545914<br>12672465<br>15219468<br>11585914<br>11505924<br>11525924<br>11545924<br>11717597<br>11894930<br>11804940<br>11834940 | 10571013<br>11556044<br>11576044<br>11586044 | 10306062 | 10145424<br>10506075<br>11561374<br>10224852 | 11555914<br>11565914 | 11516074<br>10455982 | 10663303 | 10681033<br>10195012 | 12990951<br>10080822<br>10152512<br>12981241 | 10680843<br>12971231<br>11552340 | 11506114<br>12941221<br>11526114<br>12951221<br>10070952<br>10510323<br>12910991 | 10192652 | 11520545 | 10465982<br>10000782<br>10758874<br>11510585<br>11798256<br>11530585<br>11540585<br>11550585 |
| Agilent | 1050 | X | | | | | | | | | | | | | |
| Agilent | 1050 (34 Pos. Tray) | | | | | | | | | | | | | | |
| Agilent | 1090 | X | | | | | | | | | | | | | |
| Agilent | 1090 (34 Pos. Tray) | | | | | | | | | | | | | | |
| Agilent | 1100 | X | | | | | | | | | | | | | |
| Agilent | 1200 | X | | | | | | | | | | | | | |
| Agilent | 1260 Infinity | | | | | | | | | | | | | | |
| Agilent | 1290 Infinity | | | | | | | | | | | | | | |
| Agilent | G1888A | | X | | | | | | | | X | | | | |
| Agilent | 7673A | | | | | | | | | | | | | | |
| Agilent | 7683A | | | | | | | | | | | | | | |
| Agilent | HS7694 | | X | | | | | | | | X | | | | |
| Agilent | 7695A | | | | | | | | | | | | | | X |
| Agilent | 79855(A) | X | | | | | | | | | | | | | |
| Agilent | 5880 | | | | | | | | | | | | | | |
| Agilent | 5890 | | | | | | | | | | | | | | |
| Agilent | 6850 (27 Pos. Tray) | | | | | | | | | | | | | | |
| Agilent | 6850 (22 Pos. Tray) | | X | | | | | | | | | | | | |
| Agilent | 6890 | | | | | | | | | | | | | | |
| Agilent | CTC HTS+HTC PAL | X | | | | | | | | | | | | | |
| Agilent | CTC GC PAL | | | | | | | | | | | | | | |
| Agilent | CTC Combi PAL | | | | | | | | X | | | X | | | |
| Agilent | Tekmar SOLATek72 | | | | | | | | | | | | | | X |
| Agilent | Archon Pluge + Trap | | | | | | | | | | | | | | X |
| Agilent | AQUATek 70 | | | | | | | | | | | | | | X |
| Agilent | 7693A | X | X | | X | | | | | | | | | | |
| Agilent | HS7694 | | X | | | | | | | | X | | | | |
| Agilent | 7697A | | | | | | | | | | X | | | | |
| Analytik Jena | multi N/C 3000 (TOC) | | | | | | | | | | | | | | X |
| Antec Leyden | Alexys | X | | | | | | | | | | | | | |
| Antec Leyden | AS 100 | X | | | | | | | | | | | | | |
| Antek | 736 Unisampler | X | | | | | | | | | | | | | |
| Antek | 738 | X | | | | | | | | | | | | | |
| Atas | GL Focus | X | | | | | | | | | | | | | |
| Beckman | 501 | X | | | | | | | | | | | | | |
| Beckman | 502/502e | X | | | | | | | | | | | | | |
| Beckman | 504 | | | | | | | | | | | | | | |
| Beckman | 507/507e | X | | | | | | | | | | | | | |
| Beckman | 508 (System Gold) | | | | | | | | X | | | | | | |
| Beckman | Marathon | X | | | | | | | | | | | | | |
| Beckman | Promis | X | | | | | | | | | | | | | |
| Beckman | Triathlon,Standard Tray | X | | | | | | X | X | | | | | | |
| Beckman | Triathlon, LSV Tray | | X | | | | | | | | | | | | |
| Beckman | Triathlon, Super-LSV Tray | | | | | | | | X | | | | | | |
| Beckman | Triathlon, Micro-Tray | | | | | | | | | | | | | | |
| Bruker | LC51 | | X | | | | | | | | | | | | |
| Cambridge Sci- entific Instruments | 205 Series | | X | | | | | | | | | | | | |
| Cambridge Sci- entific Instruments | 300 Series | | X | | | | | | | | | | | | |
| Carlo Erba | AS100 | X | | | | X | | | | | | | | | |
| Carlo Erba | AS200 | | | | | | | | | | | | | | |
| Carlo Erba | A200LC | X | | | | X | | | | | | | | | |
| Carlo Erba | AS200S | | | | | | | | | | | | | | |
| Carlo Erba | AS300 | X | | | | X | | | | | | | | | |
| Carlo Erba | AS800, 42 vial tray | | | | | | | | | | | | | | |
| Carlo Erba | AS800, 60 vial tray | | | | | | | | | | | | | | |
| Carlo Erba | HS250 | | | | | | | | X | | | | | | |
| Carlo Erba | HS500 | | | | | | | | X | | | | | | |
| Carlo Erba | HS800 | | | | | | | | X | | | X | | | |
| Carlo Erba | HS850 | | | | | | | | X | | | X | | | |
| Cecil Instruments | CE4800 | X | | | | | | | | | | | | | |
| Cecil Instruments | AutoQuest | X | X | | X | | | | | | | | | | |
| CTC (LEAP) | LC PAL (216 Pos.) | X | | | | | | | X | | | | | | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray) | | | | | | | | | | | | | | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray) | X | | | | | | | X | | | | | | |
| CTC (LEAP) | HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray) | | | | | | | | | | | X | | | |
| CTC (LEAP) | Combi PAL (200 Pos. Tray), GC PAL (200 Pos. 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) | | | | | | | | X | | | X | | | |
| CTC (LEAP) | "Combi PAL SPME Mode (32 Pos. Tray)" | | | | | | | | | | | X | | | |
| CTC | PAL HPLC-Systems | | | | | | | | X | | | X | | | |
| CTC | PAL Combi-xt Ligid Mode | | | | | | | | X | | | X | | | |
| CTC | Combi-xt Headspace Option | | | | | | | | X | | | X | | | |
| CTC | GC-xt Headspace Option | | | | | | | | X | | | X | | | |
| CTC | PAL HTC-xt | | | | | | | | X | | | X | | | |
| CTC | HTS-xt | | | | | | | | X | | | X | | | |
| CTC | HTX-xt | | | | | | | | X | | | X | | | |
| CTC | Combi-xt SPME Options | | | | | | | | X | | | X | | | |
| CTC | A200S | | | | | | | | | | | | | | |
| CTC | A200 LC | X | | | | | | | X | | | | | | |
| CTC | HS 500 | | | | | | | | X | | | | | | |
| DANI | ALS 39.80 | X | | | | | | | | | | | | | |
| DANI | ALS 86.80 | X | | | | | | | | | | | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
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- Types of caps
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## Table 5: Autosampler compatibility chart, continued



3 Screw Neck ND8

| | | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 [3] | Crimp Neck ND8 | ScrewNeck ND8 | ScrewNeck ND8 | Short Thread ND9 | Screw Neck ND10 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11732408<br>11742408 | 11561364 | 11531374<br>11541374 | 11717567<br>11722408 | 11792408<br>11782408 | 11712408 | 11565874<br>10560053<br>11595874<br>11525884 | 11515884 | 11575884<br>10080952<br>11515894<br>10145714<br>12951011<br>15166425<br>15136425<br>15176425<br>11871653<br>11595914<br>11707597<br>11727597<br>11575894<br>11585894<br>11595894<br>11535914<br>15592310<br>11515924<br>11884930<br>11851673<br>11814940<br>11824940 | 11511474<br>10521593<br>11531474 | 10081022<br>10326042<br>11535884<br>11545884<br>11565894<br>10678005<br>11505894 | 11865813<br>11555894 | 11505884 | 11555894 |
| DANI | ALS 1000 | | | | | | | | | X | | X | | | |
| DANI | HS39.50 | | | | | | | | | | | | | | |
| DANI | HS86.50 | | | | | | | | | | | | | | |
| DANI | Master AS | | | | | | | | | X | | X | | | |
| Dimatec | Dimatoc 2000 | | | | | | | | | | | | | | |
| Dionex | Gina 50 | | | X | | | | | | X | | X | | | |
| Dionex | AS 50 | | | | X | | | X | | X | X | | | | |
| Dionex | Summit ASI 100, Micro-Tray (192 Pos.) | | | X | | | | | | | | | | | |
| Dionex | Summit ASI 100, Analytical- Tray (117 Pos.) | | | | | | | X | | X | | X | | | |
| Dionex | Summit ASI 100, Semiprep.- Tray (63 Pos.) | | | | | | | | | | | | | | |
| Dionex | Famos (LC Packings/Dionex) | | | | | | | X | | X | X | X | | | |
| Dionex | UltiMate Analytical, cylindri- cal, WPS-3000 SL, 120 Pos. Rack (2ml) | | | | | | | X | | X | X | X | | | |
| Dionex | UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1ml=2ml w. Inserts) | | | | | | | | | | | | | X | |
| Dionex | UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µl) | | | | X | | | | | | | | | | |
| 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) | | | X | | | | | | | | | | | |
| Dionex | ASE 200 | | | | | | | | | | | | | | |
| Dionex | AS 40 | | | | | | | | | | | | | | |
| Dionex | HS-HV | | | | | | | X | | | | | | | |
| Dimatec | Dimatoc 200 | | | | | | | | | | | | | | |
| Dimatec | Dimatoc 300 | | | | | | | | | | | | | | |
| Dimatec | Dimatoc 400 | | | | | | | | | | | | | | |
| Finnigan | A200S | X | | | | X | | X | | X | | X | | | |
| Fisons | AS100 | X | | | X | X | | X | X | X | | X | | X | |
| Fisons | AS200 | X | | | | X | | X | | X | | X | | X | |
| Fisons | A200LC | X | | | | X | | X | X | X | | X | | X | |
| Fisons | AS200S | X | | | | X | | X | X | X | | X | | X | |
| Fisons | AS300 | X | | | X | X | | X | X | X | | X | | X | |
| Fisons | AS800, 42 vial tray | | | | | | | X | | X | | X | | X | X |
| Fisons | AS800, 60 vial tray | | X | X | X | | | X | | X | | X | | | |
| Fisons | HS250 | | | | | | | | | | | | | | |
| Fisons | HS500 | | | | | | | | | | | | | | |
| Fisons | HS800 | | | | | | | | | | | | | | |
| Fisons | HS850 | | | | | | | | | | | | | | |
| GE Instruments | Sievers® 900 | | | | | | | | | | | | | | |
| Gerstel | MPS2 | X | | | X | X | | | | | | X | | X | |
| Gilson | 201/202 | | | | | | | X | | X | | | | | |
| Gilson | 221/222 | | | | | | | X | | X | | | | | |
| Gilson | 231/401 | | | | | | | X | | X | | | | | |
| Gilson | 232/402 | | | | | | | X | | X | | | | | |
| Gilson | Aspec | | | | | | | X | | X | | | | | |
| Gilson | Aspec Xli | | | | | | | X | | X | | | | | |
| Gilson | Aspec XL4 | | | | | | | X | | X | | | | | |
| Gilson | 221XL/222XL | X | | | X (only f. 221XL) | X | | | | | | | | | |
| Gilson | 223 | X | | | | X | | | | | | | | | |
| Gilson | 231XL/232XL/233XL | X | | | X (only f. 231XL) | X | | | | | | | | | |
| Gilson | Nano Injektor | | | | | | | X | | X | | | | | |
| Gilson | 235/235P/SP 235/SP 235P | X | | | | X | | X | | X | | | | | |
| Gynkotek | Gina 50 | | | X | | | | | | X | | X | | | |
| Hach Lange | IL 550 TOC-TN | | | | | | | | | | | | | | |
| HTA | HT200H | | | | | | | | | | | | | | |
| HTA | HT250D | | | | | | | X | | X | X | X | | | X |
| HTA | HT280T | | | | | | | X | | X | X | X | | | X |
| HTA | HT300A | | | | | | | X | | X | X | X | | | X |
| HTA | HT310A | | | | | | | X | | X | X | X | | | X |
| HTA | HT300L | | | | | | | X | | X | X | X | | | |
| ICI | LC1600 | X | | | | X | | | | | | | | | X |
| IMT GmbH | VSP4000 | | | | | | | | | | | | | | |
| IMT GmbH | PTA3000 | | | | | | | | | | | | | | |
| Jasco | AS 2055/AS 2055 (i) | | | | X | | | X | | X | X | X | | | |
| Jasco | AS 2057/AS 2057 (i) | | | | X | | | X | | X | X | X | | | |
| Jasco | AS 2059 | | | | X | | | X | | X | X | X | | | |
| Knauer | K-3800 (Basic Marathon) | | | | | | | X | X | X | | X | | X | |
| Knauer | Smartline K-3950 | | | | | | | X | | X | | X | | | |
| Knauer | PLATINblue AS-1 | | | | | | | X | | X | | X | | | |
| LDC | 713-60 | | X | | X | | | | | | | | | | |
| LDC | Marathon | | | | | | | X | X | X | | X | | X | |
| LDC | Promis | | | | | | | X | X | X | | X | | X | |
| 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 | | | | | | | | | | X | X | | | |
| PerkinElmer | Series 200, 81/100 vial tray | | | | | | | | | | X | X | | | |

# Chromatography vials and closures - an overview

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## Table 5: Autosampler compatibility chart, continued



4 Shell Vials

| | | Snap Ring ND11 | Screw Neck ND13 | Shell Vials 4 | 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<br>11535894<br>11545894<br>11545914<br>12672465<br>15219468<br>11585914<br>11505924<br>11525924<br>11545924<br>11717597<br>11894930<br>11804940<br>11834940 | 10571013<br>11556044<br>11576044<br>11586044 | 10306062 | 10145424<br>10506075<br>11561374<br>10224852 | 11555914<br>11565914 | 11516074<br>10455982 | 10663303 | 10681033<br>10195012 | 12990951<br>10080822<br>10152512<br>12981241 | 10680843<br>12971231<br>15552340 | 11506114<br>12941221<br>11526114<br>12951221<br>10070952<br>10510323<br>12910991 | 10192652 | 11520545 | 10465982<br>10000782<br>10758874<br>11510585<br>11798256<br>11530585<br>11540585<br>11550585 |
| DANI | ALS 1000 | X | | | | | | | | | | | | | |
| DANI | HS39.50 | | | | | | | | | | X | | | | |
| DANI | HS86.50 | | | | | | | | | | X | | | | |
| DANI | Master AS | X | | | | | | | | | X | | | | |
| Dimatec | Dimatoc 2000 | | | | | | | | | | | | | | X |
| Dionex | Gina 50 | X | X | | | | | | | | | | | | |
| Dionex | AS 50 | X | | | | | | | | | | | | | |
| Dionex | Summit ASI 100, Micro-Tray (192 Pos.) | | | | | | | | | | | | | | |
| Dionex | Summit ASI 100,<br>Analytical- Tray (117 Pos.) | X | | | | | | | | | | | | | |
| Dionex | Summit ASI 100,<br>Semiprep.- Tray (63 Pos.) | | X | | | | | | | | | | | | |
| Dionex | Famos<br>(LC Packings/Dionex) | X | | | | | | | X | | | | | | |
| Dionex | UltiMate Analytical, cylindri- cal, WPS-3000 SL, 120 Pos. Rack (2ml) | X | | | | | | | X | | | | | | |
| Dionex | UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1ml=2ml w. Inserts) | | | | | | | | X | | | | | | |
| Dionex | UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µl) | | | | | | | | X | | | | | | |
| Dionex | UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. Rack (4ml) | | X | | | | | | X | | | | | | |
| Dionex | UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. Rack (1.2ml) | | | | | | | | X | | | | | | |
| Dionex | ASE 200 | | | | | | | | | | | | | | X |
| Dionex | AS 40 | | X | | X | | | | | | | | | | |
| Dionex | HS-HV | | | | | | | | | | | | | | |
| Dimatec | Dimatoc 200 | | | | | | | | | | | | | | X |
| Dimatec | Dimatoc 300 | | | | | | | | | | | | | | X |
| Dimatec | Dimatoc 400 | | | | | | | | | | | | | | X |
| Finnigan | A200S | | | | | | | | | | | | | | |
| Fisons | AS100 | X | | | | X | | | | | | | | | |
| Fisons | AS200 | | | | | | | | | | | | | | |
| Fisons | A200LC | X | | | | X | | | | | | | | | |
| Fisons | AS200S | | | | | | | | | | | | | | |
| Fisons | AS300 | X | | | | X | | | | | | | | | |
| Fisons | AS800, 42 vial tray | | | | | | | | | | | | | | |
| Fisons | AS800, 60 vial tray | | | | | | | | | | | | | | |
| Fisons | HS250 | | | | | | | | X | | | | | | |
| Fisons | HS500 | | | | | | | | X | | | | | | |
| Fisons | HS800 | | | | | | | | X | | | X | | | |
| Fisons | HS850 | | | | | | | | X | | | X | | | |
| GE Instruments | Sievers® 900 | | | | | | | | | | | | | | X |
| Gerstel | MPS2 | | | | | | | | X | | | X | | | |
| Gilson | 201/202 | | | | | X | X | | | | | | | | |
| Gilson | 221/222 | | | | | X | X | | | | | | | | |
| Gilson | 231/401 | | | | | X | | | | | | | | | |
| Gilson | 232/402 | | | | | X | | | | | | | | | |
| Gilson | Aspec | | | | | X | X | | | | | | | | |
| 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 | X | X | | | | | | | | | | | | |
| Hach Lange | IL 550 TOC-TN | | | | | | | | | | | | | | X |
| HTA | HT200H | | | | | | | | | | X | | | | |
| HTA | HT250D | X | | | | | | | | | X | | | | |
| HTA | HT280T | X | | | | | | | | | X | | | | |
| HTA | HT300A | X | | | | | | | | | | | | | |
| HTA | HT310A | X | | | | | | | | | | | | | |
| HTA | HT300L | X | | | | | | | | | X | | | | |
| ICI | LC1600 | | | | | | | | | | | | | | |
| IMT GmbH | VSP4000 | | | | | | | | | | | | | | X |
| IMT GmbH | PTA3000 | | | | | | | | | | | | | | |
| Jasco | AS 2055/AS 2055 (i) | X | | | | | | | | | | | | | |
| Jasco | AS 2057/AS 2057 (i) | X | | | | | | | | | | | | | |
| Jasco | AS 2059 | X | | | | | | | | | | | | | |
| Knauer | K-3800 (Basic Marathon) | X | | | | | | X | | | | | | | |
| Knauer | Smartline K-3950 | X | | | | | | X | | | | | | | |
| Knauer | PLATINblue AS-1 | X | | | | | | | | | | | | | |
| LDC | 713-60 | | | | | | | | | | | | | | |
| LDC | Marathon | X | | | | | | | | | | | | | |
| LDC | Promis | X | | | | | | | | | | | | | |
| LEAP | pls. see CTC | | | | | | | | | | | | | | |
| O.I. Analytical | 1020A | | | | | | | | | | | | | | X |
| O.I. Analytical | 1088 | | | | | | | | | | | | | | X |
| O.I. Analytical | 1096+ | | | | | | | | | | | | | | X |
| O.I. Analytical | 4551A | | | | | | | | | | | | | | X |
| O.I. Analytical | 1552 | | | | | | | | | | | | | | X |
| PerkinElmer | Series 200, 25 vial tray | | | | | | | X | | | | | | | |
| PerkinElmer | Series 200, 85 vial tray | | | | | | | X | | | | | | | |
| PerkinElmer | Series 200, 81/100 vial tray | | | | | | | | | | | | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
- Types of septa
- Seal hardness
- Vial certifications
- Characteristics and compatibilities



## Table 5: Autosampler compatibility chart, continued



5 Short Thread ND9

| | | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | ScrewNeck ND8 | ScrewNeck ND8 | Short Thread ND9 5 | Screw Neck ND10 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11732408<br>11742408 | 11561364 | 11531374<br>11541374 | 11717567<br>11722408 | 11792408<br>11782408 | 11712408 | 11565874<br>10560053<br>11595874<br>11525884 | 11515884 | 11575884<br>10080952<br>11515894<br>10145714<br>12951011<br>15166425<br>15136425<br>15176425<br>11871653<br>11595914<br>11707597<br>11727597<br>11575894<br>11585894<br>11595894<br>11535914<br>15592310<br>11515924<br>11884930<br>11851673<br>11814940<br>11824940 | 11511474<br>10521593<br>11531474 | 10081022<br>10326042<br>11535884<br>11545884<br>11565894<br>10678005<br>11505894 | 11865813<br>11555894 | 11505884 | 11555894 |
| PerkinElmer | Series 200, 205 vial tray | | | | X | | | | | | X | X | | | |
| PerkinElmer | Series 200, 225 vial tray | | | | X | | | | | | | | | | |
| PerkinElmer | AI-1 | | X | | X | | | | | | | X | | | |
| PerkinElmer | AS-100/AS-100B | | X | | X | | | | | | | X | | | |
| PerkinElmer | AS2000/AS2000B | | X | | | | X | | | | X | X | | | |
| PerkinElmer | AS-300 | | X | | X | | | | | | | X | | | |
| PerkinElmer | AS8300 | | X | | X | | | | | | | X | | | |
| PerkinElmer | Autosystem | | X | | X | | | | | | | X | | | |
| PerkinElmer | HS 6 | | | | | | | | | | | | | | |
| PerkinElmer | HS40/HS100/101 | | | | | | | | | | | | | | |
| PerkinElmer | TurboMatrix HS16/HS40/ HS40 XL/ HS40 Trap/ HS110/ HS110 Trap | | | | | | | | | | | | | | |
| PerkinElmer | Integral 4000 | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-100, 85 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-100, 100 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-200, 85 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-200, 100 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-200, 145 vial tray | | | | X | | | | | | | | | | |
| PerkinElmer | ISS-225, 205 vial tray | | | | X | | | | | | X | X | | | |
| PerkinElmer | ISS-225, 100 vial tray + 80 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-225, 85 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | ISS-225, 25 vial tray | | | | | | | | | | | | | | |
| PerkinElmer | LC 600, 42 vial tray | | X | | | | | | | | | | | | |
| PerkinElmer | LC 600, 60 vial tray | | | | | | | | | | X | X | | | |
| PerkinElmer | Clarus 400, 500, 600 | | | | | | | | | | | X | | | |
| Pharmacia | LKB 2157-010 | | | | | | | X | | X | | X | | | |
| Pharmacia | LKB 2157-020 | X | | | | X | | | | | | | | | X |
| Polymer Labora- tories | PL-AS RT | | | | | | | X | | X | X | X | | | |
| Quma Elektronik | QHSS-40 | | | | | | | | | | | | | | |
| Sedere | | | | | | | | | | X | | X | | | |
| SGE | LS-3200 | X | | | | X | | | | | | | | | |
| Shimadzu | AOC-5000 | X | | | X | X | | | | X | | X | | X | |
| Shimadzu | AOC-14/1400 | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | AOC-17 | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | *AOC-20/20i/20s 150 Pos. Tray* | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | AOC-20/20i/20s 96 Pos. Tray | | | | | | | | | | | | | | |
| Shimadzu | LC-20A | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | SIL-2AS | | | | X | | | X | X | X | X | X | | X | |
| Shimadzu | SIL-6A | | | | X | | | X | X | X | X | X | | X | |
| Shimadzu | SIL-6B/SIL-7A/SIL-8A/SIL-9A | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/SIL-10AxL/ Rack S 100 Pos. | | | | X | | | X | X | X | X | X | | X | |
| 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 | | | | | | | X | | X | X | X | | | |
| Shimadzu | SIL-10HTA/SIL-10HTC 100 Pos. Tray | | | | | | | | | | | | | | |
| Shimadzu | SIL-10ADvp | | | | | | | X | X | X | X | X | | X | |
| Shimadzu | HTA 200 H | | | | | | | | | | | | | | |
| Shimadzu | SIL-20A (Prominence) 105 vial tray/SIL-20AC (Promi- nence) 70 vial tray | | | | X | | | X | X | X | X | X | | X | |
| Shimadzu | SIL-20A/Sil-20AC (Promi- nence) 175 vial tray | | | | | | | | | | | | | | |
| Shimadzu | SIL-20A/Sil-20AC (Promi- nence) 50 vial tray | | | | | | | | | | | | | | |
| Shimadzu | LC2010C + LC2010A 350 Pos. Tray | | | | | | | | | | | | | | |
| Shimadzu | LC2010C + LC2010A 140 Pos. Tray | | | | | | | X | | X | X | X | | X | |
| Shimadzu | LC2010C + LC2010A 100 Pos. Tray | | | | | | | | | | | | | | |
| Shimadzu | ASI-V | | | | | | | | | | | | | | |
| Shimadzu | HSS-2B | | | | | | | | | | | | | | |
| Shimadzu | SIL 30-ACMP | | | | | | | X | | X | | X | | | |
| Shimadzu | SIL-20AXR/SIL-20ACXR (Prominence) 175 (1-mL vials), 70 (1.5-mL vials), 50 (4-mL vials) | | | | | | | X | | X | | X | | | |
| Shimadzu | SIL-30AC(Nexera) 175 (1-mL vials), 105 (1.5-mL vials), 50 (4-mL vials) | | | | | | | X | | X | | X | | | |
| Sievers (GE Instruments) | Sievers® 900 | | | | | | | | | | | | | | |
| Spark | Marathon Basic, Standard 96 Pos. Tray | | | | | | | X | X | X | | X | | X | |
| Spark | Marathon Basic Präp King Size 48 Pos. Tray | | | | | | | | | | | | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
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- Types of caps
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## Table 5: Autosampler compatibility chart, continued



6 Headspace ND20

| | | Snap Ring ND11 | Screw Neck ND13 | Shell Vials | Shell Vials | Shell Vials | Shell Vials | Headspace ND20 (ND18) 6 | Headspace ND20 (ND18) | Headspace ND20 (ND18) | Headspace ND20 (ND18) | Headspace ND20 (ND18) | Headspace ND20 (ND18) | Headspace ND20 (ND18) | Screw Neck ND24 (EPA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11525894<br>11535894<br>11545894<br>11545914<br>12672465<br>15219468<br>11585914<br>11505924<br>11525924<br>11545924<br>11717597<br>11894930<br>11804940<br>11834940 | 10571013<br>11556044<br>11576044<br>11586044 | 10306062 | 10145424<br>10506075<br>11561374<br>10224852 | 11555914<br>11565914 | 11516074<br>10455982 | 10663303 | 10681033<br>10195012 | 12990951<br>10080822<br>10152512<br>12981241 | 10680843<br>12971231<br>15552340 | 10506114<br>12941221<br>11526114<br>12951221<br>10070952<br>10510323<br>12910991 | 10192652 | 11520545 | 10465982<br>10000782<br>10758874<br>11510585<br>11798256<br>11530585<br>11540585<br>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 | | | | | | | X | | | | | | | |
| PerkinElmer | HS40/HS100/101 | | | | | | | X | | X | | | | | |
| PerkinElmer | TurboMatrix HS16/HS40/ HS40 XL/ HS40 Trap/ HS110/HS110 Trap | | | | | | | X** (not suitable for Turboma- trix™ 110) | | X | | X* (for Turboma- trix™ 16, 40, 110 produced after 1.9.06) | | | |
| PerkinElmer | Integral 4000 | | | | | | | | | | | | | | |
| PerkinElmer | ISS-100, 85 vial tray | | | | | | | X | | | | | | | |
| PerkinElmer | ISS-100, 100 vial tray | | | | | | | | | | | | | | |
| PerkinElmer | ISS-200, 85 vial tray | | | | | | | X | | | | | | | |
| 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 | | | | | | | X | | | | | | | |
| PerkinElmer | ISS-225, 25 vial tray | | | | | | | X | | | | | | | |
| PerkinElmer | LC 600, 42 vial tray | | | | | | | | | | | | | | |
| PerkinElmer | LC 600, 60 vial tray | | | | | | | | | | | | | | |
| PerkinElmer | Clarus 400, 500, 600 | | | | | | | | | | | | | | |
| Pharmacia | LKB 2157-010 | X | | | | | | | | | | | | | |
| Pharmacia | LKB 2157-020 | | | | | | | | | | | | | | |
| Polymer Labora- tories | PL-AS RT | X | X | | | | | | | | | | | | |
| Quma Elektronik | QHSS-40 | | | | | | | | | | X | | | | |
| Sedere | | X | | | | | | | | | | | | | |
| SGE | LS-3200 | | | | | | | | | | | | | | |
| Shimadzu | AOC-5000 | | | | | | | | X | | | X | | | |
| Shimadzu | AOC-14/1400 | X | X | | | | | | X | | | | | | |
| Shimadzu | AOC-17 | X | X | | | | | | | | | | | | |
| Shimadzu | AOC-20/20i/20s 150 Pos. Tray | | X | | | | | | | | | | | | |
| Shimadzu | AOC-20/20i/20s 96 Pos. Tray | | X | | | | | | | | | | | | |
| Shimadzu | LC-20A | X | X | | | | | | | | | | | | |
| Shimadzu | SIL-2AS | X | X | | | | X | | | | | | | | |
| Shimadzu | SIL-6A | X | X | | | | X | | | | | | | | |
| Shimadzu | SIL-6B/SIL-7A/SIL-8A/SIL-9A | X | X | | | X | X | | | | | | | | |
| Shimadzu | SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack S 100 Pos. | X | | | | X | | | | | | | | | |
| Shimadzu | SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack L 80 Pos. | | X | | | | X | | | | | | | | |
| Shimadzu | SIL-10A/SIL-10AF/SIL-10AP/ SIL-10Ai/ SIL-10AxL/Rack MTP2 192 Pos. | | | | X | | | | | | | | | | |
| Shimadzu | SIL-10HTA/SIL-10HTC 350 pos. Tray | | | | X | | | | | | | | | | |
| Shimadzu | SIL-10HTA/SIL-10HTC 140 Pos. Tray | X | | | | X | | | | | | | | | |
| Shimadzu | SIL-10HTA/SIL-10HTC 100 Pos. Tray | | X | | | | X | | | | | | | | |
| Shimadzu | SIL-10ADvp | X | X | | X | X | X | | | | | | | | |
| Shimadzu | HTA 200 H | | | | | | | | | | X | X | | | |
| Shimadzu | SIL-20A (Prominence) 105 vial tray/ SIL-20AC (Prominence) 70 vial tray | X | | | | | | | | | | | | | |
| Shimadzu | SIL-20A/Sil-20AC (Prominence) 175 vial tray | | | | X | | | | | | | | | | |
| Shimadzu | SIL-20A/Sil-20AC (Prominence) 50 vial tray | | X | | | | X | | | | | | | | |
| Shimadzu | LC2010C + LC2010A 350 Pos. Tray | | | | X | | | | | | | | | | |
| Shimadzu | LC2010C + LC2010A 140 Pos. Tray | X | | | | X | | | | | | | | | |
| Shimadzu | LC2010C + LC2010A 100 Pos. Tray | | X | | | | X | | | | | | | | |
| Shimadzu | ASI-V | | | | | | | | | | | | | | X |
| Shimadzu | HSS-2B | | | | | | | | | | X | X | | | |
| Shimadzu | SIL 30-ACMP | | | | | | | | | | | | | | |
| Shimadzu | SIL-20AXR/SIL-20ACXR (Prominence) 175 (1-mL vials), 70 (1.5-mL vials), 50 (4-mL vials) | X | X | | X | | X | | | | | | | | |
| Shimadzu | SIL-30AC(Nexera) 175 (1-mL vials), 105 (1.5-mL vials), 50 (4-mL vials) | X | X | | X | | X | | | | | | | | |
| Sievers (GE Instruments) | Sievers® 900 | | | | | | | | | | | | | | X |
| Spark | Marathon Basic, Standard 96 Pos. Tray | X | | | | | | | | | | | | | |
| Spark | Marathon Basic Präp King Size 48 Pos. Tray | | | | | | | X | | | | | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
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## Table 5: Autosampler compatibility chart, continued



7 Crimp Neck ND11

| | | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | ScrewNeck ND8 | ScrewNeck ND8 | Short Thread ND9 | Screw Neck ND10 | Crimp Neck ND11 7 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11732408<br>11742408 | 11561364 | 11531374<br>11541374 | 11717567<br>11722408 | 11792408<br>11782408 | 11712408 | 11565874<br>10560053<br>11595874<br>11525884 | 11515884 | 11575884<br>10080952<br>11515894<br>10145714<br>12951011<br>15166425<br>15136425<br>15176425<br>11871653<br>11595914<br>11707597<br>11727597<br>11575894<br>11585894<br>11595894<br>11535914<br>15592310<br>11515924<br>11884930<br>11851673<br>11814940<br>11824940 | 11511474<br>10521593<br>11531474 | 10081022<br>10326042<br>11535884<br>11545884<br>11565894<br>10678005<br>11505894 | 11865813<br>11555894 | 11505884 | 11555894 |
| Spark | Midas, Standard 84 Pos. Tray | | | | | | | X | X | X | | X | | X | X |
| Spark | Midas, Large Capacity 96 Pos. Tray | | | | | | | X | X | X | | X | | X | X |
| Spark | Midas, Large Volume 24 Pos. Tray | | | | | | | | | | | | | | |
| Spark | Alias | | | | | | | X | X | X | | X | | X | |
| Spark | Promis | | | | | | | X | X | X | | X | | X | |
| Spark | SPH 125 | | | | | | | | X | X | | X | | X | |
| Spark | Triathlon,Standard 96 Tray | | | | | | | X | X | X | | X | | X | X |
| Spark | Triathlon, LSV 72 Pos. Tray | | | | | | | | | | | | | | |
| Spark | Triathlon, Super-LSV 32 Pos. Tray | | | | | | | | | | | | | | |
| Spark | Triathlon, Micro 160 Pos. Tray | X | | | | X | | | | | | | | | |
| Spark | Endurance 48 Pos. Tray | | | | | | | X | X | X | | X | | X | |
| Spark | Reliance 48 Pos. Tray | | | | | | | X | X | X | | X | | X | |
| Spark | Interity | | | | | | | | | X | | X | | | |
| Spark | Prospekt 2 | | | | | | | | | | | X | | | |
| Spark | Reliance/Symbiosis Pharma | | | | | | | | | | | X | | | |
| Spark | Dried Blood Spot (DBS) | | | | | | | X | | X | | X | | | |
| Spark | Integrity | | | | | | | X | | X | | X | | | |
| Spark | Integrity 108 Pos.(2ml) 2 x Plates , IntegrityPlus 2 x 108 Pos.(2ml) 4 x Plates | | | | | | | X | | X | | X | | | |
| Spark | Optimas | | | | | | | X | | X | | X | | | |
| Spark | Optimas 96 Pos.(2mL) 24 Pos.(10mL) | | | | | | | X | | X | | X | | | |
| Spark | Alias | | | | | | | X | X | X | | X | | X | |
| Spectra-Physics | 8875 | | | | | | | X | | X | | X | | | |
| Spectra-Physics | 8880 | | | | | | | X | | X | | X | | | |
| Spectra-Physics | SpectraSYSTEM AS1000 | X | | | X | X | | X | | X | | X | | X | |
| Spectra-Physics | SpectraSYSTEM AS 3000 | X | | X | X | X | | X | | X | | X | | X | X |
| Spectra-Physics | SpectraSYSTEM AS 3500 | X | | | X | X | | X | | X | | X | | X | |
| Sykam | S 5200 | | | | | | | | | X | | | | | |
| Teledyne Tekmar | 7000/7000HT/7050 | | | | | | | | | | | | | | |
| Teledyne Tekmar | AQUATek 70/SOLATek 72™ | | | | | | | | | | | | | | |
| Teledyne Tekmar | STS 8000 TOC | | | | | | | | | | | | | | |
| Teledyne Tekmar | HT3 | | | | | | | | | | | | | | |
| Thermo Scientific | AS1000 (Trace GC) | X | | | X | X | | X | | X | | X | | X | |
| Thermo Scientific | AS200 | X | | | | X | | X | X | X | | X | | X | |
| Thermo Scientific | AS300 | X | | | X | X | | X | X | X | | X | | X | |
| Thermo Scientific | AS2000 30 vial tray | | | | | | | | | | | | | | |
| Thermo Scientific | AS2000 90 vial tray (Trace GC) | | | X | | | | X | X | X | | X | | X | X |
| Thermo Scientific | AI3000 (II)/AS3000 (II) AS3500 (Trace GC + Focus GC) | X | | | X | X | | | | X | | X | | X | |
| Thermo Scientific | A200LC | X | | | | X | | X | X | X | | X | | X | |
| Thermo Scientific | SpectraSYSTEM AS 1000 | X | | | X | X | | X | | X | | X | | X | |
| Thermo Scientific | SpectraSYSTEM AS 3000 | X | | X | X | X | | X | | X | | X | | X | X |
| Thermo Scientific | SpectraSYSTEM AS 3500 | X | | | X | X | | X | | X | | X | | X | |
| Thermo Scientific | A200S | X | | | | X | | X | X | X | | X | | X | |
| Thermo Scientific | AS100 | X | | | X | X | | X | X | X | | X | | X | |
| Thermo Scientific | AS800, 42 vial tray | | | | | | | X | | X | | X | | X | X |
| Thermo Scientific | AS800, 60 vial tray | | X | X | X | | | X | | X | | X | | | |
| Thermo Scientific | Dionex AS-AP | | | | | | | X | | X | X | X | | | |
| Thermo Scientific | Dionex UltiMate WPS-3000 | X | | X | | | | X | X | X | X | X | | | |
| 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) | X | | X | X | X | | X | | X | | X | | X | X |
| Thermo Scientific | TriPlus HS | | | | | | | | | | | | | | |
| Thermo Scientific | TriPlus SPME | | | | | | | | | | | | | | |
| Thermo Scientific | TriPlus RSH | | | | X | X | | X | | X | | X | | | |
| Thermo Scientific | TriPlus 300 | | | | | | | | | | | | | | |
| Thermo Scientific | HiPerTOC | | | | | | | | | | | | | | |
| Thermo Scientific | Surveyor (Surveyor Plus) | X | | | X | X | | X | | X | | X | | X | |
| Thermo Scientific | Accela High Speed LC Autosampler (200 Pos.) | X | | | X | X | | X | | X | | X | | | |
| Thermo Scientific | Accela Open Autosampler | X | | | | X | X | | X | X | | X | | | |
| Thermo Scientific | Trace 1300 Series | | | | | | | X | | X | X | X | | | |
| Unicam | 4247 | | | | | | | X | | X | | X | | | |
| Unicam | 4710 | | | | | | | X | | X | | X | | | |
| Unicam | 4700 (GC) | X | | | | X | | | | | | | | | |
| Unicam | 4700 (LC) | X | | | | X | | X | X | X | | | | | |
| Unicam | LC-XP | | | | | | | X | X | X | | X | | X | |
| Unicam | S4/S8 | X | | | | X | | | | | | | | | |
| Varian | ProStar 400, Standard 96 Pos. Tray | | | | | | | X | X | X | X | X | | X | |
| Varian | ProStar 400, King Size 48 Pos. Tray | | | | | | | | | | | | | | |
| Varian | ProStar 410, Standard 84 Pos. Tray | | | | | | | X | X | X | X | X | | X | X |
| Varian | ProStar 410, Large Capacity 96 Pos. Tray | | | | | | | X | X | X | X | X | | X | X |
| Varian | ProStar 410, Large Volume 24 Pos. Tray | | | | | | | | | | | | | | |
| Varian | ProStar 420, Standard 96 Pos. Tray | | | | | | | X | X | X | X | X | | X | X |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
- Types of septa
- Seal hardness
- Vial certifications
- Characteristics and compatibilities



## Table 5: Autosampler compatibility chart, continued



8 Crimp Neck ND11

| | | Snap Ring ND11 | Screw Neck ND13 | Shell Vials 8 | 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) | Headspace ND20 (ND18) | Screw Neck ND24 (EPA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11525894<br>11535894<br>11545894<br>11545914<br>12672465<br>15219468<br>11585914<br>11505924<br>11525924<br>11545924<br>11717597<br>11894930<br>11804940<br>11834940 | 10571013<br>11556044<br>11576044<br>11586044 | 10306062 | 10145424<br>10506075<br>11561374<br>10224852 | 11555914<br>11565914 | 11516074<br>10455982 | 10663303 | 10681033<br>10195012 | 12990951<br>10080822<br>10152512<br>12981241 | 10680843<br>12971231<br>15552340 | 11506114<br>12941221<br>11526114<br>12951221<br>10070952<br>10510323<br>12910991 | 10192652 | 11520545 | 10465982<br>10000782<br>10758874<br>11510585<br>11798256<br>11530585<br>11540585<br>11550585 |
| Spark | Midas, Standard 84 Pos. Tray | X | | | | | | | X | | | | | | | |
| Spark | Midas, Large Capacity 96 Pos. Tray | X | | | | | | | | | | | | | | |
| Spark | Midas, Large Volume 24 Pos. Tray | | | | | | | | X | | | | | | | |
| Spark | Alias | X | | | | | | | | X | | | | | | |
| Spark | Promis | X | | | | | | | | | | | | | | |
| Spark | SPH 125 | X | | | | | | | | | | | | | | |
| Spark | Triathlon,Standard 96 Tray | X | | | | X | | | | | | | | | | |
| Spark | Triathlon, LSV 72 Pos. Tray | | X | | | | | | | | | | | | | |
| Spark | Triathlon, Super-LSV 32 Pos. Tray | | | | | | | | X | | | | | | | |
| Spark | Triathlon, Micro 160 Pos. Tray | | | | | | | | | | | | | | | |
| Spark | Endurance 48 Pos. Tray | X | | | | | | | | | | | | | | |
| Spark | Reliance 48 Pos. Tray | X | | | | | | | | | | | | | | |
| Spark | Interity | X | | | | | | | | | | | | | | |
| Spark | Prospekt 2 | X | | | | | | | | | | | | | | |
| Spark | Reliance/Symbiosis Pharma | X | | | | | | | | | | | | | | |
| Spark | Dried Blood Spot (DBS) | | | | | | | | | | | | | | | |
| Spark | Integrity | | | | | | | | | | | | | | | |
| Spark | Integrity 108 Pos.(2ml) 2 x Plates , IntegrityPlus 2 x 108 Pos.(2ml) 4 x Plates | X | | | | | | | | | | | | | | |
| Spark | Optimas | | | | | | | | | | | | | | | |
| Spark | Optimas 96 Pos.(2mL) 24 Pos.(10mL) | X | | | | | | | | | | X | | | | |
| Spark | Alias | X | | | | | | | X | | | | | | | |
| Spectra-Physics | 8875 | X | | | | | | | | | | | | | | |
| Spectra-Physics | 8880 | X | | | | | | | | | | | | | | |
| Spectra-Physics | SpectraSYSTEM AS1000 | X | | | | X | | | | | | | | | | |
| Spectra-Physics | SpectraSYSTEM AS 3000 | X | | | | X | | | | | | | | | | |
| Spectra-Physics | SpectraSYSTEM AS 3500 | X | | | | X | | | | | | | | | | |
| Sykam | S 5200 | X | | | | | | | | | | | | | | |
| Teledyne Tekmar | 7000/7000HT/7050 | | | | | | | | | X | | | | | | |
| Teledyne Tekmar | AQUATek 70/SOLATek 72™ | | | | | | | | | | | | | | | X |
| Teledyne Tekmar | STS 8000 TOC | | | | | | | | | | | | | | | X |
| Teledyne Tekmar | HT3 | | | | | | | | | X | | X | | | | |
| Thermo Scientific | AS1000 (Trace GC) | | | | | | | | | | | | | | | |
| Thermo Scientific | AS200 | | | | | | | | | | | | | | | |
| Carlo Erba | AS300 | X | | | | X | | | | | | | | | | |
| Thermo Scientific | AS2000 30 vial tray | | | | | | | | X | | | | | | | |
| Thermo Scientific | AS2000 90 vial tray (Trace GC) | | | | | | | | | | | | | | | |
| Thermo Scientific | AI3000 (II)/AS3000 (II) AS3500(Trace GC + Focus GC) | | | | | | | | X | | | | | | | |
| Thermo Scientific | A200LC | X | | | | X | | | | | | | | | | |
| Thermo Scientific | SpectraSYSTEM AS 1000 | X | | | | X | | | | | | | | | | |
| Thermo Scientific | SpectraSYSTEM AS 3000 | X | | | | X | | | | | | | | | | |
| Thermo Scientific | SpectraSYSTEM AS 3500 | X | | | | X | | | | | | | | | | |
| Thermo Scientific | A200S | | | | | | | | | | | | | | | |
| Thermo Scientific | AS100 | X | | | | X | | | | | | | | | | |
| Thermo Scientific | AS800, 42 vial tray | | | | | | | | | | | | | | | |
| Thermo Scientific | AS800, 60 vial tray | | | | | | | | | | | | | | | |
| Thermo Scientific | Dionex AS-AP | X | | | | | | X | | | | | | | | |
| Thermo Scientific | Dionex UltiMate WPS-3000 | X | X | | | | | X | | | | | | | | |
| Thermo Scientific | Dionex AS 40 | | X | | | | X | | | | | | | | | |
| Thermo Scientific | HS250 | | | | | | | | X | | | | | | | |
| Thermo Scientific | HS500 | | | | | | | | X | | | | | | | |
| Thermo Scientific | HS800 | | | | | | | | X | | | X | | | | |
| Thermo Scientific | HS850 | | | | | | | | X | | | X | | | | |
| Thermo Scientific | HS2000 | | | | | | | | X | | | X | | | | |
| Thermo Scientific | TriPlus (=GC PAL) (AS+ Duo) | | | | | | | | X | | | X | | | | |
| Thermo Scientific | TriPlus HS | | | | | | | | X | | | X | | | | |
| Thermo Scientific | TriPlus SPME | | | | | | | | X | | | X | | | | |
| Thermo Scientific | TriPlus RSH | X | | | | | | | X | | | X | | | | |
| Thermo Scientific | TriPlus 300 | | | | | | | | | | | X | | | | |
| Thermo Scientific | HiPerTOC | | | | | | | | | | | | | | | X |
| Thermo Scientific | Surveyor (Surveyor Plus) | X | | | | X | | | X | | | | | | | |
| Thermo Scientific | Accela High Speed LC Autosampler (200 Pos.) | X | | | | | | | | | | | | | | |
| Thermo Scientific | Accela Open Autosampler | X | | | | | | | | | | | | | | |
| Thermo Scientific | Trace 1300 Series | X | | | | | | X | | X | X | | | | | |
| Unicam | 4247 | | | | | | | | | | | | | | | |
| Unicam | 4710 | | | | | | | | | | | | | | | |
| Unicam | 4700 (GC) | | | | | | | | | | | | | | | |
| Unicam | 4700 (LC) | | | | | | | | | | | | | | | |
| Unicam | LC-XP | | X | | | | | | | | | | | | | |
| Unicam | S4/S8 | | | | | | | | | | | | | | | |
| Varian | ProStar 400, Standard 96 Pos. Tray | X | | | | | | | | | | | | | | |
| Varian | ProStar 400, King Size 48 Pos. Tray | | | | | | | X | | | | | | | | |
| Varian | ProStar 410, Standard 84 Pos. Tray | X | | | | | | | X | | | | | | | |
| Varian | ProStar 410, Large Capacity 96 Pos. Tray | X | | | | | | | | | | | | | | |
| Varian | ProStar 410, Large Volume 24 Pos. Tray | | | | | | | | X | | | | | | | |
| Varian | ProStar 420, Standard 96 Pos. Tray | X | | | | X | | | | | | | | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
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- Seal hardness
- Vial certifications
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## Table 5: Autosampler compatibility chart, continued



9 Short Thread ND9

| | | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | Crimp Neck ND8 | ScrewNeck ND8 | ScrewNeck ND8 | Short Thread ND9 [9] | Screw Neck ND10 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 | Crimp Neck ND11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11732408<br>11742408 | 11561364 | 11531374<br>11541374 | 11717567<br>11722408 | 11792408<br>11782408 | 11712408 | 11565874<br>10560053<br>11595874<br>11525884 | 11515884 | 11575884<br>10080952<br>11515894<br>10145714<br>12951011<br>15166425<br>15136425<br>15176425<br>11871653<br>11595914<br>11707597<br>11727597<br>11575894<br>11585894<br>11595894<br>11535914<br>15592310<br>11515924<br>11884930<br>11851673<br>11814940<br>11824940 | 11511474<br>10521593<br>11531474 | 10081022<br>10326042<br>11535884<br>11545884<br>11565894<br>10678005<br>11505894 | 11865813<br>11555894 | 11505884 | 11555894 |
| Varian | ProStar 420, LSV 72 Pos. Tray | | | | X | | | | | | | | | | |
| Varian | ProStar 420, Super-LSV 32 Pos. Tray | | | | | | | | | | | | | | |
| Varian | ProStar 420, Micro 160 Pos. Tray | X | | | | X | | | | | | | | | |
| Varian | ProStar 430, 48 Pos. Tray | | | | | | | X | X | X | | X | | X | |
| Varian | 8035 | | | | | | | X | X | X | | | | | |
| Varian | 8000 | | | | | | | X | | X | | X | | | |
| Varian | 8400 (100 Pos.) | | | | | | | X | | X | | X | | | |
| Varian | 8410-Autoinjector (10 x 2ml; 6 x 5ml; 5 x 10ml) | | | | | | | X | | X | | X | | | |
| Varian | 8100 | | | | | | | X | | X | | X | | | |
| Varian | 8200 | | | | | | | X | | X | X | X | | | |
| Varian | CP-910, 911, 912 | | | | | | | X | | X | | X | | | |
| Varian | CP-940, 941 | | | | | | | | | | | X | | | |
| Varian | LC 9100/LC 9095/LC 9090 | | | | | | | | | X | | X | | | |
| Varian | Archon | | | | | | | | | | | | | | |
| Varian | COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray) | X | | | | X | | | | | | | | | |
| Varian | COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray) | | | | X | | | | | X | | X | | | |
| Varian | COMBI PAL SPME mode (98 Pos. Tray) | | | | | | | | | X | | X | | | |
| 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 | | | | | | | X | X | X | | X | | X | |
| Varian | Marathon Basic, Präp, King Size 48 Pos. Tray | | | | | | | | | | | | | | |
| Varian | Vista | | | | | | | X | | X | | | | | |
| Varian | CP-9020/CP-9025 | | | | | | | | | | | | | | |
| Varian | CP-9060 | | | | | | | | | | | | | | |
| Varian | CP-9010 | | | | | | | X | | X | | X | | | |
| Varian | 920-LC/940-LC | | | | | | | X | | | | | | | |
| Viscotek | Vortex™ | | | | | | | | | | | | | | |
| Viscotek | GPC Autosampler | | | | | | | X | | X | X | | | | |
| VWR | Hitachi Chromaster | | | | | | | X | | X | | X | | | |
| VWR(Merck®)/ Hitachi | L2200 (LaChrom Elite)/ L2200-U (LaChrom Ultra) (200 Pos. Tray) | | | | | | | X | | X | | | | | |
| VWR(Merck®)/ Hitachi | L2200 (LaChrom Elite) (128 Pos. Tray) | | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L7200 (LaChrom) (80 Pos. Tray)/ L7250(LaChrom) (120 Pos. Tray) | | | | | | | X | | X | | | | | |
| VWR(Merck®)/ Hitachi | L7250 (LaChrom) (Rack Holder for combination Racks) | | | | X | | | X | | X | | | | | |
| VWR(Merck®)/ Hitachi | 655-A40 (108 Pos. Tray) | | | | | | | X | | X | | | | | |
| VWR(Merck®)/ Hitachi | L-9100 | | | | | | | X | | X | | | | | |
| VWR(Merck®)/ Hitachi | AS 2000 (50 Pos. Tray) | | | | | | | X | | X | | X | | | |
| VWR(Merck®)/ Hitachi | AS 4000 (150 Pos. Tray) | | | | | | | X | | X | | X | | | |
| VWR(Merck®)/ Hitachi | AS 4000 (198 Pos. Tray) | | | | X | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | 5210 (Chromaster) 195 Pos (1 mL), 120 Pos 1.5 mL (Standard), 72 Pos. (4 mL), 2 x MTP (96,384) | | | | | | | X | | X | | X | | | |
| VWR(Merck®)/ Hitachi | AS 6000 | | | | X | | | X | | X | | | | | |
| Waters® | ACQUITY™ UPLC Systeme | | | | | | | | | X | | | | | |
| Waters® | Wisp 48 position | | | | | | | | | | | | | | |
| Waters® | Wisp 96 position | | | | | | | | | | | | | | |
| Waters® | 717, 96 Position Carousel | | | | | | | | | | | | | | |
| Waters® | 717, 48 Position Carousel | | | | | | | | | | | | | | |
| Waters® | Alliance® | | | | | | | | | X | X | X | | | |
| Waters® | Alliance® GPC 2000 | | | | | | | | | | | | | | |
| Waters® | Alliance® HT Syst. | | | | | | | | | X | X | X | | | |
| Waters® | Alliance® 2790/2795 | | | | | | | | | X | X | X | | | |
| Waters® | Acquity Sample Organizer | | | | | | | | | X | | | | | |
| Waters® | Acquity/CapLC/Waters/ Nano Acquity | | | | | | | | | X | | | | | |
| Waters® | Alliance® 2690/2695 | | | | | | | | | X (not for 11515894) | X | X | | | |

# Chromatography vials and closures - an overview

- Chromatography vials - an overview
- Chromatography closures - an overview
- Types of caps
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- Seal hardness
- Vial certifications
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## Table 5: Autosampler compatibility chart, continued



10 Snap Ring ND11

| | | 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 (EPA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11525894<br>11535894<br>11545894<br>11545914<br>12672465<br>15219468<br>11585914<br>11505924<br>11525924<br>11545924<br>11717597<br>11894930<br>11804940<br>11834940 | 10571013<br>11556044<br>11576044<br>11586044 | 10306062 | 10145424<br>10506075<br>11561374<br>10224852 | 11555914<br>11565914 | 11516074<br>10455982 | 10663303 | 10681033<br>10195012 | 12990951<br>10080822<br>10152512<br>12981241 | 10680843<br>12971231<br>15552340 | 11506114<br>12941221<br>11526114<br>12951221<br>10070952<br>10510323<br>12910991 | 10192652 | 11520545 | 10465982<br>10000782<br>10758874<br>11510585<br>11798256<br>11530585<br>11540585<br>11550585 |
| Varian | ProStar 420, LSV 72 Pos. Tray | | X | | | | | | | | | | | | |
| Varian | ProStar 420, Super-LSV 32 Pos. Tray | | | | | | | X | X | | | | | | |
| Varian | ProStar 420, Micro 160 Pos. Tray | | | | | | | | | | | | | | |
| Varian | ProStar 430, 48 Pos. Tray | X | | | | | | | | | | | | | |
| Varian | 8035 | | | | | | | | | | | | | | |
| Varian | 8000 | | | | | | | | | | | | | | |
| Varian | 8400 (100 Pos.) | | | | | | | | | | | | X | | |
| Varian | 8410-Autoinjector (10 x 2ml; 6 x 5ml; 5 x 10ml) | | | | | | | | | | | | X | X | |
| Varian | 8100 | | | | | | | | | | | | | | |
| Varian | 8200 | | | | | | | | | | | | | | |
| Varian | CP-910, 911, 912 | | | | | | | | | | | | | | |
| Varian | CP-940, 941 | | | | | | | | | | | | | | |
| Varian | LC 9100/LC 9095/LC 9090 | X | | | | | | | | | | | | | |
| Varian | Archon | | | | | | | | | | | | | | X |
| Varian | COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray) | | | | | | | | X | | | | | | |
| Varian | COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray) | | | | | | | | X | | | | | | |
| Varian | COMBI PAL SPME mode (98 Pos. Tray) | | | | | | | | X | | | | | | |
| Varian | COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray) | | | | | | | | X | | | X | | | |
| Varian | COMBI PAL SPME mode (32 Pos. Tray) | | | | | | | | X | | | X | | | |
| Varian | Genesis | | | | | | | | | | X | | | | |
| Varian | Marathon Basic, Standard 96 Pos. Tray | X | | | | | | | | | | | | | |
| Varian | Marathon Basic, Präp, King Size 48 Pos. Tray | | | | | | | X | | | | | | | |
| Varian | Vista | | | | | | | | | | | | | | |
| Varian | CP-9020/CP-9025 | | | | | | | | X | | | | | | |
| Varian | CP-9060 | | | | | | | | X | | | | | | |
| Varian | CP-9010 | | | | | | | | | | | | | | |
| Varian | 920-LC/940-LC | X | | | | | | | | | | | | | |
| Viscotek | Vortex™ | | | | | | | | | | | | | | X |
| Viscotek | GPC Autosampler | | | | | | | | | | | | | | |
| VWR | Hitachi Chromaster | | X | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L2200 (LaChrom Elite)/ L2200-U (LaChrom Ultra) (200 Pos. Tray) | X | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L2200 (LaChrom Elite) (128 Pos. Tray) | | X | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L7200 (LaChrom) (80 Pos. Tray)/ L7250(LaChrom) (120 Pos. Tray) | X | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L7250 (LaChrom) (Rack Holder for combination Racks) | X | X | | | | | | | | | | | | X |
| VWR(Merck®)/ Hitachi | 655-A40 (108 Pos. Tray) | X | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | L-9100 | X | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | AS 2000 (50 Pos. Tray) | X | | | | | | | | | | | | | |
| VWR(Merck®)/ Hitachi | AS 4000 (150 Pos. Tray) | X | | | | | | | | | | | | | |
| 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) | X | X | | X | | X | | | | | | | | |
| VWR(Merck®)/ Hitachi | AS 6000 | X | | | | | | | | | | | | | |
| Waters® | ACQUITY™ UPLC Systeme | | X(for 24 Position Plate) | | | | | | | | | | | | |
| Waters® | Wisp 48 position | | X | | | | X | | | | | | | | |
| Waters® | Wisp 96 position | | | | X | | | | | | | | | | |
| Waters® | 717, 96 Position Carousel | | | | X | | | | | | | | | | |
| Waters® | 717, 48 Position Carousel | | X | | | | X | | | | | | | | |
| Waters® | Alliance® | X | | | | | | | | | | | | | |
| Waters® | Alliance® GPC 2000 | | X | | | | | | X | | | | | | |
| Waters® | Alliance® HT Syst. | X | | | | | | | | | | | | | |
| Waters® | Alliance® 2790/2795 | X | | | | | | | | | | | | | |
| Waters® | Acquity Sample Organizer | X | | | | | | | | | | | | | |
| Waters® | Acquity/CapLC/Waters/ Nano Acquity | X | | | | | | | | | | | | | |
| Waters® | Alliance® 2690/2695 | X | | | | | | | | | | | | | |

# CRIMP NECK VIALS ND8

A broad selection of ND8 crimp neck vials and microvials together with their compatible caps



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

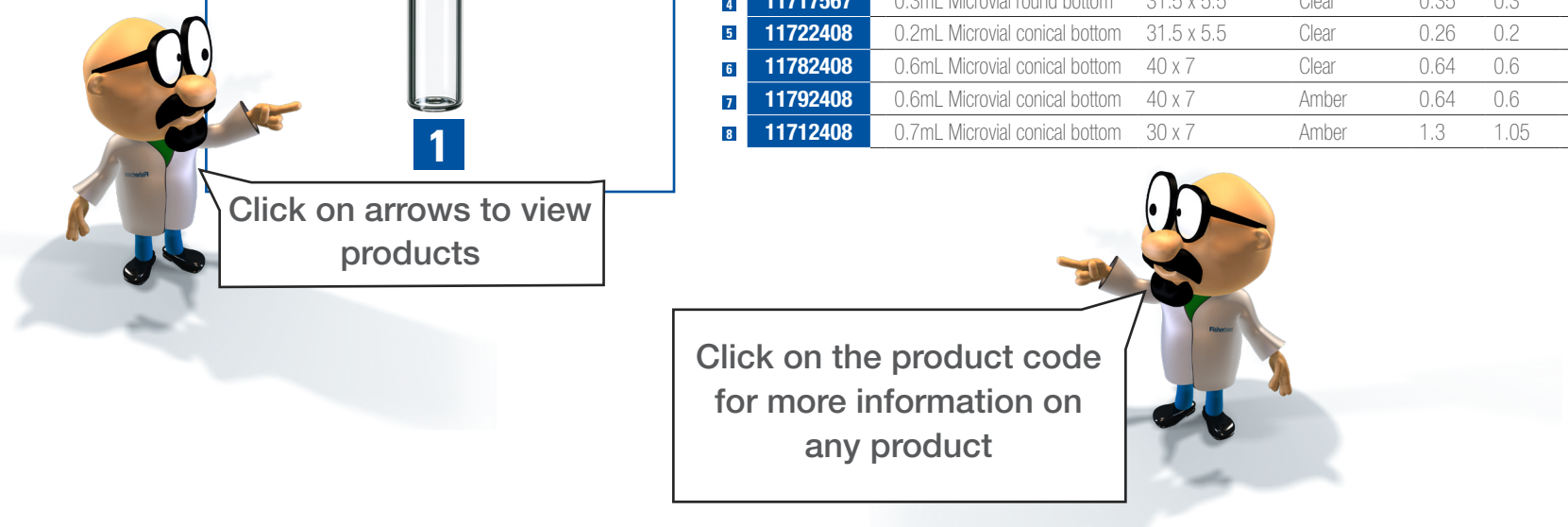
These vials are preferentially used on instruments from the following manufacturers: Agilent, Beckman, Carlo Erba, CTC, Fisons, PerkinElmer, Shimadzu, Thermo Scientific, VWR (Merck™)/Hitachi, etc. A broad selection of ND8 crimp neck vials and microvials are available (see below), which can closed with 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




| | | 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 | 1000 |
| 2 | **11742408** | 0.7mL Crimp neck vial | 40 x 7 | Amber | 0.9 | 0.8 | 40 | <11 | 1000 |
| 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 | 1000 |
| 5 | **11722408** | 0.2mL Microvial conical bottom | 31.5 x 5.5 | Clear | 0.26 | 0.2 | 25 | <3 | 1000 |
| 6 | **11782408** | 0.6mL Microvial conical bottom | 40 x 7 | Clear | 0.64 | 0.6 | 25 | <3 | 1000 |
| 7 | **11792408** | 0.6mL Microvial conical bottom | 40 x 7 | Amber | 0.64 | 0.6 | 25 | <3 | 1000 |
| 8 | **11712408** | 0.7mL Microvial conical bottom | 30 x 7 | Amber | 1.3 | 1.05 | 25 | <3 | 1000 |



# CRIMP NECK VIALS ND8

A broad selection of ND8 crimp neck vials and microvials together with their compatible caps



## 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

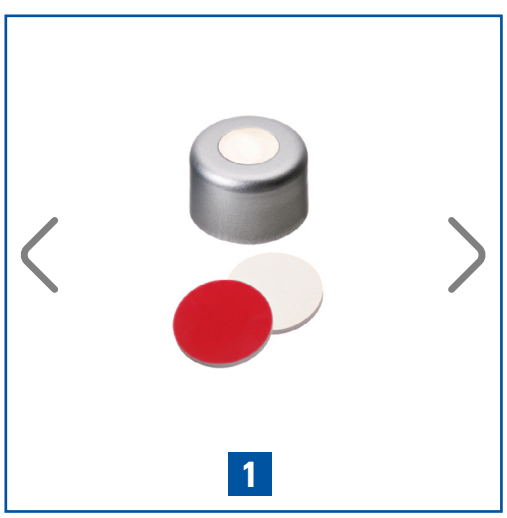



| | | Cap description | Septa material | Durometer | Thickness,mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11797557 | Aluminium cap clear lacquered, 4mm centre hole | Natural rubber red-orange/TEF transparent approved IMQ* | 60° Shore A | 1.0 | 1000 |
| 1 | 11561344 | Aluminium cap clear lacquered, 4mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 100 |
| 2 | 11818981 | Aluminium cap clear lacquered, 4mm centre hole | Red rubber/PTFE beige | 45° Shore A | 1.0 | 1000 |

*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




| | | Cap description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11702418 | Aluminium cap clear lacquered, 4mm centre hole | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 1 | 11898961 | Aluminium cap clear lacquered, 4mm centre hole | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 2 | 11808981 | Aluminium cap clear lacquered, 4mm centre hole | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 3 | 11712418 | Aluminium cap clear lacquered, 4mm centre hole | PTFE red/Silicone white/ PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | 11722418 | Aluminium cap clear lacquered, 4mm centre hole | Silicone white/PTFE red, with slit | 45° Shore A | 1.3 | 1000 |

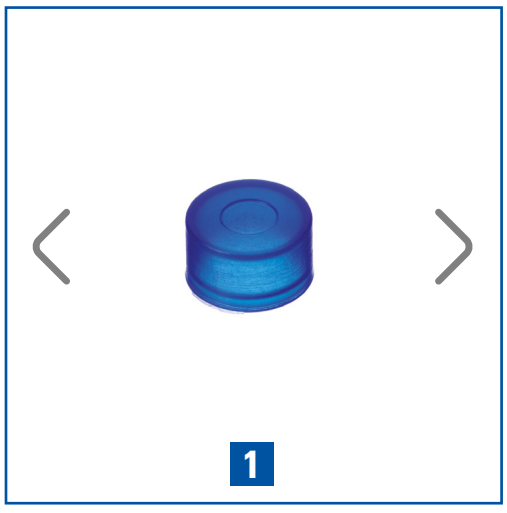
# CRIMP NECK VIALS ND8

A broad selection of ND8 crimp neck vials and microvials together with their compatible caps



## Other caps and seals for crimp neck vials ND8

- Push-on cap (11838991) 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



1

| | | Cap description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11838991 | PE push-on cap, blue | With thinned penetration point | - | - | 1000 |
| 2 | 11804830 | PE push-on cap, transparent 9 x 5.9mm, 4mm centre hole | Natural rubber red-orange/ TEF transparent | 60° Shore A | 1.3 | 1000 |
| 3 | 11814830 | PE push-on cap, transparent 9 x 5.9mm, 4mm centre hole | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |



# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



## 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

- Standard vials for GC and HPLC
- Specially suitable for VWR (Merck™)/Hitachi instruments (Cat No.11565874, 10560053, 10040992, 11782428, 11831653, 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



1

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

| | | Description | Dimension, 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 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 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



1

| | | Description | Dimension, 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 | 1000 |
| 2 | 11861653 | 0.1mL Micro-insert, 9mm top | 31 x 5 | Clear | 0.25 | 0.2 | 30 | <2 | 1000 |
| 3 | 11772428 | 0.2mL Micro-insert, flat bottom | 31 x 5 | Clear | 0.3 | 0.26 | 40 | <8 | 1000 |
| 4 | 11858951 | 0.1mL Micro-insert, with assembled plastic spring | 29 x 5 | Clear | 0.2 | 0.15 | 25 | <1 | 1000 |
| 5 | 11848951 | 0.1mL Micro-insert, metal spring required! | 27.5 x 4 | Clear | 0.2 | 0.11 | 25 | <1 | 1000 |
| 6 | 11571304 | Spring for micro-insert 11848951 | 36 x 5 | - | - | - | - | - | 100 |

# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



## 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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| **Polypropylene screw cap black, 5.5mm centre hole, 8-425 thread** | | | | | |
| 1 | **11782428** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | **11894800** | Red rubber/PTFE beige | 45° Shore A | 1.0 | 1000 |
| 3 | **11757567** | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |

# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



## 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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| **Polypropylene screw cap black, 5.5mm centre hole, 8-425 thread** | | | | | |
| 1 | **11792428** | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 1 | **11814800** | Silicone cream/PTFE red UltraClean | 55° Shore A | 1.5 | 1000 |
| 2 | **11844800** | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 3 | **11702438** | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | **11823560** | Silicone white/PTFE red, with slit | 45° Shore A | 1.3 | 1000 |

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



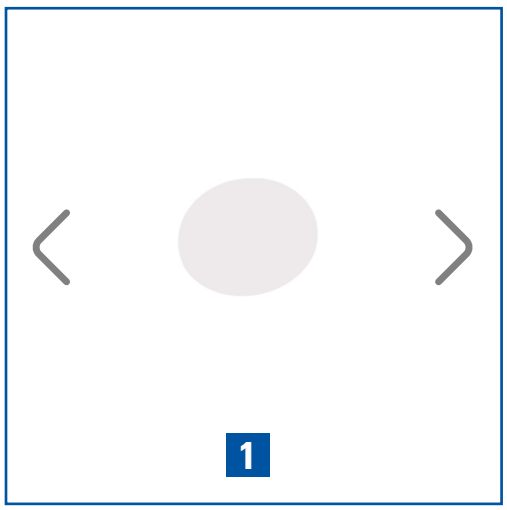

| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| **Polypropylene screw cap black, closed top, 8-425 thread** | | | | | |
| 1 | **11747567** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | **15552300** | Red rubber/PTFE beige | 45° Shore A | 1.0 | 100 |
| 3 | **11884800** | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 4 | **11864800** | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |

# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11821663 | PTFE virginal (only unassembled) | 53° Shore D | 0.25 | 1000 |
| 2 | 11848961 | Natural rubber red-orange/TEF transparent (only unassembled) | 60° Shore A | 1.0 | 1000 |
| 2 | 11787557 | Natural rubber red-orange/TEF transparent, tested by VWR (Merck™)/Hitachi | 60° Shore A | 1.3 | 1000 |
| 3 | 12950841 | Red rubber/PTFE beige | 45° Shore A | 1.0 | 100 |
| 4 | 11868961 | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 5 | 11872663 | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 5 | 11830772 | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 6 | 11840772 | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 7 | 11841653 | Silicone white/PTFE blue, slitted, rec. by VWR (Merck™)/Hitachi (only unassembled) | 55° Shore A | 0.9 | 1000 |
| 8 | 11828961 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |

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




| | | Cap description | Pack qty |
|---|---|---|---|
| 1 | 11831653 | Polypropylene screw cap, black, 5.5mm centre hole | 1000 |
| 2 | 11861683 | Polypropylene screw cap, black, closed top | 1000 |
| 3 | 11898981 | Polypropylene screw cap, white, 5.5mm centre hole | 1000 |
| 4 | 11888981 | Polypropylene screw cap, white, closed top | 1000 |

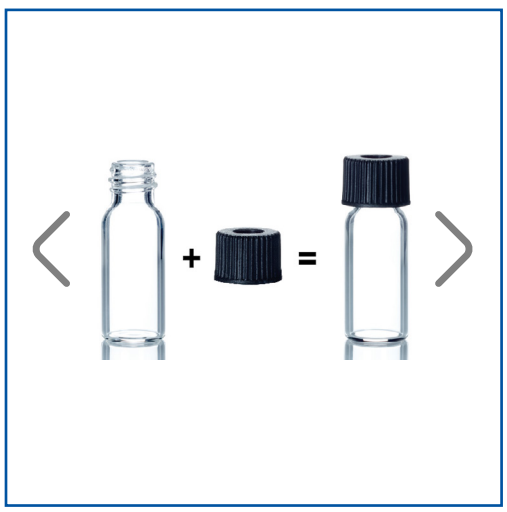
# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



## Screw neck vials ND8, small opening, 8-425 thread with pre-screwed PP screw seals ND8 and/or pre-assembled micro-inserts for vials with small opening

- Pre-screwed vials and/or pre-assembled micro-inserts reduce the risk of contamination of vials in laboratories



| | Vial description | Seal | Pack qty |
|---|---|---|---|
| **12980861** | 1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (seal Cat.No 11565874) | Pre-screwed with polypropylene screw cap, black, 5.5mm centre hole (seal Cat.No 11831653); 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 (seal 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 11792428) | 100 |
| **11575924** | 1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening (seal 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 11823560) | 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 11864800) | 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 11792428) | 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 11864800) | 100 |

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

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



| | Item | Description | Pack qty |
|---|---|---|---|
| **10670843** | 3-in-1 kit | 3-in-1 kit consisting of: 11565874, 11831653† and 11841653 | 100 |
| **11565874** | Vial | 1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening | 100 |
| **11831653** | Cap | Polypropylene screw cap, black, 5.5mm centre hole † | 1000 |
| **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, 11782428† | 100 |
| **11565874** | Vial | 1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening | 100 |
| **11782428** | Cap | Polypropylene screw cap, black, 5.5mm centre hole, natural rubber red-orange/TEF transparent, 60° Shore A, 1.3mm † | 1000 |
| **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 |

† Note: Pack qty is a 100 in this kit

# Screw neck vials ND8

A broad selection of ND8 screw neck vials and microvials together with their compatible caps



## 2-in-1 kits for Varian autosampler

| | Item | Description | Pack qty |
|---|---|---|---|
| **10475792** | 2-in-1 kit | 2-in-1 kit consisting of: 11565874, 11792428† | 100 |
| **11565874** | Vial | 1.5mL Screw neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, small opening | 100 |
| **11792428** | Seal | PP screw cap, black, 5.5mm centre hole; UltraClean silicone white/PTFE red, 45° Shore A, 1.3mm † | 1000 |
| **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, 11792428† | 100 |
| **10560053** | Vial | 1.5mL Screw neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, small opening | 100 |
| **11792428** | Seal | PP screw cap, black, 5.5mm centre hole; UltraClean silicone white/PTFE red, 45° Shore A, 1.3mm † | 1000 |
| **12970871** | Alternative 2-in-1 kit | Same seal in combination with 11595874 (amber glass, small opening, with label + filling lines) | 100 |

† Note: Pack qty is a 100 in this kit

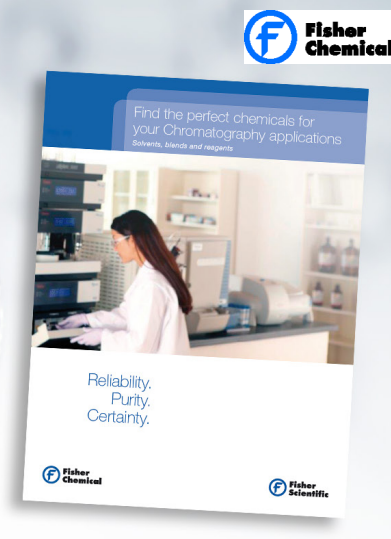
To download a copy of the vial compatibility chart for your autosampler, simply visit eu.fishersci.com/go/fisherbrand



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# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## 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

## 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




| | | Description | Dimension, 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 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  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  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 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 | 11871653 | TopSert TPX short thread vial, with integrated 0.2mL glass micro-insert (silanised version available  11595914) | 32 x 11.6 | Clear | 0.36 | 0.2 | 25 | <1 | 1000 |
| 11 | 11515924 | TopSert TPX short thread vial, with integrated 0.2mL glass micro-insert (silanised version available  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 VIALS ND9

Universally compatible with almost all autosamplers



## Short thread SureStop™ vials ND9

### 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




| | | Description | Dimension, 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




| | | Description | Dimension, 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 11889120) | 31 x 6 | Clear | 0.34 | 0.25 | 30 | <4 | 1000 |
| 2 | 11777557 | 0.1mL Micro-insert, 1st hydrolytic class, 12mm top | 31 x 6 | Clear | 0.35 | 0.3 | 30 | <4 | 1000 |
| 3 | 11805863 | 0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available 11878951) | 29 x 5.7 | Clear | 0.3 | 0.25 | 30 | <4 | 1000 |
| 4 | 11762418 | 0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available 11792368) | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |
| 5 | 13445489 | 0.1mL PP micro-insert, 10mm top, filling lines | 29 x 6 | Clear | 0.30 | 0.25 | 30 | <4 | 1000 |
| 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 | 1000 |
| 7 | 13495479 | 0.2mL PP micro-insert, flat bottom | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |

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

# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## Plastic vials ND9 and plastic microvials ND9




1

| | | Description | Dimension, mm | Glass type | TFVol (mL) | UsVol. (mL) | MWVol. (µL) | Res.Vol (µL) | Pack qty |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11727597 | 1.5mL PP short thread vial, filling lines, slightly concave shaped bottom | 32 x 11.6 | Transparent | 1.85 | 1.50 | 200 | <110 | 1000 |
| 2 | 11814940 | 1.5mL PP short thread vial, filling lines, slightly concave shaped bottom | 32 x 11.6 | Amber | 1.85 | 1.50 | 200 | <110 | 1000 |
| 3 | 11824940 | 0.7mL PP short thread microvial | 32 x 11.6 | Transparent | 0.87 | 0.60 | 150 | <80 | 1000 |
| 4 | 11707597 | 0.3mL PP short thread microvial | 32 x 11.6 | Transparent | 0.4 | 0.25 | 30 | <4 | 1000 |
| 5 | 11884930 | 0.3mL TPX short thread microvial | 32 x 11.6 | Crystal clear | 0.4 | 0.25 | 30 | <4 | 1000 |
| 6 | 11851673 | 0.3mL PP short thread microvial | 32 x 11.6 | Amber | 0.4 | 0.25 | 30 | <4 | 1000 |

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

# SHORT THREAD VIALS ND9

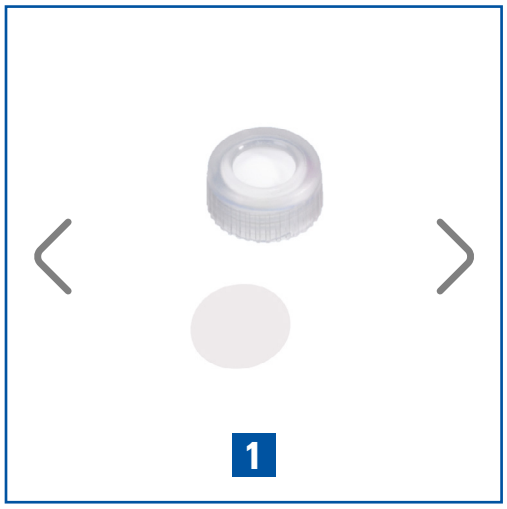
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## Polypropylene short thread seals ND9

- 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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11835903 | PTFE virginal | 53° Shore D | 0.2 | 1000 |
| 2 | 11804021 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11824850 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 12353700 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11824740 | PTFE red/silicone white/ PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11894011 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |
| 7 | 11874850 | Silicone white/PTFE red, pre-cut (Y) | 55° Shore A | 1.0 | 1000 |

### Polypropylene short thread ND9 cap blue, 6mm centre hole




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11834830 | PTFE virginal | 53° Shore D | 0.2 | 1000 |
| 2 | 11722438 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11863021 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 11787567 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11732438 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11797567 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |
| 7 | 11864850 | Silicone white/PTFE red, pre-cut (Y) | 55° Shore A | 1.0 | 1000 |
| 8 | 15572300 | Aluminium liner sealed by transparent flat-seal | | 0.06 | 100 |

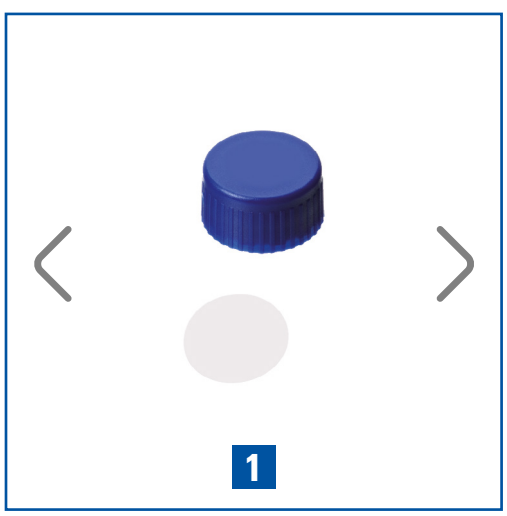
*Instrument Manufacturer Quality (IMQ)

# SHORT THREAD VIALS ND9

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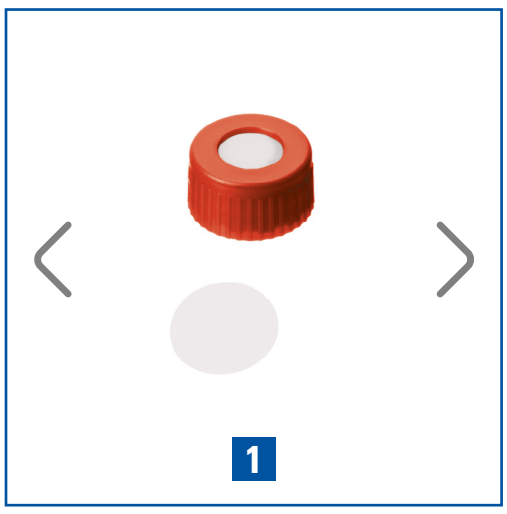


## Polypropylene short thread ND9 cap blue, closed top




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 10142913 | PTFE virginal | 53° Shore D | 0.2 | 1000 |
| 2 | 11814850 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11804850 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |

## Polypropylene short thread ND9 cap red, 6mm centre hole




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11894830 | PTFE virginal | 53° Shore D | 0.2 | 1000 |
| 2 | 11844830 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11834850 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 11864830 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11854830 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11874830 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |

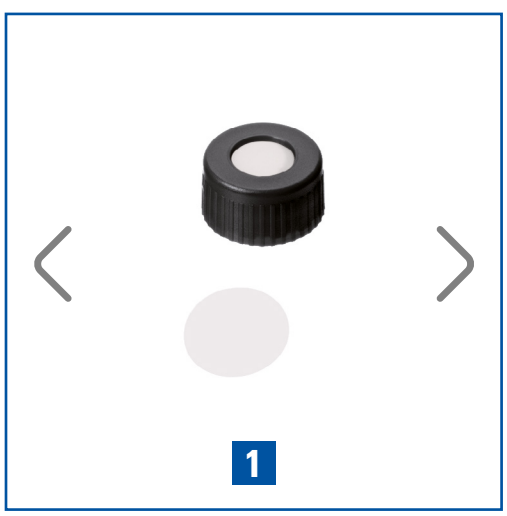
*Instrument Manufacturer Quality (IMQ)

# SHORT THREAD VIALS ND9

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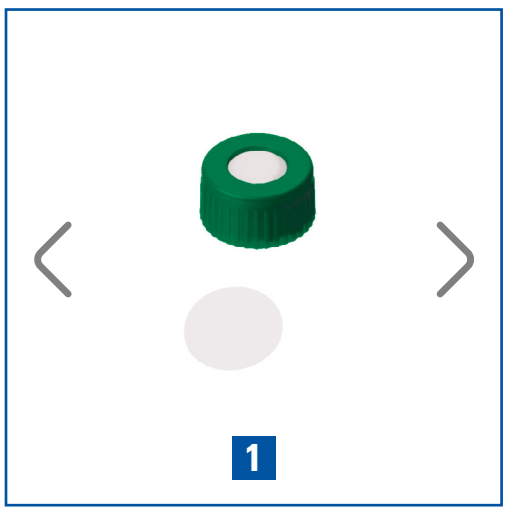


## Polypropylene short thread ND9 cap black, 6mm centre hole




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11874840 | PTFE virginal | 53° Shore D | 0.2 | 1000 |
| 2 | 11854840 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11844850 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 11827281 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11864840 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11862771 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |

## Polypropylene short thread ND9 cap green, 6mm centre hole




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 12912680 | PTFE virginal | 53° Shore D | 0.2 | 100 |
| 2 | 11804840 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 10498704 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 11884830 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11907071 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11894840 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |

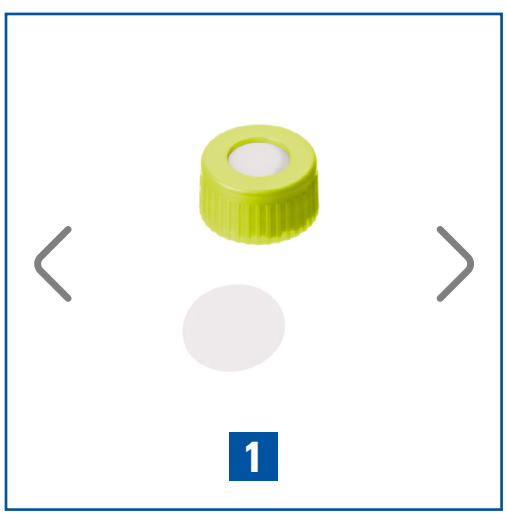
*Instrument Manufacturer Quality (IMQ)

# SHORT THREAD VIALS ND9

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## Polypropylene short thread cap yellow, 6mm centre hole

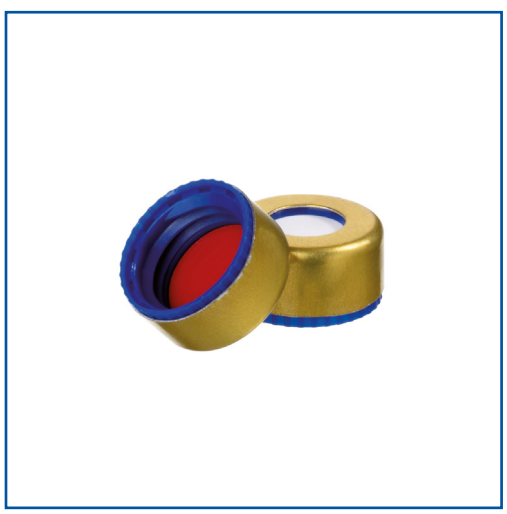



| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 12922680 | PTFE virginal | 53° Shore D | 0.2 | 100 |
| 2 | 11844840 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 3 | 11854850 | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 11834840 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |
| 5 | 11824840 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11884840 | Silicone white/PTFE blue, with slit | 55° Shore A | 1.0 | 1000 |

*Instrument Manufacturer Quality (IMQ)

## 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



| | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|
| 10310094 | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |

# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## 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



| | Description cap | Pack qty |
|---|---|---|
| 11894820 | With thinned penetration area and diaphragm | 1000 |

## 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.



1

| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11767567 | PP short thread cap black, 6mm centre hole | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 2 | 11707587 | PP short thread cap blue, 6mm centre hole | Silicone beige/PTFE white, improved IMQ* | 45° Shore A | 1.3 | 1000 |
| | 11777567 | PP short thread cap blue, 6mm centre hole | Silicone beige/PTFE white, with slit, improved IMQ* | 45° Shore A | 1.3 | 1000 |

*Instrument Manufacturer Quality (IMQ)

# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## Special 2-in-1 kits for Waters instruments



| | Item | Description | Pack qty |
|---|---|---|---|
| **12960891** | 2-in-1 kit | 2-in-1 kit consisting of: 10162512 + 11707587† | 100 |
| **10162512** | Vial | 1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **11707587** | Seal | 9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm† | 1000 |
| **12950891** | 2-in-1 kit | 2-in-1 kit consisting of: 10162512 + 11777567† | 100 |
| **10162512** | Vial | 1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **11777567** | Seal | 9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit † | 1000 |
| **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 |
| **11707587** | 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 + 11707587† | 100 |
| **11575884** | Vial | 1.5mL short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **11707587** | Seal | 9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit † | 1000 |
| **12920901** | 2-in-1 kit | 2-in-1 kit consisting of: 10080952 + 11707587† | 100 |
| **10080952** | Vial | 1.5mL short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **11707587** | Seal | 9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm † | 1000 |
| **12570186** | 2-in-1 kit | 2-in-1 kit consisting of: 10080952 + 11777567† | 100 |
| **10080952** | Vial | 1.5mL short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **11777567** | Seal | 9mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° Shore A, 1.3mm, slit † | 1000 |

† Note: Pack qty is a 100 in this kit

## 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.




| | | 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 |

*Instrument Manufacturer Quality (IMQ)

# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## 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




1

| | | 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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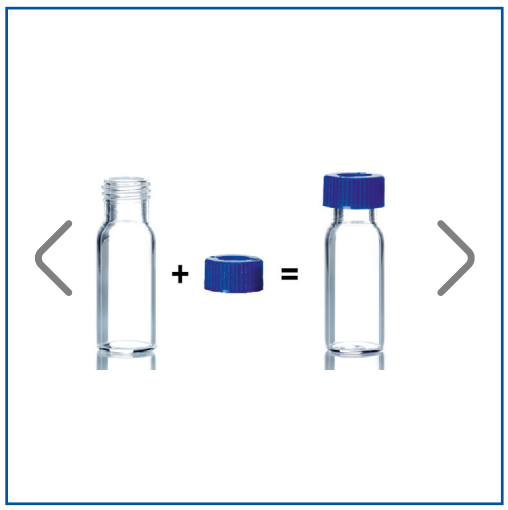
# SHORT THREAD VIALS ND9

Universally compatible with almost all autosamplers



## Short thread vials ND9, wide opening with pre-screwed PP short thread seals ND9 and/or pre-assembled micro-inserts with wide opening

- 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



| | 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 11797567) | 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 11797567) | 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 11777567) | 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 11874850) | 100 |

## 2-in-1 kits with short thread vials ND9



| | Item | Description | Pack qty |
|---|---|---|---|
| **11787497** | 2-in-1 kit | 2-in-1 kit consisting of: 10162512 + 11787567† | 100 |
| **10162512** | Vial | 1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **†11787567** | Seal | PP short thread cap blue, 6mm centre hole; UltraClean silicone white/PTFE red, 55° Shore A, 1.0mm | 1000 |
| **15124649** | 2-in-1 kit | 2-in-1 kit consisting of: 10162512 + 11797567† | 100 |
| **10162512** | Vial | 1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **†11797567** | Seal | PP short thread cap blue, 6mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.0mm, with slit | 1000 |
| **15532320** | 2-in-1 kit | 2-in-1 kit consisting of: 11575884 + 11862771† | 100 |
| **11575884** | Vial | 1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **†11862771** | Seal | PP short thread cap, black, 6mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.0mm, slit | 1000 |
| **12951251** | 2-in-1 kit | 2-in-1 kit consisting of: 10162512 + 12353700† | 100 |
| **10162512** | Vial | 1.5mL Short thread vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **†12353700** | Seal | PP short thread cap transparent, 6mm centre hole; UltraClean silicone white/PTFE red, 55° Shore A, 1.0mm | 1000 |
| **11395991** | 2-in-1 kit | 2-in-1 kit consisting of: 10080952 + 12353700† | 100 |
| **10080952** | Vial | 1.5mL Short thread vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **†12353700** | Seal | PP short thread cap transparent, 6mm centre hole; silicone white/PTFE red, 55° Shore A, 1.0mm | 1000 |

† Note: Pack qty is a 100 in this kit
*Instrument Manufacturer Quality (IMQ)

# SCREW NECK VIALS ND10

These vials feature a wide opening to enable easy filling



## SCREW NECK VIALS ND10

These vials are preferentially used on autosampler models from the following manufacturers: Jasco, PerkinElmer, Shimadzu, Varian and Waters

- Packed in a cleanroom environment as the new standard for chromatography vials
- Wide opening enables easy filling with viscous materials
- Broad range of micro-inserts

## SCREW NECK VIALS ND10

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




| | | 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 11531314) | 31 x 6 | Clear | 0.34 | 0.25 | 30 | <4 | 1000 |
| 5 | 11777557 | 0.1mL Micro-insert, 1st hydrolytic class, 12mm top | 31 x 6 | Clear | 0.35 | 0.30 | 30 | <4 | 1000 |
| 6 | 11805863 | 0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available 11541314) | 29 x 5.7 | Clear | 0.3 | 0.25 | 30 | <4 | 1000 |
| 7 | 11762418 | 0.2mL Micro-insert, 1st hydrolytic class, flat bottom | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |

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

# SCREW NECK VIALS ND10

These vials feature a wide opening to enable easy filling



## Polypropylene screw caps and seals ND10



1

| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11727577 | PP screw cap black, 7mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11762448 | PP screw cap black, 7mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 3 | 11822562 | PP screw cap black, 7mm centre hole | Silicone white/PTFE beige UltraClean | 45° Shore A | 1.5 | 1000 |
| 4 | 11772448 | PP screw cap black, 7mm centre hole | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 5 | 11782448 | PP screw cap black, 7mm centre hole | Silicone white/PTFE blue, with slit | 55° Shore A | 1.5 | 1000 |
| 6 | 12696575 | PP screw cap black, 7mm closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |

## Polypropylene screw caps ND10 (without seals)



1

| | | Description cap | Pack qty |
|---|---|---|---|
| 1 | 11380850 | Polypropylene screw cap black, 7mm centre hole | 1000 |
| 2 | 10735535 | Polypropylene screw cap black, closed top | 1000 |

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

# CRIMP NECK VIALS ND11

High quality vials compatible with almost all autosamplers



## 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

- 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




| | | Description | Dimension, 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 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 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 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 | 1000 |
| 8 | 11505894 | 1.1mL Microlitre vial, 1st hydrolytic class (silanised version available 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 | 1000 |
| 12 | 11585914 | TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available 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 11545924) | 32 x 11.6 | Amber | 0.35 | 0.2 | 30 | <4 | 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

High quality vials compatible with almost all autosamplers



## Micro-inserts for crimp neck vials ND11 with wide opening

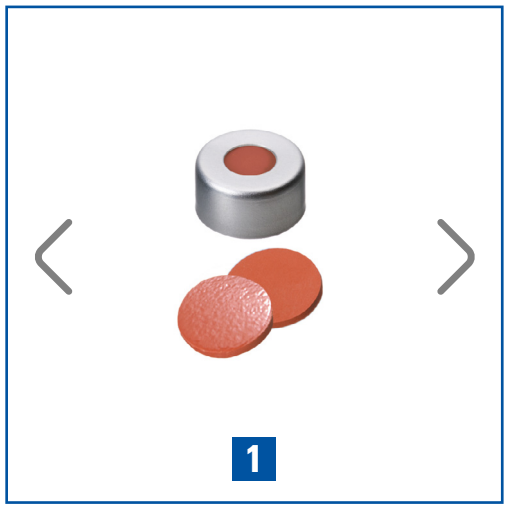



| | | Description | Dimension, mm | Glass type | TFVol. (mL) | UsVol. (mL) | MWVol. (µL) | Res.Vol (µL) | Pack qty |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11752418 | 0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available 11531314) | 31 x 6 | Clear | 0.34 | 0.25 | 30 | <4 | 1000 |
| 2 | 11777557 | 0.1mL Micro-insert, 1st hydrolytic class, 12mm top | 31 x 6 | Clear | 0.35 | 0.3 | 30 | <4 | 1000 |
| 3 | 11805863 | 0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available 11541314) | 29 x 5.7 | Clear | 0.3 | 0.25 | 30 | <4 | 1000 |
| 4 | 11762418 | 0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available 12396192) | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |

## 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




| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11737577 | Aluminium cap clear lacquered, 5.5mm centre hole | Natural rubber red-orange/TEF transparent approved IMQ* | 60° Shore A | 1.0 | 1000 |
| 1 | 11821653 | Aluminium cap clear lacquered, 5.5mm centre hole | Natural rubber red-orange/butyl red/TEF transparent | 45° Shore A | 1.0 | 1000 |
| 1 | 15239468 | Aluminium cap clear lacquered, 5.5mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | 11874870 | Aluminium cap green lacquered, 5.5mm centre hole | Natural rubber red-orange/butyl red/TEF transparent | 45° Shore A | 1.0 | 1000 |
| 3 | 11884870 | Aluminium cap red lacquered, 5.5mm centre hole | Natural rubber red-orange/butyl red/TEF transparent | 45° Shore A | 1.0 | 1000 |
| 4 | 11894870 | Aluminium cap blue lacquered, 5.5mm centre hole | Natural rubber red-orange/butyl red/TEF transparent | 45° Shore A | 1.0 | 1000 |
| 5 | 10489734 | Aluminium cap gold lacquered, 5.5mm centre hole | Natural rubber red-orange/butyl red/TEF transparent | 45° Shore A | 1.0 | 1000 |

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

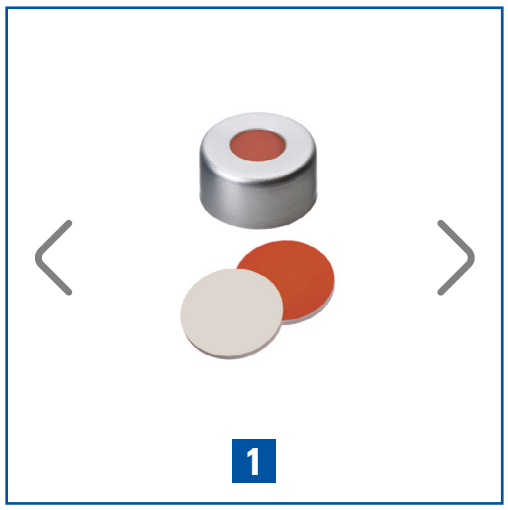
# CRIMP NECK VIALS ND11

High quality vials compatible with almost all autosamplers



## Red rubber/PTFE seals ND11

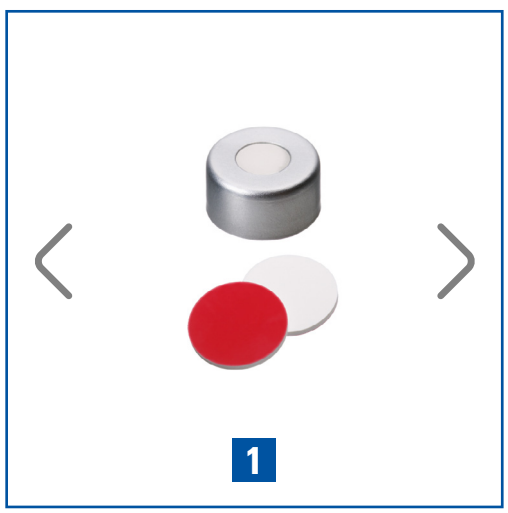
- Temperature resistant from –40°C up to +110°C
- Softer alternative to natural rubber/TEF and butyl/PTFE
- Cleaner than natural rubber or butyl; low fragmentation
- Red rubber is a synthetic rubber




| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 10728468 | Aluminium cap clear lacquered, 5.5mm centre hole | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 2 | 10237907 | Aluminium cap green lacquered, 5.5mm centre hole | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 3 | 11824890 | Aluminium cap red lacquered, 5.5mm centre hole | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | 10349487 | Aluminium cap blue lacquered, 5.5mm centre hole | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 5 | 11977051 | Aluminium cap gold lacquered, 5.5mm centre hole | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |

## 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




| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11772418 | Aluminium cap clear lacquered, 5.5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 1 | 10051634 | Aluminium cap clear lacquered, 5.5mm centre hole | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 2 | 11884880 | Aluminium cap clear lacquered, 5.5mm centre hole | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 3 | 11782418 | Aluminium cap clear lacquered, 5.5mm centre hole | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | 11792418 | Aluminium cap clear lacquered, 5.5mm centre hole | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.5 | 1000 |
| 5 | 10200025 | Aluminium cap green lacquered, 5.5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 6 | 10108214 | Aluminium cap red lacquered, 5.5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 7 | 10557005 | Aluminium cap blue lacquered, 5.5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 8 | 10793717 | Aluminium cap gold lacquered, 5.5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |

*Instrument Manufacturer Quality (IMQ)

# CRIMP NECK VIALS ND11

High quality vials compatible with almost all autosamplers



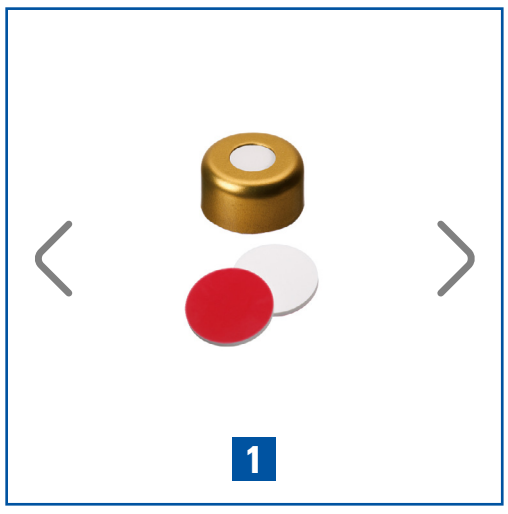
## Other aluminium crimp caps with seals ND11

- 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




| | | 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 | 11747577 | Aluminium cap clear lacquered, 5.5mm centre hole, roll groove | PTFE virginal | 53° Shore D | 0.25 | 1000 |
| 4 | 11804890 | Aluminium cap clear lacquered, 5.5mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 5 | 11814890 | Aluminium cap clear lacquered, 5.5mm centre hole | PTFE grey/butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |

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




| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11834880 | Magnetic cap, gold lacquered, 5mm centre hole | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 2 | 11844880 | Magnetic cap, gold lacquered, 5mm centre hole | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |

*Instrument Manufacturer Quality (IMQ)

# CRIMP NECK VIALS ND11

High quality vials compatible with almost all autosamplers

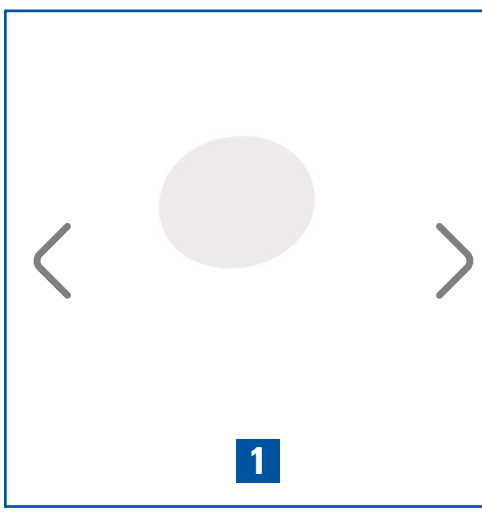


## PE Caps, seals and septa for crimp neck vials ND11



| | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| **11804980** | PE cap, transparent, 13 x 7.5mm, 4.5mm centre hole | Silicone white/PTFE red UltraClean | 55° Shore A | 1.0 | 1000 |

## Septa 11mm for crimp neck vials ND11




| | | Description cap | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | **11874860** | PTFE virginal | 53° Shore D | 0.25 | 1000 |
| 2 | **11804870** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | **15512310** | Natural rubber red-orange/TEF transparent, tested by VWR (Merck™)/Hitachi | 60° Shore A | 1.3 | 1000 |
| 3 | **11864870** | Red rubber/PTFE beige approved IMQ* | 45° Shore A | 1.0 | 1000 |
| 4 | **11844870** | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 5 | **11854870** | PTFE grey/butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 6 | **10041204** | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 6 | **11864860** | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 7 | **11834870** | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 8 | **11854860** | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 9 | **11894860** | Silicone white/PTFE blue, cross slitted | 55° Shore A | 1.5 | 1000 |

*Instrument Manufacturer Quality (IMQ)

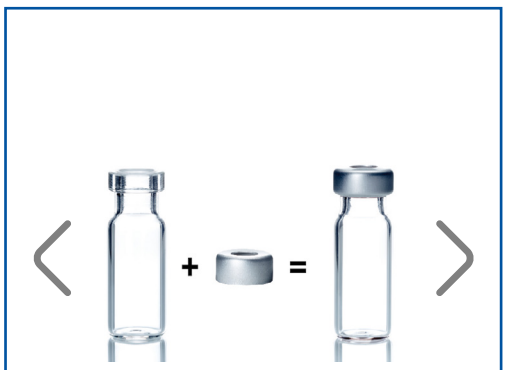
# CRIMP NECK VIALS ND11

High quality vials compatible with almost all autosamplers



## Crimp neck vials ND11, wide opening, with pre-crimped aluminium seals ND11 and/or pre-assembled micro-inserts for vials with wide opening

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



| | Description Vial | Description of pre-crimped Seal | Dimension, 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 (11737577) (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 (11821653) | 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 (11894870) | 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 (11737577) (approved IMQ*) | 32 x 11.6 | Amber | 100 |

## 2-in-1 Kits with crimp neck vials ND11



| | Item | Description | Pack qty |
|---|---|---|---|
| **10571383** | 2-in-1 Kit | 2-in-1 Kit consisting of: 10326042 + 11821653† | 100 |
| **10326042** | Vial | 1.5mL Crimp neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **11821653** | Seal | 11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/butyl red/ TEF transparent, 45° Shore A, 1.0mm † | 1000 |
| **12696655** | 2-in-1 Kit | 2-in-1 Kit consisting of: 10326042 + 11737577† | 100 |
| **10326042** | Vial | 1.5mL Crimp neck vial, 32 x 11.6mm, clear glass, 1st hydrolytic class, wide opening | 100 |
| **11737577** | Seal | 11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm † | 1000 |
| **11326451** | 2-in-1 Kit | 2-in-1 Kit consisting of: 11545884 + 11821653† | 100 |
| **11545884** | Vial | 1.5mL Crimp neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **11821653** | Seal | 11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/butyl red/ TEF transparent, 45° Shore A, 1.0mm † | 1000 |
| **10692143** | 2-in-1 Kit | 2-in-1 Kit consisting of: 11545884 + 11737577† | 100 |
| **11545884** | Vial | 1.5mL Crimp neck vial, 32 x 11.6mm, amber glass, 1st hydrolytic class, wide opening, label and filling lines | 100 |
| **11737577** | Seal | 11mm Aluminium cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.0mm † | 1000 |

† Note: Pack qty is a 100 in this kit

*Instrument Manufacturer Quality (IMQ)

# SNAP RING VIALS ND11

Universally usable vials for almost all autosamplers, even for those with robotic handling



## 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

- 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



1

| | | Description | Dimension, 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 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 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 | 1000 |
| 7 | 11585914 | TopSert TPX snap/crimp vial ND11, with integrated 0.2mL glass micro-insert (silanised version available 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 11545924) | 32 x 11.6 | Amber | 0.35 | 0.2 | 20 | <4 | 100 |
| 9 | 11717597 | 0.3mL PP snap ring microvial | 32 x 11.6 | Transparent | 0.4 | 0.25 | 30 | <4 | 1000 |
| 10 | 11894930 | 0.3mL TPX snap ring microvial | 32 x 11.6 | Clear | 0.4 | 0.25 | 30 | <4 | 1000 |
| 11 | 11834940 | 0.7mL PP snap ring microvial | 32 x 11.6 | Transparent | 0.9 | 0.64 | 50 | <25 | 1000 |
| 12 | 11804940 | 0.3mL PP snap ring microvial | 32 x 11.6 | Amber | 0.4 | 0.25 | 30 | <4 | 1000 |

*Instrument Manufacturer Quality (IMQ)

# SNAP RING VIALS ND11

Universally usable vials for almost all autosamplers, even for those with robotic handling



## Micro-inserts for snap ring vials ND11 with wide opening



1

| | | Description | Dimension, 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 11531314) | 31 x 6 | Clear | 0.34 | 0.25 | 30 | <4 | 1000 |
| 2 | 11777557 | 0.1mL Micro-insert, 1st hydrolytic class, 12mm top | 31 x 6 | Clear | 0.35 | 0.3 | 30 | <4 | 1000 |
| 3 | 11805863 | 0.1mL Micro-insert, 1st hydrolytic class, with assembled plastic spring (silanised version available 11541314 | 29 x 5.7 | Clear | 0.3 | 0.25 | 30 | <4 | 1000 |
| 4 | 11762418 | 0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available 12396192) | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |

## 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



1

| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| | **Hard Cap** | | | | |
| 1 | 11702428 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | 15272056 | Red rubber/PTFE beige IMQ* | 45° Shore A | 1.0 | 1000 |
| 3 | 11712428 | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 4 | 11777587 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 5 | 11787587 | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |
| 6 | 11844930 | Silicone white/PTFE red, pre-cut (Y) | 45° Shore A | 1.3 | 1000 |
| | **Soft Cap** | | | | |
| 1 | 11824920 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | 11814930 | Red rubber/PTFE beige IMQ* | 45° Shore A | 1.0 | 1000 |
| 3 | 11844920 | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 4 | 11834920 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 5 | 11854920 | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |
| 6 | 11854930 | Silicone white/PTFE red, pre-cut (Y) | 45° Shore A | 1.3 | 1000 |

*Instrument Manufacturer Quality (IMQ)

# SNAP RING VIALS ND11

Universally usable vials for almost all autosamplers, even for those with robotic handling

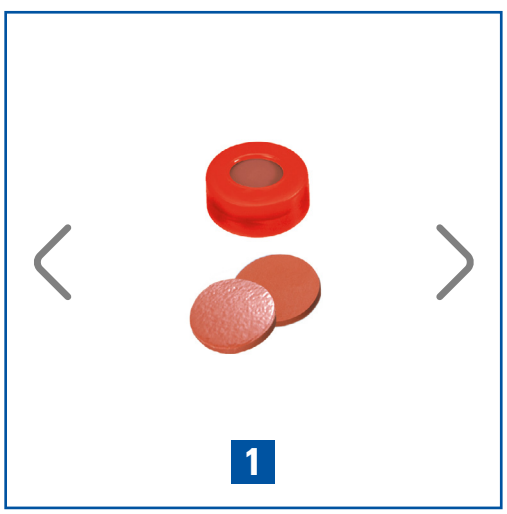


## PE snap ring cap ND11 blue, 6mm centre hole, hard or soft version




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| | **Hard Cap** | | | | |
| 1 | **11867301** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | **15522320** | Red rubber/PTFE beige, IMQ* | 45° Shore A | 1.0 | 100 |
| 3 | **11814910** | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 4 | **11824910** | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 5 | **11834910** | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |
| 6 | **10668205** | Silicone white/PTFE red, pre-cut (Y) | 45° Shore A | 1.3 | 100 |
| | **Soft Cap** | | | | |
| 1 | **11874920** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | **11595944** | Red rubber/PTFE beige, IMQ* | 45° Shore A | 1.0 | 100 |
| 3 | **11864920** | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 4 | **11884920** | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 5 | **11894920** | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |
| 6 | **11864930** | Silicone white/PTFE red, pre-cut (Y) | 45° Shore A | 1.3 | 1000 |

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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| | **Hard version** | | | | |
| 1 | **11844910** | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | **11864910** | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 3 | **11854910** | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | **11797587** | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |

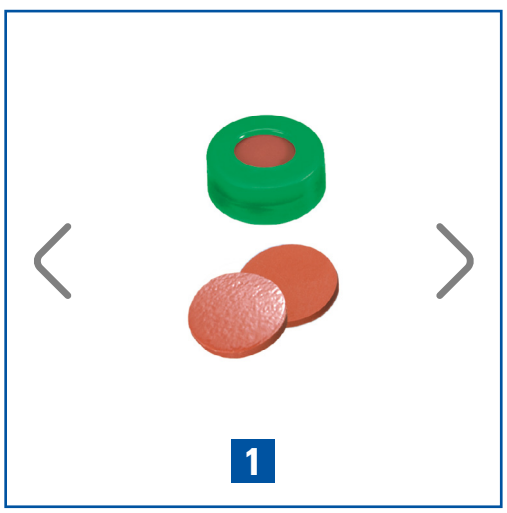
*Instrument Manufacturer Quality (IMQ)

# SNAP RING VIALS ND11

Universally usable vials for almost all autosamplers, even for those with robotic handling

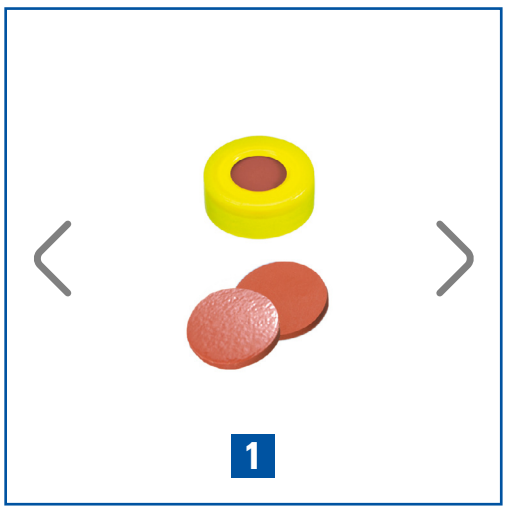


## PE snap ring cap ND11 green, 6mm centre hole, hard version only




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| | Hard version | | | | |
| 1 | 11874910 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | 11824930 | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 3 | 11834930 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | 11814920 | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |

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




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| | Hard version | | | | |
| 1 | 11884910 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.0 | 1000 |
| 2 | 11804930 | Silicone white/PTFE red UltraClean | 45° Shore A | 1.3 | 1000 |
| 3 | 11894910 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 4 | 11804920 | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.0 | 1000 |

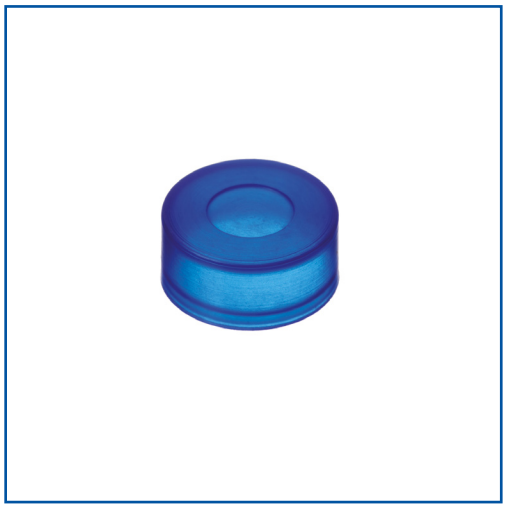
*Instrument Manufacturer Quality (IMQ)

# SNAP RING VIALS ND11

Universally usable vials for almost all autosamplers, even for those with robotic handling



## PE snap cap for snap ring vials ND11



| | Description cap | Septa description | Pack qty |
|---|---|---|---|
| **11836201** | PE push-on cap, blue | With thinned penetration point | 1000 |

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# SCREW NECK VIALS ND13

Vials are packed in a cleanroom in reclosable, tamper-proof evident PP-boxes



## 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)

- 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
- 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

## Screw neck vials ND13 and appropriate micro-inserts



1

| | | Description | Dimension, 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 | 1000 |
| 6 | 10682733 | Spring, for micro-insert 11826912 | 50 x 7.5 | - | - | - | - | - | 100 |

# SCREW NECK VIALS ND13

Vials are packed in a cleanroom in reclosable, tamper-proof evident PP-boxes



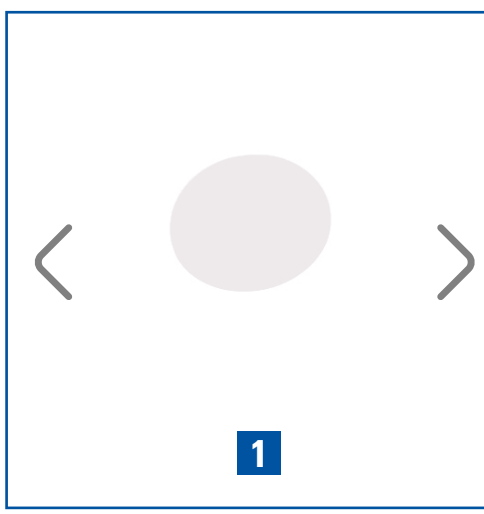
## Polypropylene screw caps with seals ND13

- 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




| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11702448 | Polypropylene screw cap black, 8.5mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11792438 | Polypropylene screw cap black, 8.5mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11772438 | Polypropylene screw cap black, 8.5mm centre hole | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 4 | 11894970 | Polypropylene screw cap black, 8.5mm centre hole | Silicone dark blue/PTFE white | 45° Shore A | 1.3 | 1000 |
| 5 | 11782438 | Polypropylene screw cap black, 8.5mm centre hole | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11712448 | Polypropylene screw cap black, 8.5mm centre hole | Silicone white/PTFE blue, cross-slitted | 55° Shore A | 1.5 | 1000 |
| 7 | 11864970 | Polypropylene screw cap black, closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 8 | 11823861 | Polypropylene screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 9 | 11884970 | Polypropylene screw cap black, closed top | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |

## Septa 12mm for vial seals ND13




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11804950 | PTFE virginal | 53° Shore D | 0.25 (only unassembled) | 1000 |
| 2 | 11814950 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 3 | 11757597 | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 4 | 11894940 | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |
| 5 | 11844950 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |
| 6 | 11824950 | Silicone white/PTFE blue | 55° Shore A | 1.5 cross-slitted | 1000 |

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

# SCREW NECK VIALS ND13

Vials are packed in a cleanroom in reclosable, tamper-proof evident PP-boxes



## Polypropylene screw caps ND13



1

| | | Description cap | Pack qty |
|---|---|---|---|
| 1 | 11797597 | Polypropylene screw cap, black, 8.5mm centre hole | 1000 |
| 2 | 11707607 | Polypropylene screw cap, black, closed top | 1000 |
| 3 | 11717607 | Polypropylene screw cap, white, 8.5mm centre hole | 1000 |
| 4 | 11898881 | Polypropylene screw cap, white, closed top | 1000 |

## Special kits with screw neck ND13

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

| | Item | Description | Pack qty |
|---|---|---|---|
| 10672923 | 3-in-1 Kit | 3-in-1 Kit consisting of: 10571013 + 11797597† + 11804950 | 100 |
| 10571013 | Vial | 4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic Class | 100 |
| 11797597 | Cap | Polypropylene screw cap, black, 8.5mm centre hole † | 1000 |
| 11804950 | Septa | PTFE virginal, 53° Shore D, 0.25mm | 1000 |
| 11556044 | Vial | 4mL Screw neck vial, 45 x 14.7mm, amber glass, 1st hydrolytic Class | 100 |
| 11797597 | Cap | Polypropylene screw cap, black, 8.5mm centre hole | 1000 |
| 11804950 | Septa | PTFE virginal, 53° Shore D, 0.25mm | 1000 |

† Note: Pack qty is a 100 in this kit

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

| | Item | Description | Pack qty |
|---|---|---|---|
| 11737607 | 2-in-1 Kit | 2-in-1 Kit consisting of: 10571013 + 11702448† | 100 |
| 10571013 | Vial | 4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class | 100 |
| 11702448 | Seal | PP screw cap, black, 8.5mm centre hole; natural rubber red-orange/TEF transparent, 60° Shore A, 1.3mm † | 1000 |
| 10224662 | 2-in-1 Kit | 2-in-1 Kit consisting of: 10571013 + 11772438† | 100 |
| 10571013 | Vial | 4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class | 100 |
| 11772438 | Seal | PP screw cap, black, 8.5mm centre hole; silicone cream/PTFE red, 55° Shore A, 1.5mm † | 1000 |
| 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+11782438† | 100 |
| 10571013 | Vial | 4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class | 100 |
| 11782438 | Seal | PP screw cap, black, 8.5mm centre hole; PTFE red/silicone white/PTFE red, 45° Shore A, 1.0mm † | 1000 |
| 12910941 | 2-in-1 Kit | 2-in-1 Kit consisting of: 10571013 + 11712448† | 100 |
| 10571013 | Vial | 4mL Screw neck vial, 45 x 14.7mm, clear glass, 1st hydrolytic class | 100 |
| 11712448 | Seal | PP screw cap, black, 8.5mm centre hole; silicone white/PTFE blue, 55° Shore A, 1.5mm cross-slitted † | 1000 |

† Note: Pack qty is a 100 in this kit

# Shell Vials

These vials are an economical choice for many routine HPLC applications



## Shell Vials

These vials are preferentially used on autosampler models from the following manufacturers: Alcott, Gilson, Shimadzu and Waters (Wisp 96 48-position carousel)

- PE plugs 11561374/10224852, 11555914/11565914 and 11516074/10455982 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




| | | Description | Dimension, 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 | 1000 |
| 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 | 1000 | <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 | 1000 | <800 | 100 |
| 7 | 11728276 | 0.3mL Micro-insert, 1st hydrolytic class, 13mm top | 43.45 x 6 | Clear | 0.4 | 0.3 | 50 | <8 | 1000 |

*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.

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

# Shell Vials

These vials are an economical choice for many routine HPLC applications



## Shell vials 2mL and appropriate micro-inserts



1

| | | Description | Dimension, 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 | 11752418 | 0.1mL Micro-insert, 1st hydrolytic class, 15mm top (silanised version available 11531314) | 31 x 6 | Clear | 0.34 | 0.25 | 30 | <4 | 1000 |
| 4 | 11777557 | 0.1mL Micro-insert, 1st hydrolytic class, 12mm top | 31 x 6 | Clear | 0.35 | 0.3 | 30 | <4 | 1000 |
| 5 | 11762418 | 0.2mL Micro-insert, 1st hydrolytic class, flat bottom (silanised version available 12396192) | 31 x 6 | Clear | 0.5 | 0.35 | 40 | <8 | 1000 |

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



1

| | | Description | Dimension, 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 | 1000 | <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 has been specially selected to help you quickly identify those consumables suited to your own instruments



## Headspace ND20 (ND18) vials

## 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).

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 has been specially selected to help you quickly identify those consumables suited to your own instruments



## Headspace vials ND20 and ND18



1

| | | Description | Dimension, 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 |
| | 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 |

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 has been specially selected to help you quickly identify those consumables suited to your own instruments



## Other headspace crimp neck vials ND20 and screw neck vial ND18



1

| | | Description | Dimension, 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 |

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

FISHERBRAND

# Spotlight

Chromatography
Vials and Closures

Fisher Chemical

Identify the appropriate solvent grade for your particular chromatography application from the Fisher Chemical range

## FISHER CHEMICAL SOLVENT SELECTION GUIDE

| Chromatography Application | Instrument and Detector Type | Fisher Chemical Solvent Grade |
|---|---|---|
| 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 | LC gradient coupled with UV detector | HPLC advanced grade |
| HPLC gradient | LC gradient coupled with UV detector | HPLC gradient grade |
| HPLC | LC coupled with UV detector | HPLC grade |

To ensure suitability for specific detectors (e.g. ECD & fluorescence) several other application specific solvent grades are also available.

### Achieve maximum performance in liquid chromatography

Research, quality control or routine analysis – whatever the field of activity, our range of solvents meets the challenges of chromatography from HPLC to UHPLC-MS applications.  We can supply the type of solvents, blends and reagents you need, in the grades, sizes and packaging that meet your requirements.

### Fisher Chemical Manufacturing Capabilities

Utilising our chemicals manufacturing sites, we can tailor-make solvents to meet the specifications you provide for your application. Our experience in manufacturing, processing and testing high-purity solvents enables customisation to your specifications. In addition, our dedicated solvent mixing facilities produce high-purity blends specified by our customers.

Take advantage of our long-standing expertise and experience in distillation, processing, testing and packaging high purity solvents to make Fisher Chemical your brand of choice for  your chromatography applications.




**Water, HPLC for gradient analysis**
10367171

**Methanol for LC-MS Optima™**
10031094 †

**Acetonitrile for LC-MS Optima™**
10001334

For further information visit the Fisher Chemical supplier page on your local Fisher Scientific web site.
To request a copy of our brochure  'Find the perfect chemicals for your Chromatography' www.eu.fishersci.com/go/fisherbrand

† Restrictions may apply in certain countries

# Headspace autosampler compatibility chart

This headspace vial range has been specially selected to help you quickly identify those consumables suited to your own instruments



## Headspace autosampler compatibility chart

| Cat No. | 10680843 | 12971231<br>15552340 | 10681033<br>10195012 | 10070952<br>12710891 | 10510323 | 11506114<br>11526114 | 12941221<br>12951221 | 10663303 | 10080822<br>12981241 | 10152512 | 10192652<br>11520545 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | CTC Combi PAL (Varian, Gerstel Atas, Shimadzu), PerkinElmer*, Agilent | PerkinElmer** | PerkinElmer, Tekmar | PerkinElmer, Tekmar | Varian |
| **AUTOSAMPLERS** | | | | | | | | | | | |
| **Agilent G1888A, Agilent HS7694 (DANI HS 39.50/HS 86.50)** | 11778246<br>11590505<br>11788246<br>11580505 | 11778246<br>11590505<br>11788246<br>11580505 | | | | | 11853912<br>(only for G1888A) | | | | |
| **Agilent CTC combi Pal** | | | | | | | 11853912 | | | | |
| **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** | | | 11805963<br>11825050 | 11805963<br>11825050 | | 11778256<br>11865000<br>11853912 | 11778256<br>11865000<br>11853912 | | | | |
| **CTC Combi Pal (SPME Mode) (Gerstel MPS 2 / Varian) CTC combi-xt SPME Options** | | | | | 11927071<br>11895040 | 11778256<br>11865000<br>11853912<br>11713027 | 11778256<br>11865000<br>11853912<br>11713027 | | | | |
| **CTC HS 500** | | | 10472804 | 10472804 | | | | | | | |
| **HTA HT200H** | 11778246<br>11590505 | | | 11778246<br>11590505 | | | | | | | |
| **PerkinElmer HS6** | | | | | | | | 11835030<br>11758246<br>11747617<br>11747617<br>11885030<br>11580505<br>11845030<br>11742458<br>11778246<br>11793127<br>11891653<br>11590505 | | | |
| **PerkinElmer HS40/HS100/HS101** | | | | | | | | see PerkinElmer HS6 | see PerkinElmer HS6 | see PerkinElmer HS6 | |
| **TurboMatrix™ HS16/HS40/HS40XL/HS40Trap/HS110/ HS110 Trap** | | | | | | | 11865000<br>11787607<br>11895000 | see PerkinElmer HS6 | see PerkinElmer HS6 | see PerkinElmer HS6 | |
| **Shimadzu AOC-5000 (HS Mode) Shimadzu SIL-30 ACMP** | | | 11805963<br>11825050 | 11805963<br>11825050 | | 11778256<br>11865000<br>11853912 | 11778256<br>11865000<br>11853912 | | | | |
| **Shimadzu AOC-5000 (SPME Mode)** | | | | | 11927071<br>11895040 | 11778256<br>11865000<br>11853912<br>11713027 | 11778256<br>11865000<br>11853912<br>11713027 | | | | |
| **Thermo Scientific HS250 / HS500 (Carlo Erba/Fisons/Thermo Scientific)** | | | 11825040<br>10472804<br>11821603 | | | | | | | | |
| **Thermo Scientific HS800 (Carlo Erba/ Fisons/Thermo Scientific)** | | | 11825040<br>10472804<br>11821603 | 11825040<br>10472804<br>11821603 | | | | | | | |
| **Thermo Scientific HS850 (Carlo Erba/ Fisons/Thermo Scientific)** | | | 11793127<br>11590505<br>11845030<br>11778246<br>11742458 | 11793127<br>11590505<br>11845030<br>11778246<br>11742458 | | | | | | | |
| **Thermo Scientific HS2000, Thermo Scientific TriPlus (HS Mode), Thermo Scientific TriPlus 300, Thermo Scientific TriPlus RSH** | | | 11793127<br>11590505<br>11845030<br>11778246<br>11742458 | 11793127<br>11590505<br>11845030<br>11778246<br>11742458 | | | | | | | |
| **Thermo Scientific TriPlus (SMPE Mode)** | | | 11793127<br>11590505 | 11793127<br>11590505 | | | | | | | |
| **Tekmar HT 3** | | | | | | | | | 11778246<br>11742458<br>11793127<br>11590505 | 11778246<br>11742458<br>11793127<br>11590505 | |
| **Varian CP-920/9025, CP-9060 Varian Genesis** | | 11793127<br>11590505<br>11778246<br>11742458 | 11793127<br>11590505<br>11778246<br>11742458 | | | | | | | | |

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

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
- Magnetic crimp cap, gold, 5mm centre hole
- Magnetic crimp bimetal-cap red/silver, 8mm centre hole
- Headspace cap clear lacquered (pressure release cap)
- Magnetic crimp cap, gold, 8mm centre hole
- Magnetic precision thread, screw cap, silver, 8mm centre hole

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners

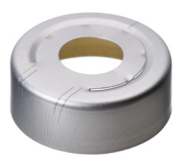


## Aluminium crimp caps and liners ND20

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




| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11845030 | Aluminium cap, plain, 10mm centre hole | Chloro-butyl, dark grey | 55° Shore A | 3.0 | 1000 |
| 2 | 11835030 | Headspace cap, clear lacquered | | | | 1000 |
| 3 | 11865030 | Centre tear-off cap, clear lacquered | | | | 1000 |
| 4 | 11875030 | Complete tear-off cap, clear lacquered | | | | 1000 |
| 5 | 11825040 | Magnetic cap, gold, 5mm centre hole | | | | 1000 |
| 6 | 11845040 | Magnetic cap, gold, 8mm centre hole | | | | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## Crimp caps with butyl/PTFE seals ND20, laminated

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



1

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11742458 | Aluminium cap, plain, 10mm centre hole | Bromo-Butyl/PTFE, grey | 50° Shore A | 3.0 | 1000 |
| 2 | 11758246 | Headspace cap, clear lacquered | | | | 1000 |
| 3 | 11855030 | Centre tear-off cap, clear lacquered | | | | 1000 |
| 4 | 11893781 | Complete tear-off cap, clear lacquered | | | | 1000 |
| 5 | 10182174 | Magnetic cap, gold, 5mm centre hole | | | | 1000 |
| 6 | 11768246 | Magnetic cap, gold, 8mm centre hole | | | | 1000 |
| 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



1

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11778246 | Aluminium cap, plain, 10mm centre hole | Pharma-fix-septa, bromo-butyl/PTFE | 50° Shore A | 3.0 | 1000 |
| 2 | 11788246 | Headspace cap, clear lacquered | | | | 1000 |
| 3 | 11825030 | Centre tear-off cap, clear lacquered | | | | 1000 |
| 4 | 11737617 | Complete tear-off cap, clear lacquered | | | | 1000 |
| 5 | 11821603 | Magnetic cap, gold, 5mm centre hole | | | | 1000 |
| 6 | 11798246 | Magnetic cap, gold, 8mm centre hole | | | | 1000 |

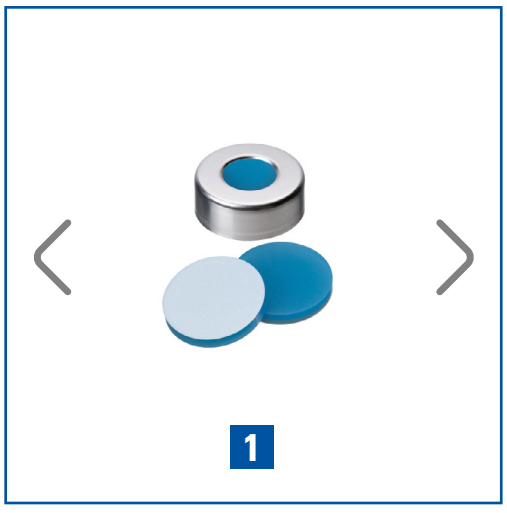
# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## 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



1

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11793127 | Aluminium cap, plain, 10mm centre hole | Silicone blue transparent/PTFE white UltraClean | 45° Shore A | 3.0 | 1000 |
| 2 | 11747617 | Headspace cap, clear lacquered | | | | 1000 |
| 3 | 10666364 | Centre tear-off cap, clear lacquered | | | | 1000 |
| 4 | 12370180 | Complete tear-off cap, clear lacquered | | | | 1000 |
| 5 | 10472804 | Magnetic cap, gold, 5mm centre hole | Silicone blue transparent/PTFE transparent UltraClean | 45° Shore A | 3.0 | 1000 |
| 6 | 11805963 | Magnetic cap, gold, 8mm centre hole | | | | 1000 |
| 7 | 11825050 | Magnetic bimetal cap, red, 8mm centre hole | | | | 1000 |
| 8 | 11590505 | Aluminium cap, plain, 10mm centre hole | | | | 1000 |
| 9 | 11580505 | Headspace cap, clear lacquered | | | | 1000 |
| 10 | 12696775 | Magnetic cap, gold, 8mm centre hole | Silicone white/PTFE beige (HT Quality) | 45° Shore A | 3.2 | 1000 |
| 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



1

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11891653 | Aluminium cap, plain, 10mm centre hole | Silicone white/ aluminium foil silver | 50° Shore A | 3.0 | 1000 |
| 2 | 11885030 | Headspace cap, clear lacquered | Silicone white/ aluminium foil silver | 50° Shore A | 3.0 | 1000 |
| 3 | 11815040 | Magnetic cap, gold, 5mm centre hole | Silicone white/ aluminium foil silver | 50° Shore A | 3.0 | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## 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)



| | 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 ( 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 ( 10510323) which has a much thicker crimp neck than all standard headspace vials



| | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| **11927071** | Magnetic cap, gold, 8mm centre hole | Silicone white/PTFE blue | 55° Shore A | 1.5 | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## Septa/stoppers 20mm only, for vials ND20



1

| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 10255044 | Moulded septa butyl, dark grey | 55° Shore A | 3.0 | 1000 |
| 2 | 11825020 | Moulded septa butyl/PTFE, grey | 50° Shore A | 3.0 | 1000 |
| 3 | 11815020 | Pharma-fix-septa (butyl/PTFE) | 50° Shore A | 3.0 | 1000 |
| 4 | 10602245 | Silicone blue transparent/PTFE white | 45° Shore A | 3.0 | 1000 |
| 5 | 12666505 | Silicone blue transparent/PTFE transparent | 45° Shore A | 3.0 | 1000 |
| 6 | 11805030 | Silicone white/PTFE beige (HT quality) | 45° Shore A | 3.2 | 1000 |
| 7 | 11895020 | Silicone white/aluminium foil silver | 50° Shore A | 3.0 | 1000 |
| 8 | 11845060 | 20mm Butyl injection stopper, grey | | | 1000 |

## Autosampler washer bottle caps and seals ND20

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



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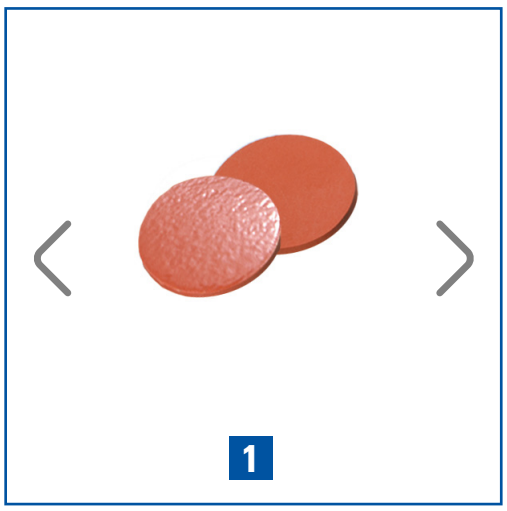
| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11869420 | PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11809430 | PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11879420 | PE cap, transparent, 22 x 8.4mm, 4.3mm centre hole | Silicone blue transparent/PTFE white | 45° Shore A | 1.3 | 1000 |
| 1 | 11889420 | PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11899420 | PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 4 | 11837281 | PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole | Silicone blue transparent/PTFE white | 45° Shore A | 1.3 | 1000 |
| 5 | 11829430 | PE cap, transparent, 22 x 9.1mm, 4.3mm centre hole | Silicone blue transparent/PTFE white, Y-slitted | 45° Shore A | 1.3 | 1000 |
| 5 | 11819430 | PE cap, transparent, 22 x 9.1mm, 8.0mm centre hole | Silicone blue transparent/PTFE white,Y-slitted | 45° Shore A | 1.3 | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



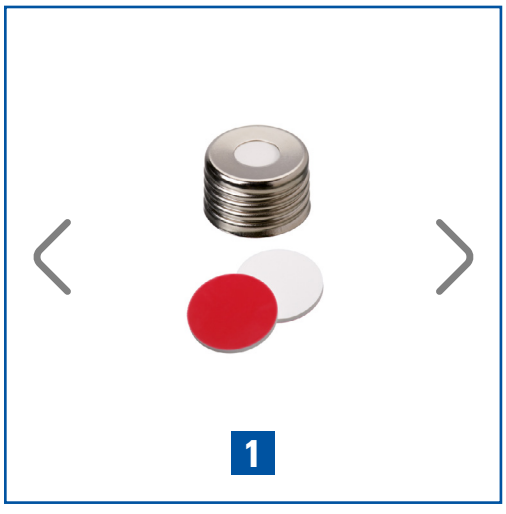
## Septa 19.5mm for seals ND20




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11855010 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11875010 | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11865010 | Silicone blue transparent/PTFE white | 45° Shore A | 1.3 | 1000 |

## 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
- 11865000 and 11853912 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
- 11713027* especially suitable for SPME due to the pre-cut septa



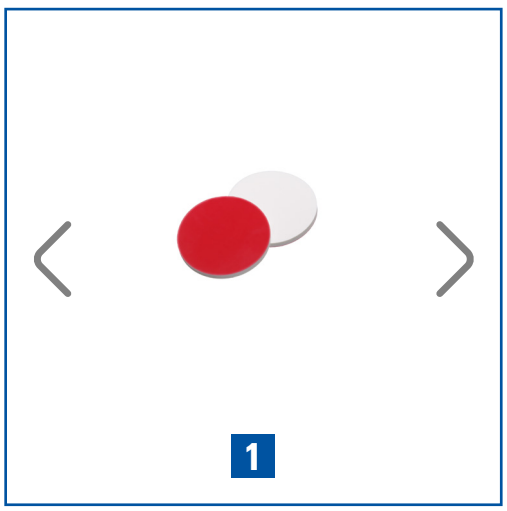

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11778256 | Magnetic screw cap silver, 8mm centre hole | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 2 | 11865000 | Magnetic screw cap silver, 8mm centre hole | Silicone blue transparent/PTFE white | 45° Shore A | 1.3 | 1000 |
| 3 | 11853912 | Magnetic screw cap silver, 8mm centre hole | Silicone white/PTFE blue | 55° Shore A | 1.5 | 1000 |
| 4 | 11787607 | Magnetic screw cap silver, 8mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 5 | 11895000 | Magnetic screw cap silver, 8mm centre hole | Silicone white/aluminium foil silver | 50° Shore A | 1.3 | 1000 |
| 6 | 11713027 | Magnetic screw cap silver, 8mm centre hole (SPME) | Silicone white/PTFE red, pre-cut star (*) | 55° Shore A | 1.5 | 1000 |
| 7 | 11875000 | Magnetic screw cap silver, closed top | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 8 | 11885000 | Magnetic screw cap silver, closed top | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## Septa 17.5mm for magnetic universal screw seals ND18




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11825000 | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 2 | 11815000 | Silicone blue transparent/PTFE white | 45° Shore A | 1.3 | 1000 |
| 3 | 11894990 | Silicone white/PTFE blue | 55° Shore A | 1.5 | 1000 |
| 4 | 11805000 | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 5 | 11835000 | Silicone white/aluminium foil silver | 50° Shore A | 1.3 | 1000 |

## Polypropylene screw cap seal ND18

- Especially for headspace vial 12990951
- These screw seals are not suitable for the following vials: 11506114, 12941221, 11526114 and 12951221



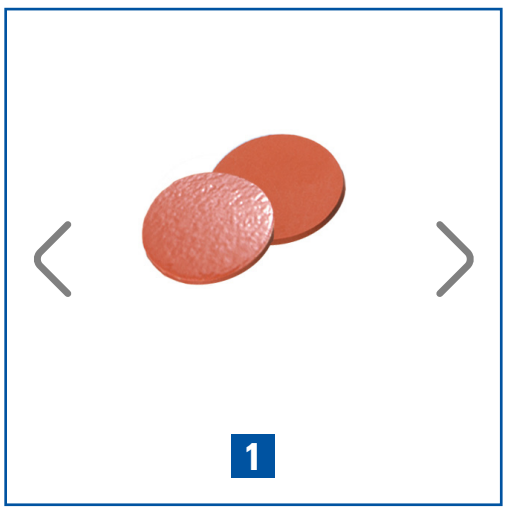

| | | Description | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11899040 | Polypropylene screw cap black, 12mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 2 | 11845010 | Polypropylene screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 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 | 12686755 | Polypropylene screw cap black, 12mm centre hole | Silicone white/PTFE red | 55° Shore A | 1.5 | 1000 |
| 5 | 12676755 | Polypropylene screw cap black, closed top | Silicone white/PTFE red | 55° Shore A | 1.5 | 1000 |
| 6 | 11835010 | Polypropylene screw cap black, 12mm centre hole | Silicone blue transparent/PTFE white | 45° Shore A | 1.7 | 1000 |

# Aluminium crimp caps and liners ND20

Comprehensive range of aluminium caps and compatible liners



## Septa 16mm for vial seals ND18




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11844990 | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11917061 | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 2 | 11874990 | Butyl red/PTFE grey | 55° Shore A | 2.0 | 1000 |
| 3 | 15592330 | Silicone white/PTFE red | 55° Shore A | 1.5 | 1000 |
| 4 | 11854990 | Silicone blue transparent/PTFE white | 45° Shore A | 1.7 | 1000 |
| 5 | 11777607 | PTFE red/silicone white/PTFE red | 45° Shore A | 1.0 | 1000 |



# Snap Cap Vials ND18 and ND22

Easy to handle and inexpensive storage vials with push-on snap caps



## SNAP CAP VIALS ND18 AND ND22

- 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



1

| | | 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



1

| | | Description cap | Dimensions, mm | Colour | Pack qty |
|---|---|---|---|---|---|
| 1 | 11797607 | 18mm PE snap cap, closed top, for ND18 | 19.8 x 5.2 | Transparent | 1000 |
| 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)

Broad range of EPA vials in clear and amber glass



## 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

- 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
- Broad range of EPA vials in clear and amber glass
- Volumes of 20mL, 30mL, 40mL and 60mL available

## Screw neck vials ND24 (EPA)




| | | 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 |

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)

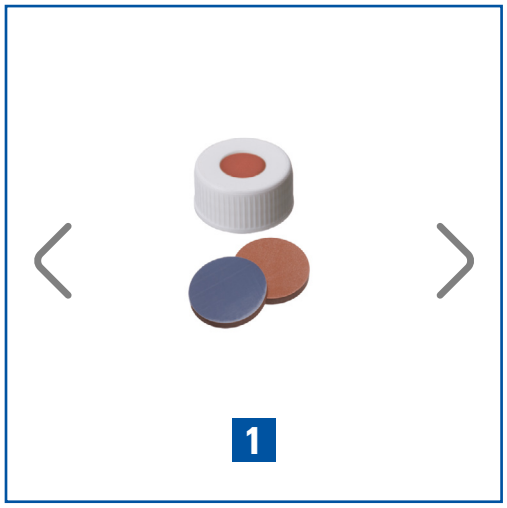
Broad range of EPA vials in clear and amber glass



## SCREW NECK VIALS ND24 (EPA)

- 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

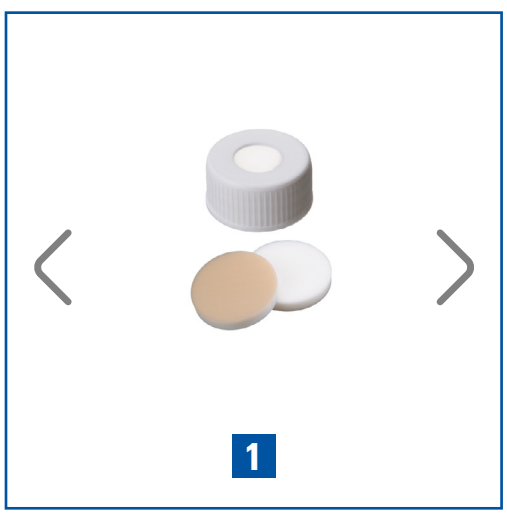
## PP screw cap seals ND24 (assembled)




| | | 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 |

## UltraBond seals ND24

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




| | | 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 |

# SCREW NECK VIALS ND24 (EPA)

Broad range of EPA vials in clear and amber glass



## Septa 22mm for vial seals ND24



1

| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11835070 | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 2 | 11845070 | Butyl red/PTFE grey | 55° Shore A | 2.5 | 1000 |
| 3 | 11787617 | Silicone white/PTFE beige | 45° Shore A | 3.2 (EPA-Quality) | 1000 |
| 4 | 11815070 | Silicone white/PTFE blue | 55° Shore A | 1.5, cross-slitted | 1000 |
| 5 | 12950991 | Silicone white/aluminium foil silver | 50° Shore A | 3.0 | 1000 |

## Polypropylene screw caps ND24

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



1

| | | Description cap | Pack qty |
|---|---|---|---|
| 1 | 10590053 | Polypropylene screw cap, white, 12.5mm centre hole | 100 |
| 2 | 10759644 | Polypropylene screw cap, white, closed top | 100 |

# SCREW NECK VIALS ND24 (EPA)

Broad range of EPA vials in clear and amber glass



## Specially assembled EPA vials with screw seals ND24

| | 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 |

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

# Screw Neck Vials for Storage Purposes

Screw neck vials for storage purposes made out of 1st hydrolytic class glass



## Screw Neck Vials for Storage Purposes

- Clear and amber vials
- Separate caps and seals also available from a range of different materials (see below)

## Screw neck vials for storage purposes



1

| | | Description | Dimension, 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 |
| 3 | 11530585 | 40mL Screw neck vial, 24-400 | 95 x 27.5 | Amber | 42.9 | 40 | 1.4 | 0.7 (mL) | 100 |
| | 11570605 | 50mL Cylindrical jar, 3rd hydrolytic class with screw neck ND40 | 69.5 x 44 | Clear | 65.5 | 50 | 5 | 2.5 (mL) | 85 |

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

# Screw Neck Vials for Storage Purposes

Screw neck vials for storage purposes made out of 1st hydrolytic class glass



## Polypropylene screw cap seals for storage vials

- Corresponding centre hole versions are partially available
- Packed with 10x100 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




| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11747567 | PP screw cap black, closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11884800 | PP screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11864800 | PP screw cap black, closed top | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |

### Polypropylene screw cap seals ND13 for 10571013 and 11556044




| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11864970 | PP screw cap black, closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11823861 | PP screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11884970 | PP screw cap black, closed top | Silicone cream/PTFE red | 55° Shore A | 1.5 | 1000 |

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

# Screw Neck Vials for Storage Purposes

Screw neck vials for storage purposes made out of 1st hydrolytic class glass



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



1

| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 10530631 | PP screw cap black, closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11814990 | PP screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 3 | 11804990 | PP screw cap black, closed top | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |
| 4 | 11824990 | PP screw cap black, 9mm centre hole | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 5 | 11804233 | PP screw cap black, 9mm centre hole | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 6 | 11814233 | PP screw cap black, 9mm centre hole | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |

## Polypropylene screw cap seals ND18 for 10023672



1

| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11845010 | PP screw cap black, closed top | Butyl red/PTFE grey | 55° Shore A | 1.6 | 1000 |
| 2 | 11896371 | PP screw cap black, closed top | Silicone blue transparent/PTFE white | 45° Shore A | 1.7 | 1000 |
| 3 | 12676755 | PP screw cap black, closed top | Silicone white/PTFE red | 55° Shore A | 1.5 | 1000 |

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

# Screw Neck Vials for Storage Purposes

Screw neck vials for storage purposes made out of 1st hydrolytic class glass



## Polypropylene screw cap seals ND20 for 11590545



1

| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 12696785 | Polypropylene screw cap white, closed top | Natural rubber red-orange/TEF transparent | 60° Shore A | 1.3 | 1000 |
| 2 | 11805070 | Polypropylene screw cap white, closed top | Butyl red/PTFE grey | 55° Shore A | 1.3 | 1000 |
| 3 | 11855060 | Polypropylene screw cap white, closed top | Silicone white/PTFE red | 45° Shore A | 1.3 | 1000 |

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



1

| | | 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 |

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

# Crimp neck vials with their compatible caps and seals

Please note that products designated as ‘Special’ may be non-stock and may require a minimum order quantity



## Polypropylene screw cap seals ND40 for 11570605



| | 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 WITH THEIR COMPATIBLE CAPS AND SEALS

- 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 AND ND13



1

| | | Description | Dimension, 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 | **11546044** | 2mL Crimp neck vial ND13, 1st hydrolytic class | 32 x 16 | Clear | 3.6 | 3 | 800 | <400 | 1000 |
| 3 | **15582330** | 4mL Crimp neck vial ND13, 1st hydrolytic class | 45 x 14.7 | Clear | 5 | 4.1 | 800 | <400 | 100 |

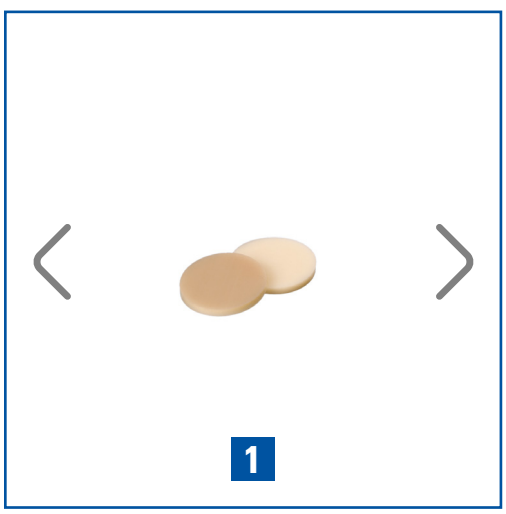
For vial 11555894 refer to crimp seal ND11

# Crimp neck vials with their compatible caps and seals

Please note that products designated as ‘Special’ may be non-stock and may require a minimum order quantity

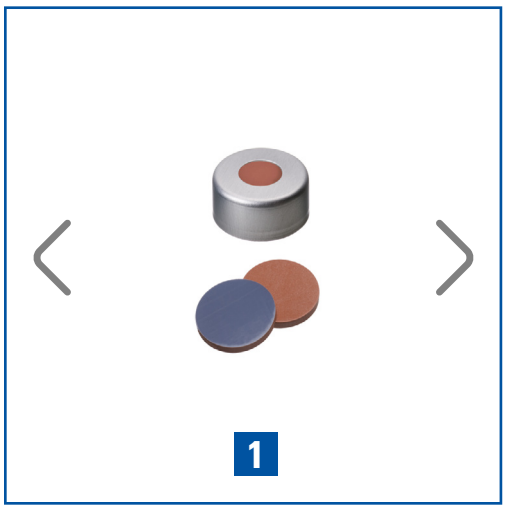


## Septa for Schott screw caps



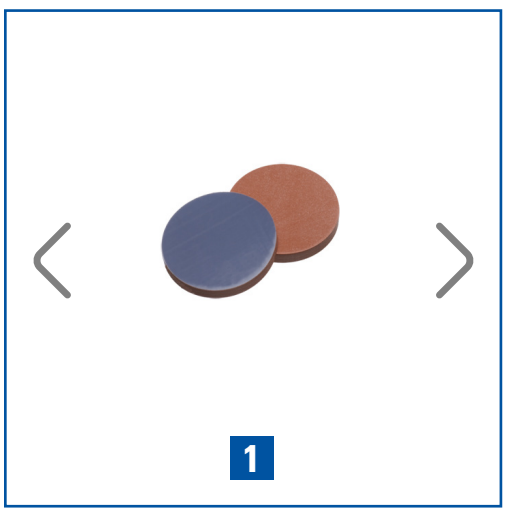

| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11884950 | 12.9mm Septa, silicone cream/PTFE beige for Schott screw cap GL14 | 55° Shore A | 3.2mm | 1000 |
| 1 | 11834990 | 16.8mm Septa, silicone cream/PTFE beige for Schott screw cap GL18 | 55° Shore A | 3.2mm | 1000 |
| 1 | 11849430 | 23.4mm Septa, silicone cream/PTFE beige | 55° Shore A | 3.2mm | 1000 |
| 1 | 11859440 | 30.3mm Septa, silicone cream/PTFE beige for Schott screw cap GL32 | 55° Shore A | 3.2mm | 1000 |
| 1 | 12941011 | 43.2mm Septa, silicone cream/PTFE beige for Schott screw cap GL45 | 55° Shore A | 3.2mm | 100 |
| 2 | 11510615 | 43.2mm Septa, butyl red/PTFE grey for Schott screw cap GL45 | 55° Shore A | 2.5mm | 100 |

## Special caps seals for crimp neck storage vials ND13




| | | Description cap | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|---|
| 1 | 11894960 | 13mm Aluminium cap clear lacquered, 6mm centre hole | Butyl red/PTFE grey | 55° Shore A | 2.0 | 1000 |
| 2 | 11997051 | 13mm Aluminium cap clear lacquered, 6mm centre hole | Pharma-Fix septa (butyl/PTFE) | 50° Shore A | 2.0 | 1000 |
| 3 | 11874960 | 13mm Aluminium cap clear lacquered, centre tear off | Pharma-Fix septa (butyl/PTFE) | 50° Shore A | 2.0 | 1000 |

## Septa 13mm




| | | Septa material | Durometer | Thickness, mm | Pack qty |
|---|---|---|---|---|---|
| 1 | 11844960 | 13mm Septa, butyl red/PTFE grey | 55° Shore A | 2.0 | 1000 |
| 2 | 11814960 | 13mm Septa, Pharma-Fix (butyl/PTFE) | 50° Shore A | 2.0 | 1000 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



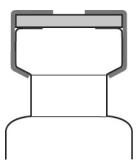
## CHROMATOGRAPHY ACCESSORIES

### Crimping tools

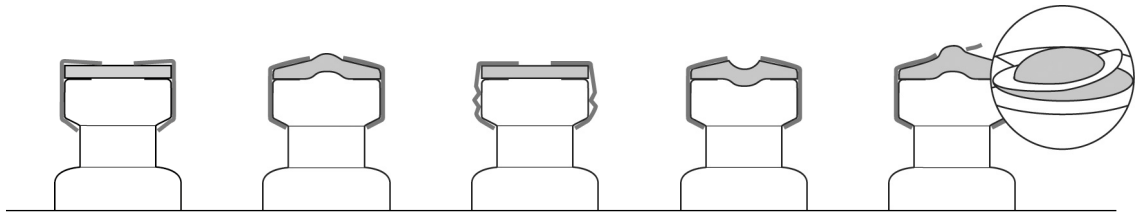
- For easy and convenient vial capping
- Chemically resistant surface finish especially designed for use in laboratories
- Hardened crimping jaws made of a special alloy that guarantees long life
- Adjustable crimping pressure
- Additionally 11mm, 13mm and 20mm crimpers are adjustable in crimping height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

**An inappropriate crimp can be recognised by:**

**Correct Crimp**
Flat cap surface
Flat septa surface



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



**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)

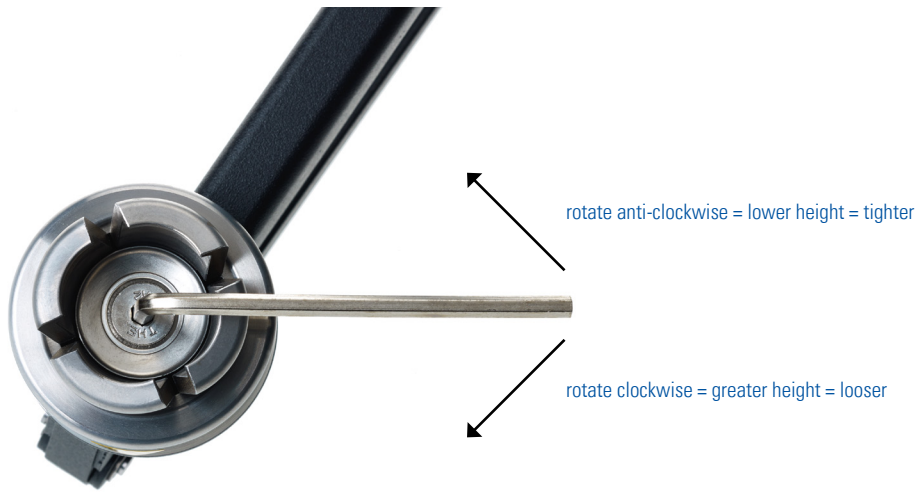
**Convex looking liner**
Adjust crimping pressure with the screw handle

(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.



# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## 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



| | 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

| | 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 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## 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



| | 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



| | 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 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## 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



| | 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 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## 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



| | 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

| | 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 |
| 11879440 | Crimping head for 32mm flip top/flip off seals | 1 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## Decapping heads for pneumatic hand-held crimping tool



| | 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 |
| 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



| | 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 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## Electronic decappers

| | Description | Dimension, mm | Volts | Pack qty |
|---|---|---|---|---|
| **15552330** | Electronic decapper | 13 | 110 - 240V | 1 |
| **15522340** | Electronic decapper | 20 | 110 - 240V | 1 |

## Replacement battery for electronic crimpers and decappers

| | Description | Pack qty |
|---|---|---|
| **15522300** | Replacement battery, 6.4V lithium ion for electronic crimpers and decappers | 1 |

# Chromatography Accessories

Range of easy to use manual and electronic crimpers and decappers



## 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



| | 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

| | Description | Dimension, mm | Pack qty |
|---|---|---|---|
| 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

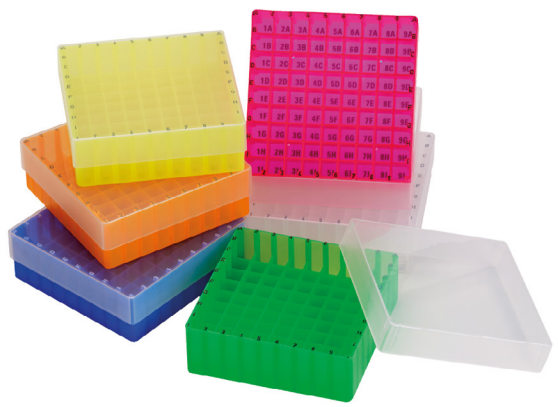
| | Description | Dimension, mm | Pack qty |
|---|---|---|---|
| 15542300 | Crimping head for 8mm crimp caps | 8 | 1 |
| 15542310 | Crimping head for 11mm crimp caps | 11 | 1 |
| 15562330 | Crimping head for 13mm crimp caps | 13 | 1 |
| 15532340 | Crimping head for 20mm crimp caps | 20 | 1 |

## Decapping heads for programmable electronic high power crimp station

| | Description | Dimension, 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

Range of racks and storage boxes for easy handling and transportation of sample vials



## 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

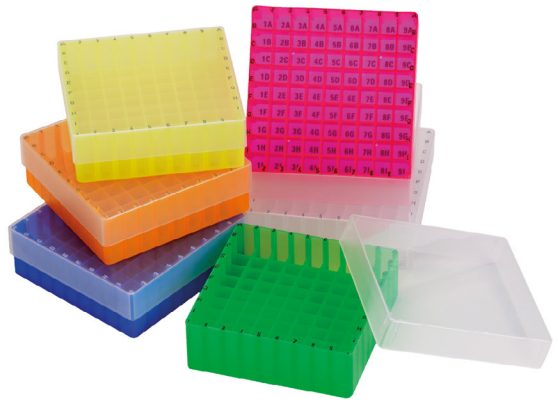
## Vial racks




| | | Description | Dimension, mm | Compatible with vials: | 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, 11871653, 11585914, 11515924, 11525924, 11707597, 11717597, 11884930, 11894930, 11727597, 11814940, 11824940, 11834940 | 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, 11871653, 11585914, 11515924, 11525924, 11707597, 11717597, 11884930, 11727597, 11727597, 11814940, 11824940, 11834940 | 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 |

# Vial Racks and Storage Boxes

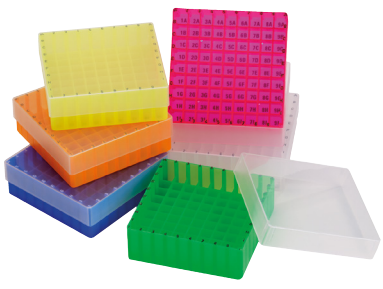
Range of racks and storage boxes for easy handling and transportation of sample vials



## 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



| | 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

Range of racks and storage boxes for easy handling and transportation of sample vials



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



| | 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 |

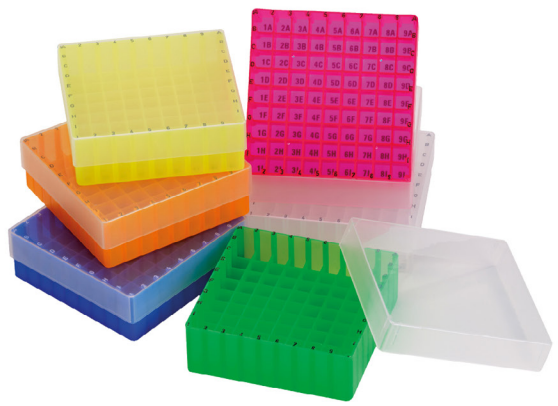
## Storage boxes, polypropylene, for 4mL sample vials, 49 placements



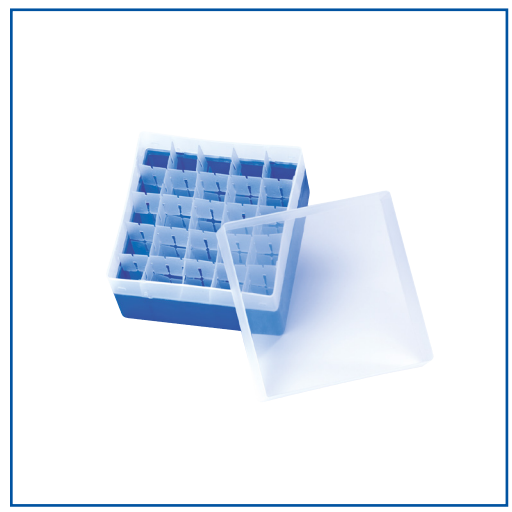
| | Description | Colour | Pack qty |
|---|---|---|---|
| 12642505 | Storage box, polypropylene, for 4mL or 4mL Shell vials, red, with cover, (130 x 130 x 52mm), 49 placements with individual alphanumeric coding | Red | 1 |

# Vial Racks and Storage Boxes

Range of racks and storage boxes for easy handling and transportation of sample vials



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



| | 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 |

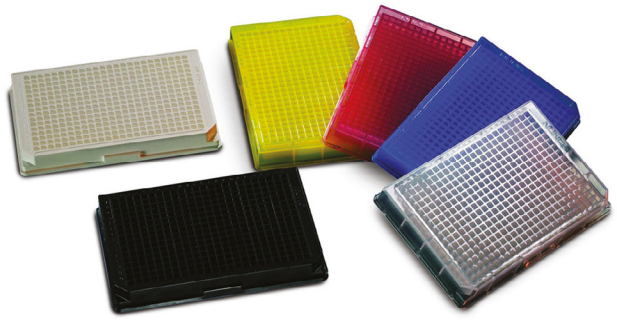
## Storage boxes, polypropylene, for 20mL and 30mL EPA vials, 10 and 16 placements




| | | 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

Ideal for high throughput analysis

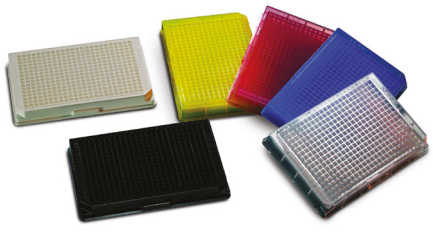


## Microplates

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 plates

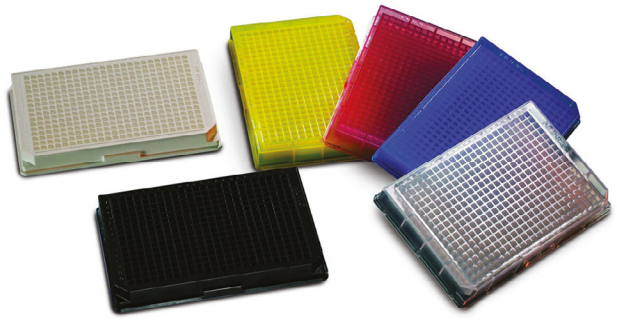
- Resistant to most reagents
- Withstand temperatures from -80°C to +121°C making these plates ideal for storage
- Choose round bottom wells for optimal sample recovery
- Come in a variety of colours for quick identification during storage



| | 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 |
| **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

Ideal for high throughput analysis



## Microplates, polypropylene storage, 96 deep well microplates microplates

- 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



| | Well volume, µL | Well shape | Pack qty |
|---|---|---|---|
| **12439307** | 350 | Square | 50 |
| **12449307** | 1000 | Square | 50 |
| **11511963** | 2,000 | Square | 50 |
| **Accessory** | | | |
| **12439307** | Pierceable sealing cap (EVA), square well, non-autoclavable | | 50 |

# General Introduction to Chemicals

Fisher Scientific is your partner of choice for chemicals




## General Introduction to Chemicals

Fisher Chemical

In addition to the range of chromatography vials and closures featured in the first section of this brochure 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 |
|---|---|---|
| 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 | HPLC isocratic analysis | HPLC grade solvents and reagents show low UV absorbance as guaranteed suitability for isocratic HPLC applications |
| 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. |
| GC-Headspace | Gas Chromatography Headspace | High purity solvents for accurate and reliable analysis of organic volatile impurities (OVIs) by gas chromatography headspace (GC-HS) |
| 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

# General Introduction to Chemicals

Fisher Scientific is your partner of choice for chemicals




## 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

# General Introduction to Chemicals

Fisher Scientific is your partner of choice for chemicals






## 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

# General Introduction to Chemicals

Fisher Scientific is your partner of choice for chemicals




## 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 1000L

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

The Fisher Chemical range of chromatography solvents, blends and reagents is extensive




## Chromatography Solvents and Reagents

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

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 |
|---|---|---|
| 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 |
| Isocratic HPLC | LC coupled with UV detector | HPLC Grade |



# OPTIMA™ SOLVENTS FOR LC-MS

For consistent, reproducible performance in the mobile phase of LC-MS, choose Optima™ LC/MS grade products




## 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

| | 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 |

† Restrictions may apply in certain countries

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



## 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

| | 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 |

# Solvents for UHPLC-UV

Where high sensitivity and a fast run rate are key to successful analysis




## 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

| | 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.

| | Description | Pack size |
|---|---|---|
| **10799704** | Acetonitrile | 1L |
| **10616653** | Acetonitrile | 2.5L |
| **10532213** | Methanol † | 1L |
| **10653963** | Methanol † | 2.5L |
| **10434902** | Water | 1L |
| **10777404** | Water | 2.5L |

† Restrictions may apply in certain countries

# Solvents for UHPLC-UV

Where high sensitivity and a fast run rate are key to successful analysis




## 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

| | 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 |

† Restrictions may apply in certain countries

# Solvents for gradient HPLC

Suitable for HPLC gradient grade pumps for essential and routine analysis



## 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

| | 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 |

*2.5L coated glass bottle (safety bottle)

† Restrictions may apply in certain countries

# Solvents for additional HPLC applications

Advanced Gradient Grade featuring a very low baseline drift for method development



## 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





GHS information




Product specific information




Lot analysis

# Solvents and reagents item code selection guides

This section will guide you to the most suitable Fisher Chemical solvents, blends and reagents grade for your chromatography application



## 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 eu.fishersci.com.

## Table 8: Isocratic HPLC grade solvents

| Solvent | | 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, 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 |

† Restrictions may apply in certain countries

## Packaging colour codes

| Glass bottle | Plastic coated glass bottle | Aluminium can | Borosilicate glass bottle |
|---|---|---|---|

# Solvents and reagents item code selection guides

This section will guide you to the most suitable Fisher Chemical solvents, blends and reagents grade for your chromatography application



## Table 8: Isocratic HPLC grade solvents continued

| Solvent | | 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 |

## Packaging colour codes

| | | | |
|---|---|---|---|
| Glass bottle | Plastic coated glass bottle | Aluminium can | Borosilicate glass bottle |

† Restrictions may apply in certain countries

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 and reagents item code selection guides

This section will guide you to the most suitable Fisher Chemical solvents, blends and reagents grade for your chromatography application



## Table 9: Solvents and blends for other liquid chromatography applications

## Packaging colour codes

| Glass bottle | Plastic coated glass bottle | Aluminium can | Borosilicate glass bottle |
|---|---|---|---|

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

† Restrictions may apply in certain countries

# Solvents and reagents item code selection guides

This section will guide you to the most suitable Fisher Chemical solvents, blends and reagents grade for your chromatography application



## 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 | 11377540 - 10 x 1mL ampoules | 10233800 - 500mL |
| | 10060000 - 1L | 11337540 - 1mL ampoule | |
| | | 10860701 - 50mL | |
| 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 | | 10598250 - 250g |
| | 10588250 - 1kg | | |
| Sodium acetate trihydrate | 10122400 - 250g | | 10539390 - 250g |
| | 10733704 - 1kg | | |
| 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 | 10155347 - 0.5mL ampoule | |
| | 10294110 - 100mL | 10266617 - 1mL ampoule | |
| | | 10378747 - 2mL ampoule | |
| | | 10125637 - 10mL ampoule | |
| | | 10723857 - 50mL | |
| Trifluoroacetic acid 1% solution | 10104953 - 500mL | | |
| Tri-n-hexylamine | 10656272 - 100mL | | |

† Restrictions may apply in certain countries

# Solvents for GC Headspace (GC-HS)

High purity solvents for accurate and reliable analysis of organic volatile impurities (OVIs) by gas chromatography headspace (GC-HS)



## SOLVENTS FOR GC HEADSPACE

High purity solvents for accurate and reliable analysis of organic volatile impurities (OVIs) by gas chromatography headspace (GC-HS)

Fisher Chemical's GC Headspace solvents are performance tested to ensure absence of trace level ICH residual solvents.
Key Features

- Processed to high purity for accurate and repeatable determination of trace levels of Class 1, Class 2, and Class 3 residual solvents in pharmaceuticals
- Tested by UV absorbance to ensure low organic contamination
- Processed for low water content to facilitate the extraction of organic volatile impurities
- Packaged in an inert atmosphere to maximise shelf life in unopened containers

| Solvent | Description | Pack qty |
|---|---|---|
| 15552233 | Water | 1L |
| 15572393 | DMSO, Dimethyl Sulfoxyde | 1L |
| 15562393 | DMF, Dimethylformamide | 1L |
| 15582393 | DMAC, Dimethylacetamide | 1L |
| 15552413 | NMP, N-Methylpyrrolidone | 1L |




# Technical Resources

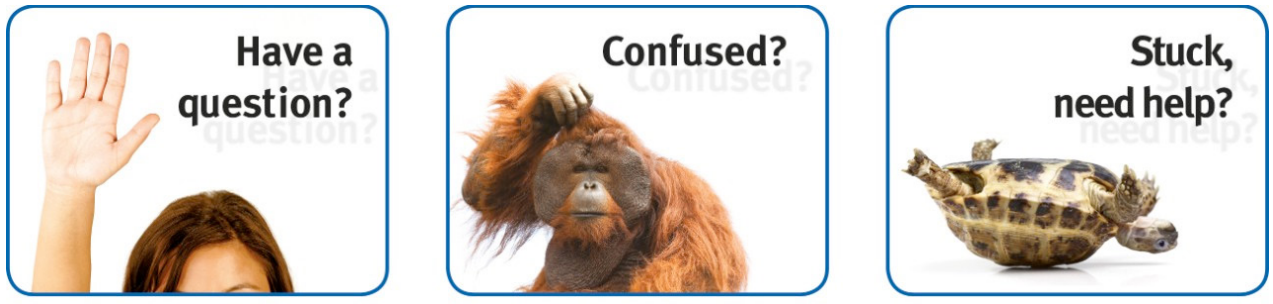
## Here to give you a helping hand!

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.




**Check out our Frequently Asked Questions**

### Contact our Product Support Advisors

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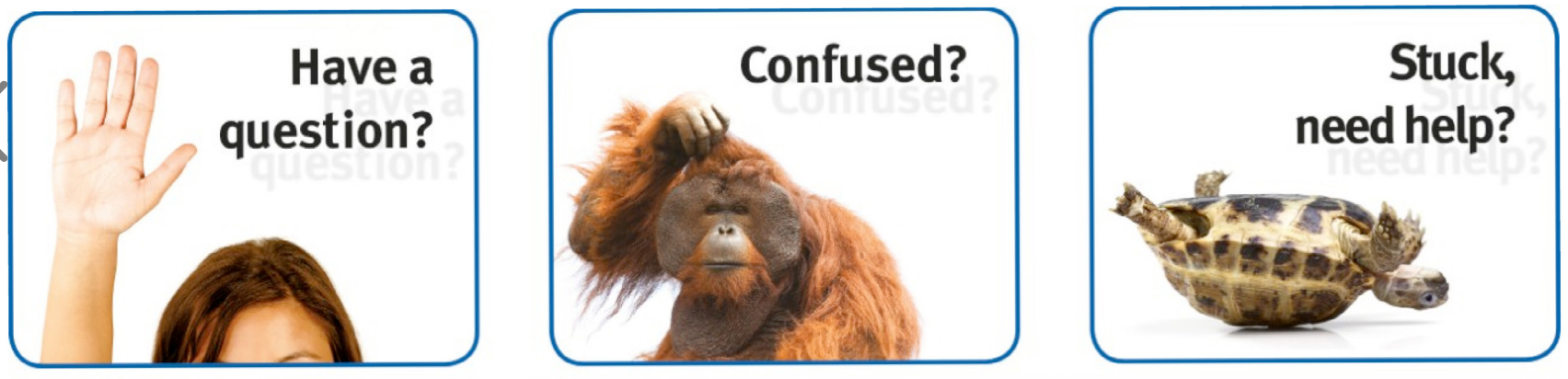
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# FAQ's - Chromatography vials and closures

### 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

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 |
|---|---|---|
| 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 | LC gradient coupled with UV detector | HPLC advanced grade |
| HPLC gradient | LC gradient coupled with UV detector | HPLC gradient grade |
| HPLC | 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.