porvair sciences

CHROMATOGRAPHY AND SAMPLE PREPARATION CATALOGUE

FIRST EDITION

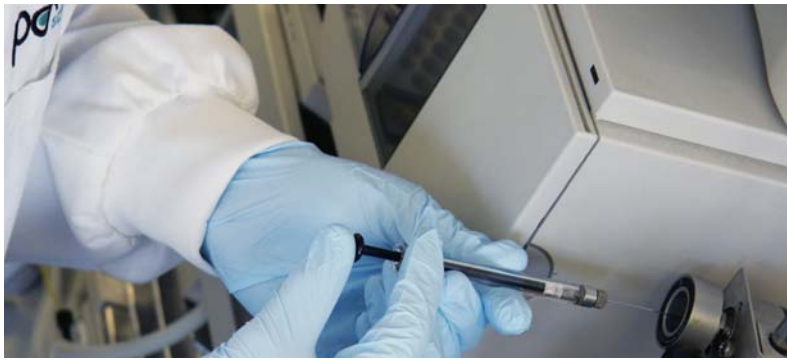
CHROMATOGRAPHY & SEPARATION SCIENCES PRODUCTS

FROM PORVAIR SCIENCES

Welcome to the first edition of the Porvair Sciences Chromatography & Sample Preparation Catalogue. Whatever your application, we have a microplate solution to help you improve productivity, increase sensitivity and ensure traceability of samples.

We are committed to producing top-quality microplates that give reproducible results every time, using only carefully selected plastics and polymers that will not affect your assays. Our plates may cost a little more than the commodities on offer from low-cost producers in emerging nations, but our attention to materials selection, superior moulding techniques and thorough quality control procedures will pay dividends when you run your assay or retrieve your samples from long-term storage. If sensitivity, accuracy and reproducibility are important to your long-term storage or assays, you cannot afford to buy cheap, poor-quality microplates. Our website contains technical notes on the type of contamination you can expect to find with these inferior plates.

Porvair Sciences is one of the largest global manufacturers of ultra-clean microplates for life science, synthetic chemistry and many other applications. Our modern Class 10000 clean room facility in Wrexham, UK, is responsible for production of all of our filter bottom Microlute products, including the highly-acclaimed P3 Protein Precipitation Plate products.



The same highly experienced UK team also provides first-class customer service to our customers and distributors worldwide. Should you be interested in evaluating and testing any of our microplates, just give our friendly team a call, or send them an email asking for a free sample pack of your microplate of choice. You can find details of your local distributor by visiting our website at **www.microplates.com**.

With a proud history of innovative microplate manufacturing dating back to 1992, Porvair Sciences' mission is to become your preferred global partner for microplate products. Our technical and sales teams are at your disposal, so take a look through this catalogue and you will see a wide array of microplate products and instruments designed to enable you to get better results, faster and more consistently.

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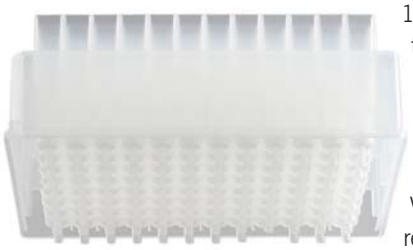
MICROLUTE

THE COMPLETE 96-WELL SAMPLE PREPARATION SYSTEM FROM PORVAIR SCIENCES

For more than twenty years, Porvair's Microlute 96-well SPE plates have been helping scientists increase the throughput of their analytical laboratory by speeding up sample preparation. With a range of quality polymeric sorbent materials available, including cation- and anion-exchange resins, Microlute sets the industry standard for 96-well plate-based solid phase extraction.

The complete Microlute system provides a matched filter plate, vacuum manifold and choice of collection plates with the option of a dedicated sample concentrator, if needed. Microlute plates are designed to fit most available manifolds and positive pressure devices. They conform to ANSI/SLAS standards. Combined with the Porvair Sciences acrylic vacuum manifold, they provide a simple, cost-effective sample clean-up method, suitable for use in medicinal chemistry, compound synthesis and purification.



For biological sample clean-up, such as protein and phospholipid removal prior to analysis, Porvair Sciences offers the Microlute P^3 device. This protein precipitation plate is simple to use and enables cost-effective de-proteination using easy procedures. Acetonitrile or methanol is added to serum or plasma samples to crash the protein out of solutions. Porvair Sciences' proprietary super-hydrophobic membrane technology ensures that no precious sample comes through until you are ready to apply vacuum and collect the filtrate. No agitation needed, no caps or seals and no messy, inefficient valves underneath. You get simple, fast, clean, clear samples every time. The Microlute P3 is setting new standards for drugs of abuse screening, neonatal metabolic disorders and many other biological assays worldwide.

The clear acrylic sides of the Porvair Sciences manifold allow you to see quickly and easily that the filter drip directors are aligned to the collection plate. With Porvair Sciences' deep well collection plates, you get virgin pure polypropylene that won't contaminate your samples with extractables or additives from the plastic. In addition, they are available in THREE convenient sizes, which optimise your sample recovery - 2 ml, 1 ml and 350 ul. To make your life easier, all three collection plates are the same height, so no adjustment or fiddly spacers are needed when used in the Porvair acrylic manifold.

With a solid base plate made from chemically resistant acetal, you don't need to worry about spillage in the manifold either. For added reproducibility and compliance with SOPs, a premium manifold is available, fitted with a vacuum gauge.

To help you reduce costs in the laboratory, Porvair also provides inexpensive, disposable waste trays made from polycarbonate, so that waste eluent can be cheaply and quickly eliminated. Once again, these waste trays are designed to fit exactly into the Porvair manifold plenum chamber in order to catch all of the waste liquid.

Many analysts require sensitivity levels that are lower than ever before, especially with mass spectroscopy detection. By pre-concentrating your samples, you can improve your detection limits. The Porvair Sciences MiniVap® and Ultravap® sample concentrators are the perfect complement to the Microlute system. Following clean-up, simply place your deep well collection plate on the deck of the evaporator and a stream of warm nitrogen will gently evaporate the excess solvent leaving you with a pre-concentrated, or even a dry, sample, if required. The manually controlled MiniVap® suits most laboratory budgets, while the programmable, microprocessor-controlled Ultravap® can also be linked directly to your Tecan or Hamilton liquid handler for extra workflow efficiency.

SEE PAGE 24 FOR ORDERING INFORMATION

BIOLOGICAL SAMPLE PREPARATION FOR LC OR GC/MS ANALYSIS

PROTEIN REMOVAL USING THE PORVAIR SCIENCES MICROLUTE P^3 PROTEIN CRASH PLATE

Biological samples commonly contain proteins that interfere with downstream applications. The P^3 plate uses the 'crash' method, in which the protein is denatured with acetronitrile and the flocculant filtered out, allowing 96 samples to be handled at one time. The Protein Precipitation Plate, P^3, is based on the industry standard MicroLute™ format, but without the chromatographic sorbent. Protein 'crashes' out of solution and precipitates directly in each well when acetonitrile is added, thus solving all common problems associated with the CRASH technique of protein clean-up. The novel dual-frit hydrophobically treated matrix means that there is no 'wetting out' and leakage of the sample through the plate before the application of vacuum. P^3 is now commonly used as the protein precipitation plate of choice in many major pharmaceutical companies. Optional drain cap and top cap mats are available for those wishing to use vortex sample mixing (see page nn).

The Protein MicroLute High Efficiency plate is exactly the same as the P^3 but with the frits untreated. This plate is used when sample and acetonitrile are pre-mixed before being pipetted into the plate.

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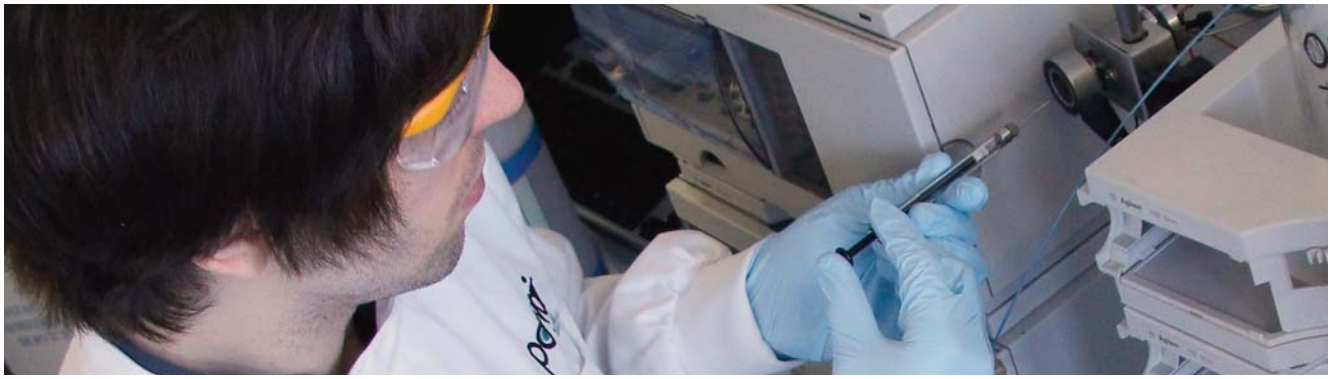
- **Dual frit design**
- **Pre-filter frit at 120 µm traps large flocculent particles**
- **Secondary frit traps fine protein particles at <10 µm**
- **Frits are Hydrophobic. This retains sample/ acetonitrile in the well to allow precipitation of proteins until vacuum is applied.**
- **Pore size optimised to allow ideal flow rate**
- **Inert filter material to ensure no adsorption of sample components**
- **Frit structure prevents break through of protein particles**
- **Industry standard MicroLute™ format enables easy automation**
- **Specially selected polypropylene for low extractables**
- **Disposable reservoir tray. Used for the collection of waste products in the vacuum manifold**
- **Sealing cap, square well, fits top of MicroLute™. Used for retaining the sample in the well during transit or stopping the well from becoming contaminated**
- **Drain cap mat that seals the bottom of the plate, preventing liquid leakage**



Protein & Phospholipid Removal using the Porvair Sciences Microlute P^{3}PL removal plate

In a similar way to Protein removal with the P^3 plate, the requirement to remove unwanted phospholipids from biological samples is well established. The P^{3}PL plate combines our respected protein crash technology with moieties that can selectively remove the ionised phospholipids in serum samples. These are known to cause ion suppression which can lead to either false positive or false negative results in LC-MS analysis with the most sensitive instruments such as triple-quad and TOF-MS units. This simple to use device follows a similar protocol to Microlute P^3 to leave you with a clear solution free from protein and phospholipid, ready for injection and analysis.

SEE PAGE 24 FOR ORDERING INFORMATION

INTRODUCING DNA CLEAN UP WITH PORVAIR SCIENCES' DNA CLEAN UP KITS

USING CHROMATRAP™ TECHNOLOGY

New 96-well high throughput plates from Porvair Sciences for ultra-pure DNA purification offer speed and convenience to your DNA clean-up process.

Using specialised filtration media offers much higher loadings of active material and reduces assay times to under 5 minutes. The buffers are optimised to remove any unwanted impurities while providing efficient DNA recovery from your samples. Porvair Sciences 96 DNA Purification Kits are designed for the purification of samples from PCR mixtures, ChIP samples and restriction enzyme digestions.

DNA purification HT

Up to 50 µg of DNA can be recovered efficiently and quickly using a Porvair Sciences 96-well DNA Purification plate kit. This is our standard clean up kit for samples of 50-200 uL

SEE PAGE 24 FOR ORDERING INFORMATION

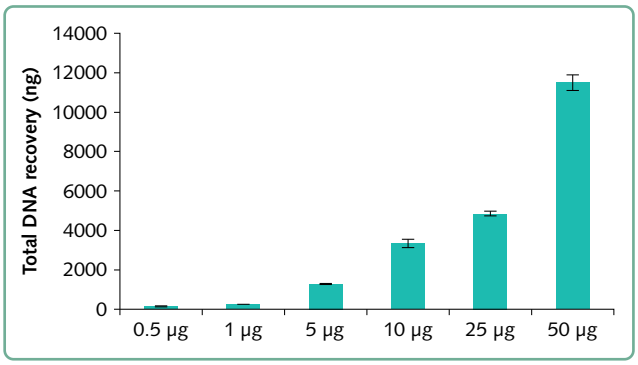
DNA clean and concentrate HT

The clean and concentrate kit offers up to 10 µg of DNA per well in a 96 well format with very small elution volumes (5-10 µl), providing a cleaner and more concentrated sample. This is required for certain applications such as library preparation for DNA sequencing.

These kits include filter plates, collection plates and all necessary buffers to purify 192 samples (2 x 96-well plates).

SEE PAGE 24 FOR ORDERING INFORMATION

- **DNA samples ranging from 50 bp up to 23 kb can be purified with up to 98% recovery**
- **Up to 50 µg of DNA can be recovered efficiently and quickly using a Porvair Sciences DNA Purification Kit**



Total DNA recovery (ng) of a range of DNA concentrations using the Chromatrap® 96 DNA Purification Kit DNA clean up plate (0.5-50 µg).

GENERAL FILTRATION PLATES FROM PORVAIR

Filtration plates are used in their simplest form to remove particulate matter from liquid. Either the particulate matter or the filtrate is needed for further study. Porvair Sciences has a range of filter plates to suit most filtration applications. We have optimised filter plates for applications including cell harvesting, DNA separations, binding studies, Plasmid isolation, general filtration and sample clean-up. Porvair has a full range of 48-, 96- and 384-well microplates with a choice of glass fibre, nylon, PVDF or polyethylene filtration materials and well volumes ranging from 350 µl to 5 ml.

FOR DETAILED INFORMATION ABOUT FILTER PLATES, PLEASE REFER TO THE PORVAIR WEBSITE

- **Polystyrene and polypropylene filter plates**
- **Long and short drip directors**
- **Each well has an individual drainage spout ensuring 100% sample transfer**
- **Manufactured from ultra-pure grade polymer**
- **Standard ANSI/SLAS footprint**
- **Robot friendly**
- **Fit standard vacuum manifold**

CHEMICAL SAMPLE PREPARATION FOR LC OR GC/MS ANALYSIS

SUPPORTED LIQUID EXTRACTION / DIATOMACEOUS EARTH

Supported-liquid-liquid extraction is a separation technique using an inert scaffold – usually diatomaceous earth – to support one liquid phase whilst a second liquid phase flows over it. In this way liquid-liquid separations can be performed without the difficulties of separating the two liquids after extraction.

The new Porvair SLE plates are based on well-understood applications of diamtomaceous earth. This gives a fast, reproducible and economical sample clean-up method that can be performed easily in the 96-well format with a simple vacuum manifold, positive pressure device or suitable centrifuge.

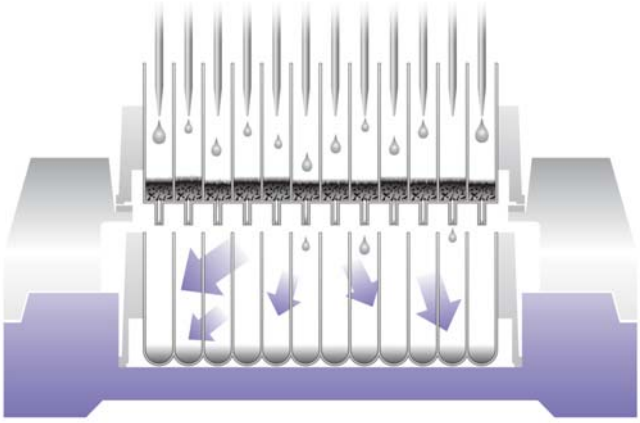
MicroLute™ is the original 96-well plate format for SLE. This device consists of a polypropylene 96-well plate loaded with diatomaceous earth between two porous frits.

The large pore size and high pore volume combined with a wide pH working range (1-13) allow the separation of very viscous aqueous solutions, containing high amounts of protein and phospholipids, such as physiological fluids (blood, plasma, and serum) in clinical chemistry prior to analysis by LC/MS. High recovery rates for small polar and non-polar compounds have been observed. The SLE plate can also be used for dye clean-up in textiles, environmental and food analysis. The SLE plate can also remove small amounts of water from solvents which are immiscible with water.

The proprietary frit technology ensures that samples will not drip- or break- through until pressure or vacuum are applied, allowing longer dwell times on the columns.

SEE PAGE 24 FOR ORDERING INFORMATION

- **Easy to use**
- **Standard ANSI/SLAS format**
- **Quick clean-up between immiscible liquids**
- **Can be automated**



SLE plates (top) are designed to fit snugly with the Porvair range of ultra-clean collection plates (bottom) on the Porvair range of manifolds.

SOLID PHASE EXTRACTION MICROPLATES

THE MICROLUTE™ SYSTEM

Solid phase extraction (SPE) is a method of sample preparation that concentrates and purifies analytes from solution by sorption, followed by elution of the analyte with a solvent appropriate for instrumental analysis, such as LC-MS. Porvair Sciences offers a complete range of products to implement SPE. MicroLute™ is the original 96-well plate format for SPE. This device consists of a polypropylene 96-well plate loaded with a choice of sorbent and sorbent volumes. The frits have a mean pore size of 20 microns and are made from microporous high-density polyethylene.

- **Choice of novel polymeric sorbents**
- **Packed bed volumes from 10 mg to 100 mg per well**
- **Frit pore size 20 µm**
- **No channelling due to proprietary sorbent loading technique**
- **Working volume of 2 ml per well**
- **Up to four times quicker than cartridge systems**
- **Long drain directors locate accurately with collection plate to avoid cross contamination**
- **Virgin polypropylene, tested and chosen for having no extractables**
- **Plate designed to be automated, meets ANSI/SLAS specification**

Porvair's flexible manufacturing approach enables us to consider manufacture of small runs of MicroLute™ devices packed with specialty resins or sorbents of your choice. Typically, minimum runs of just 50 plates can be produced economically. Please contact Porvair Sciences for more details of this service.

SEE PAGE 24 FOR ORDERING INFORMATION

- **Accepted industry standard**
- **Up to 2 ml per well of sample**
- **Low frit liquid retention**
- **Virgin polypropylene**
- **Polypropylene is tested and chosen for having no extractables**
- **Manufactured to ANSI/SLAS standard to allow for automation**

Combinatorial MicroLute™

Combinatorial MicroLute™ is based on the tried and tested MicroLute™ format. This is a 96-well polypropylene plate with a bottom polyethylene frit already in place. It is designed to allow packing with any material required for chemical synthesis. Two bottom frit sizes are available, 10 µm and 30 µm, however, we recommend the use of 30 µm top frits to ensure a good flow rate in both cases. Top frits are supplied separately for you to fit after loading the plate with your chosen material.

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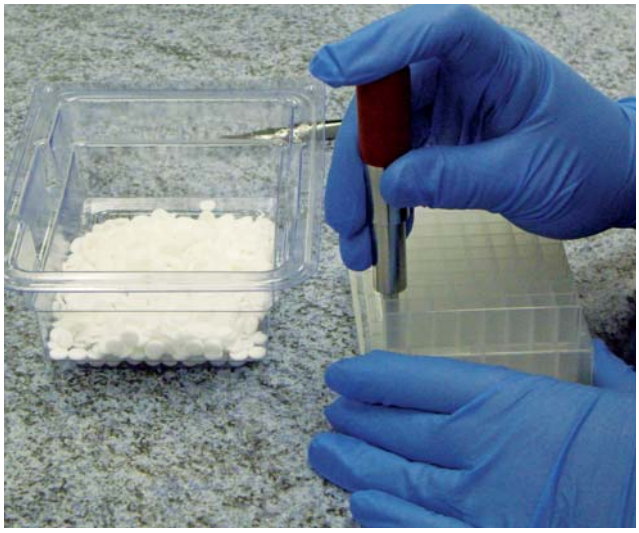


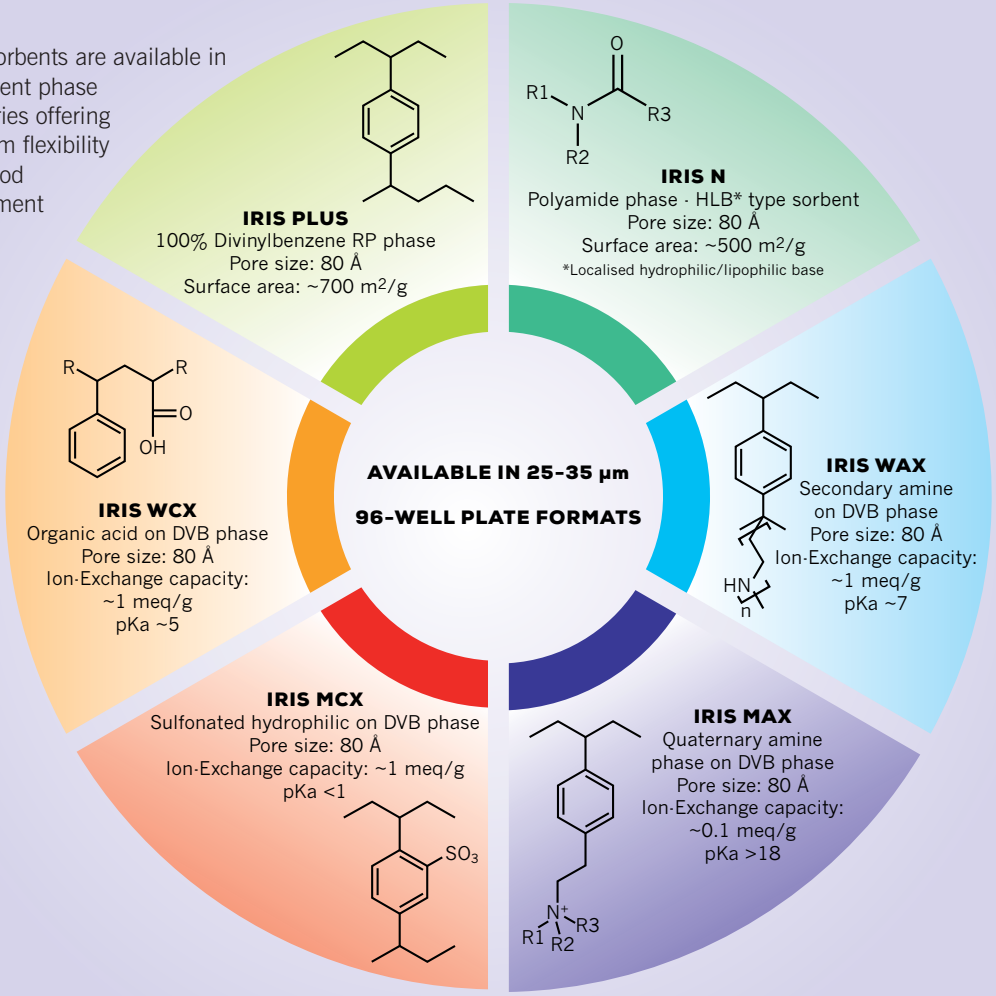
IRIS POLYMERIC SPE MICROPLATES

ADVANCED SEPARATION MEDIA FOR SENSITIVE MASS SPECTROMETRY

- Excellent recoveries thanks to the highly retentive nature of polymeric phases
- An absence of residual silanol groups associated with silica media
- A high surface area that results in higher analyte capacity compared to silica-based SPE
- Benefiting from the absence of leachates and extractables, from the plastic and the media
- Inert to a wide array of solvents and works across a wide pH range
- Reduced resin volumes for improved detection limits and lower hold-up volumes
- Resistant to de-wetting
- Six phases to cover most applications

Low pKa Phase

IRIS™ sorbents are available in six different phase chemistries offering maximum flexibility for method development



High pKa Phase

IRIS N (Neutral) RP-HLB: Polyamide SPE Phase

- Polyamide sorbent - HLB phase
- Pore size: 80Å
- Surface area: ~500 m²/g
- Available in 25-35 µm or 55-65 µm particle sizes

Example of applications:

Sulfonamides: Sulfadiazine, Sulfathiazole, Sulfamerazine, Sulfamethazine

Hormones: Prednisolone Acetate, Estradiol, Mathyl Testosterone

Florfenicol & Chloramphenicol

Carbaryl, Atrazine, Methiocarb, Alachlor

Caffeine

IRIS POLYMERIC SPE MICROPLATES

CHOICE OF SORBENT FOR EACH APPLICATION

IRIS PLUS (100% DVB): Highly retentive reverse phase SPE

- 100% divinylbenzene (DVB) phase
- Features reduced swelling and increased retention over (PS-DVB) phases
- Superhydrophobic for highest retention
- Excellent for environmental samples
- Available in 25-35 µm or 55-65 µm particle sizes

Example of applications:

Theobromine, Theophylline, Caffeine

Polycyclic aromatic hydrocarbons (PAHs)

IRIS MCX (Mixed Mode Strong Cation Exchange)

- Sulfonated hydrophilic on DVB support
- Pore size: 80Å
- Ion-Exchange capacity: ~1 meq/g
- pKa <1
- Available in 25-35 µm or 55-65 µm particle sizes

Example of applications:

Melamine in milk

Amphetamine

Barbituate

Cocaine

Opiate

Norephedrine Hydrochloride and Ephedrine Hydrochloride

Carbendazim and Thiabendazole

IRIS MAX (Mixed Mode Strong Anion Exchange)

- Quaternary amine phase on DVB support
- Pore size: 80Å
- Ion-Exchange capacity: ~0.1 meq/g
- pKa >18
- Available in 25-35 µm or 55-65 µm particle sizes

Example of applications:

DL-Tyrosine

Ketoprofen

Nortriptyline

Sodium Salicylate

IRIS WCX (Weak Cation Exchange)

- Organic acid on divinylbenzene support
- Pore size: 80Å
- Ion-Exchange capacity: ~1 meq/g
- pKa ~5
- Available in 25-35 µm or 55-65 µm particle sizes
- Available in various cartridge sizes and 96-well plates

Example of applications:

Diquat Dibromide

Deoxyadenosine Monohydrate

Sulfonamides: Sulfadiazine, Sulfathiazole, Sulfamerazine, Sulfamethazine

IRIS WAX (Weak Anion Exchange)

- Secondary amine on DVB support
- Pore size: 80Å
- Ion-Exchange capacity: ~1 meq/g
- pKa ~7
- Available in 25-35 µm or 55-65 µm particle sizes

Example of applications:

Ketoprofen

Nitro-L-Tyrosine, Iodo-L-Tyrosine, N-Acetyl-L-Tyrosine

Media	10 mg	25 mg	50 mg	100 mg
IRIS N	✓	✓	✓	✓
IRIS PLUS	✓	✓	✓	✓
IRIS MCX	✓	✓	✓	✓
IRIS MAX	✓	✓	✓	✓
IRIS WCX	✓	✓	✓	✓
IRIS WAX	✓	✓	✓	✓

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LC/MS SAMPLE PREPARATION ACCESSORIES

The hyphenated techniques of HPLC-MS and all the variations thereof have become accepted methods for the analysis of small biomolecules in many areas – toxicology, pathology, forensics, metabolomics and now, with peptides, genomics. Throughout all these disciplines it is vitally important to maintain clean labware at each stage. The increases in sensitivity that have been accomplished by the very latest Time of Flight Mass Spectroscopy systems have made even the most minor contamination a serious problem for analysts. This contamination may, in fact, not be external to the labware, but contained in the very polymers from which it is made. Thus it is vitally important to use only extractable-free polymers that do not leach unwanted compounds into the analytical sample during use.

Porvair Sciences has for many years been a leader in supplying certified extractable-free polypropylene microplates for LC-MS work. We regularly test all of our polymers and finished plates to the highest standards using top British University laboratories equipped with the latest QTOF and triple-quad instruments so that you receive only clean, leachate-free plates.

Deep well polypropylene microplates are commonly used for sample storage in life science laboratories. An essential aspect of the manufacture of these plates is the selection of clean raw materials for injection moulding. Polypropylene is an inert and heat resistant material, ideal for sample storage. However, all grades of polypropylene are not the same, for example, injection moulding grades of polypropylene often have high concentrations of chemicals to aid the moulding process. This allows rapid production of plates and lower costs, but may compromise the integrity of samples or compounds which are stored in such plates for extended periods. The problem is particularly acute where compounds are stored as solutions in solvents such as methanol or DMSO, as these excellent solvents have a tendency to extract from the polypropylene base material any added extractable compounds such as mould release agents or polymer flow improvers. Porvair Sciences has published detailed analysis of its own and other manufacturer's plates, with MS traces, so that you can compare good and bad performers. The report can be downloaded from **www.porvair-sciences.com**

96-well deep square	**page 12**
96-well deep round	**page 12**
96-well deep round 'common wall'	**page 12**
96-well shallow round	**page 13**
96-well glass vial storage plate	**page 13**
Large volume	**page 13**
384-well	**page 14**
Centrifuge support plate	**page 14**

SAMPLE COLLECTION PLATES

96-WELL

96-well deep square

44mm height

The family of 96-well square plates was designed so that it would make the interchange of plates simpler in automated systems. All three plates have the same geometry and the only variable is the well depth. For applications using the GenoGrinder™ and TissueLyzer™ a specially reinforced version of this plate is available in extractable-free, medical grade polymer. These plates are designed specifically for seed and leaf genomic stuides.

SEE PAGE 25 FOR ORDERING INFORMATION

- Made from virgin polypropylene
- Tested for low extractables
- Tight specification levels
- V bottom to allow total liquid removal, partial collection and to aid re-suspension
- No inner edges to allow better collection of magnetic beads
- Manufactured under DNase/ RNase free environment
- Working volumes of 350 µl, 1 ml, 1.6 ml and 2 ml
- Raised well rims to improve heat sealing
- Conical base which aids sample concentration, reconstitution and centrifugation
- Sterile and non-sterile versions available

96-well deep round

42mm height

The plates are made in virgin polypropylene to minimise extractables. Working volume is 1 ml per well and total volume is 1.1 ml. Coloured plates aid identification when retrieving from storage. Black plates are suitable for storing light sensitive compounds.

SEE PAGE 25 FOR ORDERING INFORMATION

- Manufactured from pre-tested polypropylene for low extractables
- Alphanumeric grid-referencing
- DNase/ RNase free
- Packed in sealed sleeves of 5 plates
- Rimmed version to stop cross contamination and enable a better seal
- Non rimmed version to allow insertion of vials, or where the seal is not crucial
- Cylindrical well with round bottom for optimal mixing and recovery
- Very easy to use with automated sample handling systems
- Can be stored at -80°C

96-well deep round 'common wall'

45mm height

These revolutionary plates are made in virgin polypropylene to minimise extractables. Maximum volume is 2.075 ml per well and working volume is a useful 1.85 ml, more than any other comparable '2 ml Round Well' plate in this class. The 'common wall' design allows the highest possible volume to be used whilst maintaining an overall height of just 45 mm, complete with ANSI/SLAS standard base and footprint. Extra working volume is thus assured in a convenient round bottom, round well format.

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SAMPLE COLLECTION PLATES

96-WELL GLASS VIAL, LARGE VOLUME, CENTRIFUGE SUPPORT PLATE, 384-WELL

96-well shallow round

14.7mm height

Porvair Sciences has developed a number of storage/collection plates to help in the fields of cell biology, molecular biology, drug discovery, combinatorial chemistry, screening and genomics. The plates are manufactured under clean room conditions and a significant number are DNase/RNase free. They are mainly made from polypropylene, an inert material giving heat and solvent resistant qualities. Porvair Sciences offers the largest combination of well shape, number of wells and well volume on the market. Each is made to the ANSI/SLAS format for compatibility with most readers/washers and automated equipment.

Porvair Sciences offers three plates with well capacities of 350 µl, 270 µl and 220 µl. They have flat-, round- or V-bottoms and can be used for compound storage and culturing.

SEE PAGE 25 FOR ORDERING INFORMATION

- **Manufactured in polypropylene**
- **Alphanumeric grid reference**
- **Round and V-bottom allow greater liquid removal and particulate collection**
- **Raised rims improve sealing and stop cross contamination**

Large volume

The range of large volume plates is designed to meet special requirements. Focused on the combinatorial, environmental and food technology markets, it allows large volumes of samples to be transported in recognised ANSI/SLAS format microplates, to allow greater automation. Plates will accept the Porvair universal lid (part no. 229125).

All plates are manufactured from virgin polypropylene, can be heat sealed and stored for prolonged periods at -80°C.

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48-well features:

- **Two versions:**
- **5 ml/well, 44 mm high**
- **7 ml/well, 68 mm high**

24-well features:

- **24 wells with a working capacity of 10 ml/well**
- **Standard height (44 mm) of a deep well plate**
- **Sterile or non sterile versions**
- **Lidded version available**
- **Bar-coded option**

96-well glass vial storage plate

44mm height

The new Porvair glass vial storage plate combines 96 borosilicate glass vials of 700 µl into a rigid polypropylene carrier plate for ease of storage and transportation. The glass vials are round bottomed and the plate can be capped with our matching square-well cap mat to prevent evaporation or contamination. This is the zero-leachates solution for UHPLC and where organic solvents must be stored in a plate footprint. Dimensioned drawing available on request.

SEE PAGE 25 FOR ORDERING INFORMATION

Sterile options

Sterilised by gamma radiation

Most Porvair Sciences deep well plates can be supplied in sterile packs. These are sterilised by gamma radiation and packed in sealed bags of 5 plates within each carton of 50. Certificates of sterility are available. The most popular plates are also available sterile, lidded and individualy wrapped – please enquire for details.

Plates may also be sterilised using an autoclave at 121°C, however this is not recommended for any plates which will be used in robotic systems as it can lead to plate distortion and subsequent failure of the robot to correctly grip the plate.

SEE PAGE 25 FOR ORDERING INFORMATION

SAMPLE COLLECTION PLATES

96-WELL GLASS VIAL, LARGE VOLUME, CENTRIFUGE SUPPORT PLATE, 384-WELL

384-deep and shallow well

Porvair Sciences has a selection of 384-well polypropylene plates to suit most applications. All of them are made from pre-tested polypropylene in Class 100000 clean rooms.

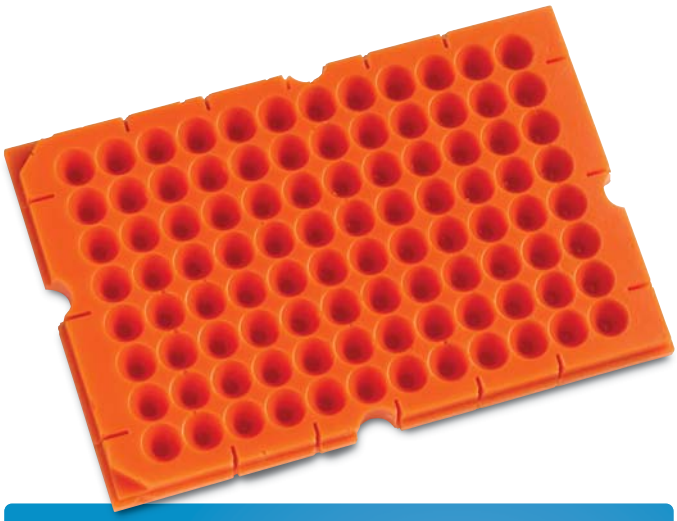
SEE PAGE 26 FOR ORDERING INFORMATION

- Manufactured for high density sample collection / storage
- Two sizes: 58 µl and 300 µl per well working volume
- Each are designed to allow almost total removal of liquid sample
- Extra flat – allows plate sealing
- Storage temperature down to -80°C
- Available sterile and non sterile
- All manufactured to ANSI/SLAS specifications

Centrifuge support plate

These silicone impact support plates are designed to fit into the skirt of the deep well plates. This then allows the plate to be used in a centrifuge without the risk of the plate distorting, cracking or breaking, causing the well to leak.

SEE PAGE 26 FOR ORDERING INFORMATION



- Available for the 2 ml and 1 ml square deep well plates
- Easily fitted below plates

SEALING CAPS FOR MICROPLATES

RE-USABLE PIERCEABLE FRICTION SEALS

Porvair Sciences has a comprehensive range of re-usable cap mats which are available for friction sealing of plates. Cap mats are an economic alternative to thermal or adhesive seals as they can be sterilised and reused. A choice of materials is available to suit most chemistries, including PTFE coated silicone for aggressive solvents.

SEE PAGE 26 FOR ORDERING INFORMATION

Friction sealing strips

360005

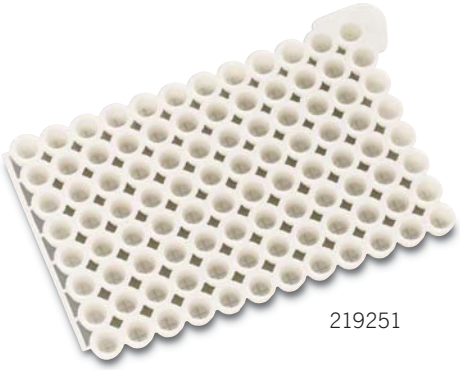
Cap mat friction seals

229090

219003

229093

219004

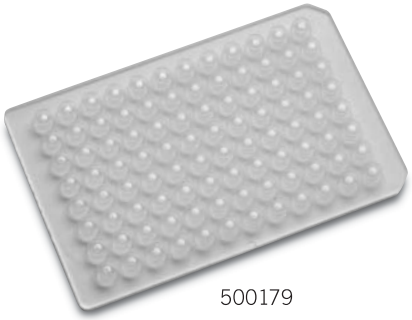


219251

219044

360006

229091



500179

500243

MAT CAPPER

EASY APPLICATION OF RE-USABLE CAP MATS

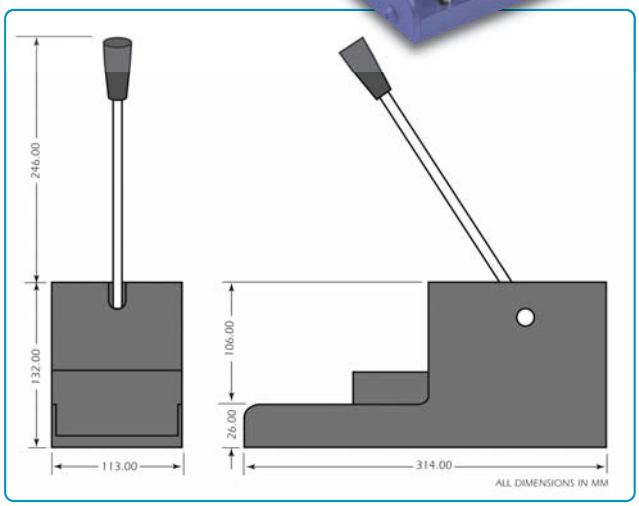
Shown with cap mat 229093

For laboratories having to seal medium numbers of microplates the Mat Capper offers an affordable solution. Compact and portable, the Mat Capper is very easy to use, requiring only one operation of the system to produce an accurate and tight seal on a wide range of both collection and shallow well microplates. The seals used are EVA or silicone mats, which work by friction fit and are re-usable with care. For a wide range of friction seals, please see page 15.

The Mat Capper can also be used with 2D bar-coded tube racks and their closure mats, including racks containing glass tubes, thanks to the clever design of the mechanism which will not crush one end of the rack but applies even pressure across the plate or rack.

SEE PAGE 26 FOR ORDERING INFORMATION

- Caps shallow and deep well polypropylene plates
- Needs minimal pressure for capping, reducing fatigue and RSI
- Powder coated to resist chemical spillage
- Universal plate 'shuttle' to take shallow or deep well plates
- Fixing holes for securing to bench
- Works with glass tube racks



AutoCapper

The new AutoCapper from Porvair Sciences has been designed to take the strain out of applying friction sealing caps to deep well plates and tube racks. Simply place your rack or plate with its attendant cap mat in the drawer and push it firmly shut. The sophisticated electronics take over, applying reproducible and even pressure every time to force the cap mat down into each tube or well. Time after time, the AutoCapper does the hard work for you. It's more reproducible, quicker and less likely to cause a strain injury than trying to do this by hand. The compact unit requires only a mains power supply to operate and is small enough to sit on most lab benches.

SEE PAGE 26 FOR ORDERING INFORMATION

- Automated application of friction sealing caps
- Reproducible, even pressure every time
- Speeds up the general workflow
- Small footprint for laboratory benches

VACUUM MANIFOLDS

MICROLUTE™ MANIFOLD

Vacuum manifolds

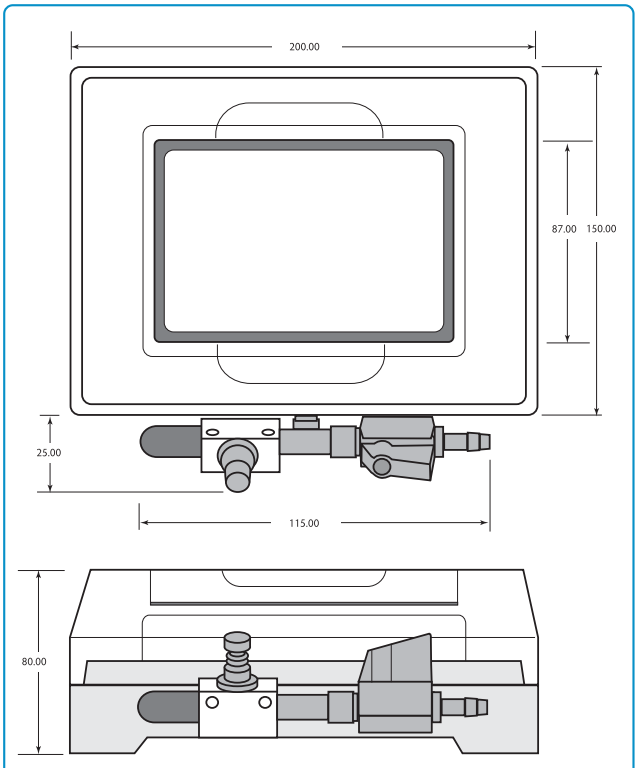
Vacuum manifolds are used to draw liquid through a filter or SPE plate into either a waste tray or a collection plate. The application of vacuum increases the speed at which samples can be collected.

MicroLute™ manifold

The MicroLute™ vacuum manifold from Porvair Sciences is precision machined from crystal clear acrylic (top plate) and acetal polymer (plenum chamber). The acrylic top plate allows visual access to the plenum chamber for checking progress of the separation process.

SEE PAGE 26 FOR ORDERING INFORMATION

- **Designed to take most filter plates manufactured to the ANSI/SLAS specification with long drip directors**
- **Also designed so that SPE plates can be used, especially the Porvair Sciences MicroLute™ plate**
- **Fitted with valve controller to ensure accurate adjustments of vacuum to the manifold**
- **On/off valve for speed of use**
- **Square well collection plate volumes of 350 µl, 1 ml and 2 ml may be used. Any plate up to 44 mm in height can be used**
- **Fitted with a custom O-ring in upper surface allowing airtight interface between plates during operation**
- **Removable top plate to install reservoir tray or collection plate**
- **Chamber has a medium resistance to alcohols and weak acids**



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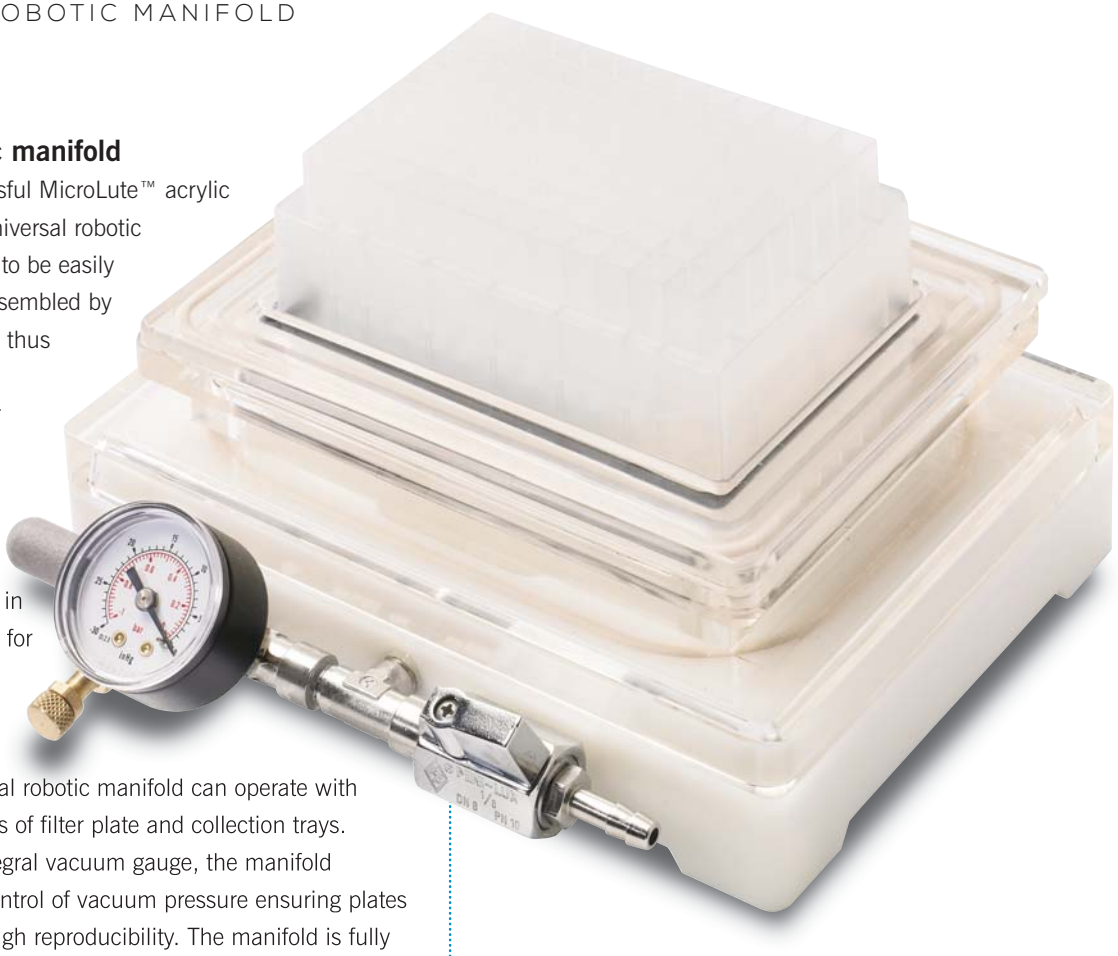
VACUUM MANIFOLDS

UNIVERSAL ROBOTIC MANIFOLD



Universal robotic manifold

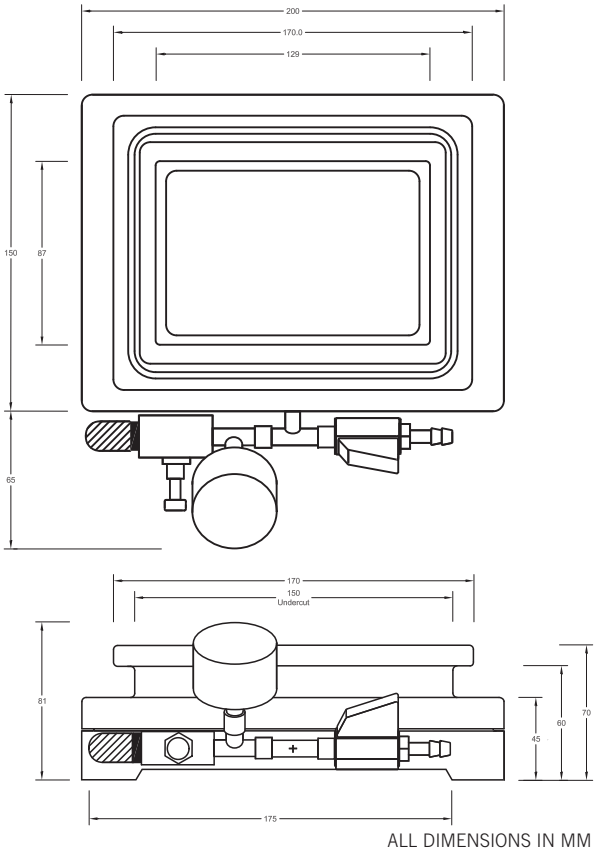
Based on our successful MicroLute™ acrylic manifold, the new universal robotic manifold is designed to be easily assembled and disassembled by robotic manipulators, thus enabling productive automation of SPE or DNA clean-up procedures. Able to accommodate collection plates from 14mm - 44mm in height and adaptable for working with short, medium and long skirts and drip directors, the universal robotic manifold can operate with many different brands of filter plate and collection trays. Supplied with an integral vacuum gauge, the manifold provides complete control of vacuum pressure ensuring plates are processed with high reproducibility. The manifold is fully compatible with most commercial robotic liquid handling systems.

The universal robotic manifold is suitable for a range of manufacturer's plates without an adaptor. For certain plate types a shallow adaptor or a deep adaptor, is required.

SEE PAGE 27 FOR ORDERING INFORMATION

- **Compatible with any filter plate type**
- **Robotic friendly designs aids automation**
- **Chemically resistant acetal/acrylic construction**
- **Adaptable for different collection plates**
- **Easy visual inspection of process**
- **Built in vacuum gauge for reproducibility**

Manufacturer	Plate type	Base	Adapt. 1	Adapt. 2
Qiagen™		■	■	
Waters™	Standard plate	■		
Waters™	Elution plate	■	■	
Biotage™		■		
Varian™		■		
Phenomenex™		■		
Axygen™		■		■
Seahorse™		■		
Porvair™		■		



ALL DIMENSIONS IN MM

MINIVAP® SAMPLE CONCENTRATOR

A NITROGEN BLOWDOWN CONCENTRATOR AND EVAPORATOR FOR THE BUDGET-CONSCIOUS LABORATORY

Microplate evaporators

Porvair evaporators are designed to remove the traditional laboratory 'bottleneck' of solvent evaporation from microplates prior to analysis or reconstitution in storage buffer. These evaporators give significant throughput advantages to laboratories looking to optimise microplate sample preparation productivity. Faster than centrifugal evaporation, significant increases in sample throughput are achieved through advanced evaporator head technology and an innovative manifold design, which directly injects heated nitrogen into each individual well of the microplate simultaneously. The evaporators have been designed to be simple to install, operate and maintain. Installation requires only connection to a gas supply or cylinder and mains electricity. Safety of operation is ensured as the CE marked compact units fit into all fume cupboards. Not suitable for high boiling solvents such as DMSO and water.

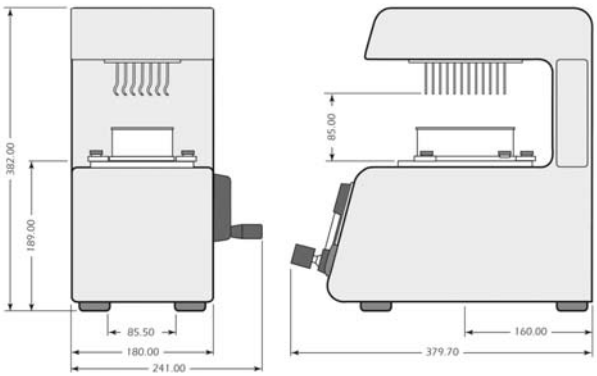
Both MiniVap® and MiniVap® Gemini may be operated with a supply of clean, dry compressed air in place of nitrogen, if the chemistry allows. An in-line gas filter must be used in this case.

MiniVap®

The MiniVap® is purpose designed for low usage research and development departments where low numbers of individual plates or vials need drying. The MiniVap® is simple to operate and maintain. Installation requires only connection to a gas supply and standard mains socket. With manual control of the needle depth, gas temperature and flow rate, it allows fine control and quicker drying times than other standard methods.

SEE PAGE 27 FOR ORDERING INFORMATION

- **Quicker dry down times than standard methods such as vacuum oven**
- **Tests have shown that the MiniVap® can evaporate 500 µl of methanol in less than 6 minutes**
- **Designed for any ANSI/SLAS 96-well plate**
- **24 & 48 vial heads now available**
- **Simple to install and operate**
- **Easy adjustments of temperature, gas flow rates and needle depth into the wells**
- **Compact footprint – fits all standard fume cupboards**



ALL DIMENSIONS IN MM

229206 with
229410 for HPLC vials

MiniVap® 229204 with 2 Dram vials

MINIVAP® GEMINI SAMPLE CONCENTRATOR

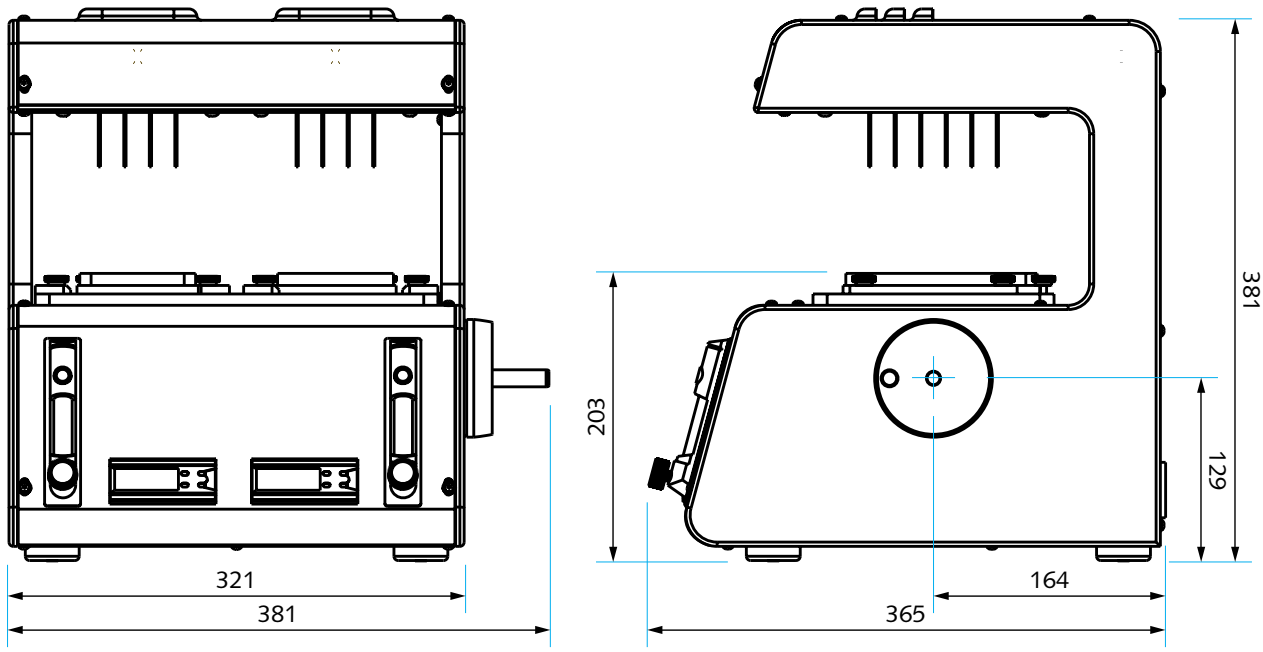
A TWO-POSITION NITROGEN BLOW DOWN CONCENTRATOR AND EVAPORATOR FOR HIGH THROUGHPUT LABORATORIES

Porvair nitrogen blow down evaporators have for many years been a central resource for sample preparation in the laboratory. The ability to safely and easily remove organic and chromatographic solvents from samples is vitally important. Samples can be dried down and re-constituted in a more suitable solvent, or they may simply be concentrated before analysis to increase sensitivity.

The nitrogen blow down process is ideal for lower boiling point organic solvents such as methanol, dichloromethane, hexane and acetonitrile. The robust design of the MiniVap® Gemini brings together for the first time in our range two individually temperature-regulated evaporation positions with a wide choice of head styles and configurations. This means you can dry down a 96-well deep well plate at the same time as 48 HPLC vials. This breakthrough in productivity will speed up the evaporation bottleneck in your laboratory, increase the sensitivity of your analyses and quicken sample processing times.

SEE PAGE 27 FOR ORDERING INFORMATION

- **Simultaneously dry two plates**
- **Individual gas and temperature setting for each plate**
- **Choice of evaporator heads**
- **Compact, lightweight design**



ALL DIMENSIONS IN MM

ULTRAVAP® LEVANTE SAMPLE CONCENTRATOR

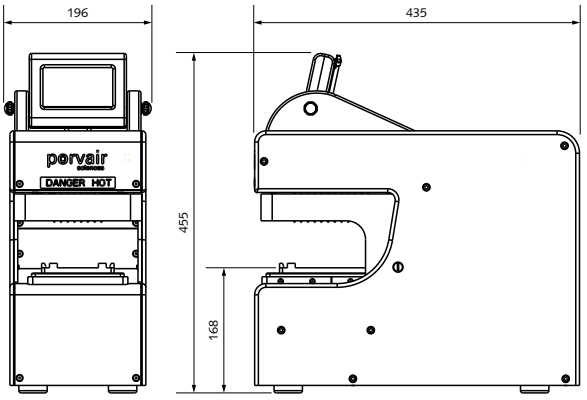
FULLY PROGRAMMABLE AUTOMATIC EVAPORATOR

The Ultravap® Levante brings you many of the benefits associated with our flagship evaporator, the Ultravap® Mistral, in an affordable, automation-ready package. The Levante models do not have the in/out plate shuttle of the Mistral, but they are still fully programmable and easy to control from a robot liquid handler. It can also be fitted with the ducted fan fume extraction option, just like the Mistral, and shares most of the software features including full colour touch screen, stored alphanumerically named programmes (5 programmes), multi-step evaporation programmes (3 steps) and full administrative control (user or admin levels). The removable acrylic splash guard protects the user and also ensures efficient removal of solvent vapour from the evaporation table, whilst the solid state power supply enables the unit to run from either 110v or 220v without an external transformer. There is no CAN bus control on the Levante, that feature is reserved for the Mistral.

The Ultravap® Levante therefore meets the requirements of most busy laboratories for removal of chromatographic solvents prior to LC/MS analysis, dry recovery or reconstitution. It is a flexible, efficient, workhorse instrument with the possibility of remote control and full automation with robots having extended gripper arms.

SEE PAGE 27 FOR ORDERING INFORMATION

- **Robot-compatible dry down station for LCMS applications**
- **Intuitive graphical colour touch screen display**
- **Up to five stored evaporation programmes**
- **Up to three programmable steps per method**
- **On board gas management**
- **Remote control from PC option**
- **RS232 connection with full remote control command set**
- **Reversible screen for integration at side of robot**
- **Built-in fume management and optional duct connector**
- **Faster evaporation times**
- **Choice of 24-, 48-, 96- and 384-well heads**
- **Small footprint to fit in your hood**
- **Eco mode extends the life of the heater and fan, if fitted.**



ALL DIMENSIONS IN MM

For a detailed dimensional drawing or STEP file, please contact Porvair Sciences via our website.

ULTRAVAP® MISTRAL SAMPLE CONCENTRATOR

AUTOMATION-READY PROGRAMMABLE EVAPORATOR

The Ultravap® Mistral from Porvair Sciences is designed to remove the traditional laboratory 'bottleneck' of solvent evaporation from microplates. Fully automating the dry-down step has always been impossible because it is difficult to interface liquid handling robots with traditional centrifugal-type evaporators. The Ultravap® Mistral design, by dispensing with the rotating arm of the centrifuge and offering a fully-flat front profile, overcomes this problem and is much better positioned to link with your robot. With more than 20 years' experience in producing deep well microplates, Porvair Sciences has thoroughly researched the problems of drying down organic solvents in plates. This has led to the ultimate microplate blow down evaporator – the Ultravap® Mistral.

The Ultravap® Mistral is the most sophisticated automation-friendly model yet, giving significant throughput advantages to laboratories looking to optimise microplate sample preparation. Faster than centrifugal evaporation for single plates, significant increases in sample throughput are achieved through advanced evaporator head technology and an innovative manifold design, which directly injects heated nitrogen into each individual well of the microplate simultaneously. Installation requires only connection to a gas supply and mains electricity. Safety of operation is ensured as this CE-marked compact unit fits into all fume cupboards and boasts full integral fume management within the unit.

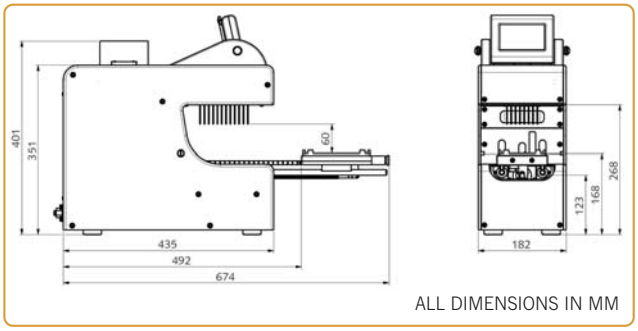
The Ultravap® Mistral may be operated with a supply of clean, dry compressed air in place of nitrogen, if the chemistry allows. The new Ultravap® Mistral is the latest development of Porvair Sciences' highly successful Ultravap® line of blow down evaporators and sample concentrators. It has been designed in close co-operation with the leading suppliers of laboratory liquid handling robots and is suitable for integration directly with the following manufacturers' robots:

- Hamilton Robotics – Star
- Tecan – Freedom Evo
- Perkin Elmer – Janus
- Beckman Coulter – Biomek

- **Fully liquid handling robot-compatible dry down station**
- **Plate shuttle sends/retrieves plates from robot deck**
- **Adjustable shuttle position and height**
- **Intuitive graphical colour touch screen display**
- **Up to 15 stored evaporation programmes**
- **Up to five programmable steps per method**
- **On board gas management**
- **Master & multiple slave configuration supported**
- **Remote control from PC option**
- **Reversible screen for integration at side of robot**
- **Built-in fume management and duct connector**
- **Faster evaporation times**
- **Choice of 24-, 48-, 96- and 384-well heads**
- **Small footprint to fit in your hood**
- **Energy-saving Eco mode extends heater and fan life**

The Ultravap® Mistral offers a plate shuttle which can serve and retrieve plates from the deck of most liquid handlers. The colour touch screen controlled dry down station accepts interchangeable 24-, 48-, 96- or 384-needle heads. It comes complete with clear safety screens and integral fume management leading to a 4 inch duct adaptor that incorporates a fan for high speed fume removal.

SEE PAGE 27 FOR ORDERING INFORMATION



ALL DIMENSIONS IN MM

For a detailed dimensional drawing or STEP file, please contact Porvair Sciences via our website.

RAPID MINI SAMPLE CONCENTRATOR

COST-EFFECTIVE NITROGEN BLOW DOWN FOR TUBES OR FLASKS

Dependable benefits from a modern evaporator design – the Rapid Mini

The Rapid Mini system is a cost-effective nitrogen blow down evaporator suitable for labs who need to dry down in test tubes, vials and small flasks that do not fit into the ANSI/SLAS footprint.

Specially developed for environmental, agricultural, marine and small research labs who need to evaporate smaller sample sizes in batches of up to 25 samples.

The Rapid Mini concentrator offers a modern aesthetic design which enhances ease of use and simplifies the ability to service the instrument while minimising bench space usage. The portrait format and upwardly hinged lid of the instrument layout saves valuable laboratory bench space and the easy to read digital display ensures real time parameters are shown for peace of mind.

The Rapid Mini system features CE certification and has been developed by professionals with decades of experience in designing analytical instruments.

Rigorously tested to ensure world class quality, the unit comes with a two year warranty. An RS232 connector allows connection to a computer or printer for accurate record keeping & retrieval of test records.

SEE PAGE 27 FOR ORDERING INFORMATION

Samples:	25
Volume Range:	4-30 ml
Rack Sizes:	12 x 75 mm (4 ml RIA Vials) 16x100 mm (12 ml) 16x125 mm (16 ml) 20x150 mm (30 ml)
Gas Requirements:	Requires clean, dry, nitrogen regulated to 60 psig minimum
Display:	LED
Parameters:	Temperature, Pressure & Time
Temperature Units:	°C
Temperature Range:	Ambient to 90°C
Temp Accuracy:	0.3°C
Temp Resolution:	1°C
Pressure Units:	Kp, Psi, BAR
Pressure Control:	Pneuumatic Gas Regulator
Pressure Regulator Range:	0-30 psi adjustable
Time Units:	Mins, Hrs
Time Resolution:	1 min to 99 mins & 0.1 Hr to 9.9 Hr
Time Accuracy:	0.1%
Power:	230 VAC 50/60 Hz 110 VAC 60 Hz
Connectivity:	USB & DATA through computer interface

ORDERING INFORMATION

Solid Phase Extraction: MicroLute™ Protein Precipitation Plate (SEE PAGE 5)

Description	Qty/pack	Cat. no.
P^3 Protein Precipitation Plate (single pack)	1	240100
P^3 Protein Precipitation Plate (bulk pack)	5	240200
P^3 Protein Precipitation Plate High Efficiency*	1	240010
P^3PL Protein & Phospholipid Removal Plate	1	240080

Biological Sample Preparation: DNA clean up kits (SEE PAGE 6)

Description	Qty/pack	Cat. no.
Chromatrap® DNA purification HT	2 x 96	500220
Chromatrap® DNA clean and concentrate HT	2 x 96	500240

Chemical Sample Preparation for LC or GC/MS analysis: SLE plates (SEE PAGE 7)

Description	Qty/pack	Cat. no.
P3SLE - Microlute ™ Solid Liquid Extraction (Diatomaceous Earth) Plate	1	240079

Solid Phase Extraction: MicroLute™ starter pack (SEE PAGE 8)

Description	Cat. no.
Starter pack	271023

Solid Phase Extraction: MicroLute™ – Development (SEE PAGE 8)

Description	10 mg	25 mg	50 mg	100 mg
Eight sorbents	271014	271018	271020	271022

Solid Phase Extraction: MicroLute™ – accessories (SEE PAGE 8)

Description	Qty/pack	Cat. no.
Disposable reservoir tray	25	219010
Sealing cap, square well, fits to top of plate	50	219004
Drain cap mat, seals base of plate	25	219005
EVA sealing strip, 8 square-well to fit Microlute™	300	500018

Solid Phase Extraction: Combinatorial MicroLute™ (SEE PAGE 8)

Description	Qty/pack	Cat. no.
Combinatorial Microlute™ plate, unpacked with bottom frits. Mean pore size 30 m, polyethylene	1	240002
30 m Vyon F PE frits to fit Combinatorial Microlute 1.5 x 7.2 mm frits	1,000	239007
Combinatorial Microlute™ plate, unpacked with bottom frits. Mean pore size 10 m, polyethylene	1	240054
10 m Vyon T PE frits to fit Combinatorial Microlute 1.5 x 7.2 mm frits	1,000	239010
Empty 96-well MicroLute shell with no top or bottom frits	40	240011

Solid Phase Extraction: IRIS Polymeric SPE plates (SEE PAGES 9-10)

CLS IRIS polymeric sorbents. Specify sorbent & loading and ask for a quotation on the latest price. Sorbents available are:

Description	10 mg	25 mg	50 mg	100 mg
IRIS N	240055	240056	240057	240058
IRIS PLUS	240059	240060	240061	240062
IRIS MCX	240063	240064	240065	240066
IRIS MAX	240067	240068	240069	240070
IRIS WCX	240071	240072	240073	240074
IRIS WAX	240075	240076	240077	240078

Solid Phase Extraction: Microlute SPE Starter Pack – CLS IRIS polymeric sorbents (SEE PAGES 9-10)

Description	Cat. No.
2 x 50 mg of C18, C8, IRIS MAX, MCX, N, Plus, WCX for Method Development 1 x 50 mg standard Microlute™ IRIS PLUS 1 x Acrylic Manifold 228008 1 x 1 ml Spacer insert 228010 3 x 2 ml 96-well Microplates 3 x Disposable Reservoir trays	271023

Storage plates: 96-well deep square (SEE PAGE 12)

Description	Well volume	Sterile	Use cap mat	Qty/case	Cat. no.
Polypropylene, pyramid bottom	2.0 ml	×	219004	50	219009
Polypropylene, pyramid bottom, sterile, inner bag of 5	2.0 ml	✓	219019	50	219027
Polypropylene, toughened genomics plate DNA/RNAase free	2.0 ml	×	219004	50	219028
Polypropylene, toughened genomics plate DNA/RNAase free	2.0 ml	✓	219019	50	219029
Polypropylene, round bottom	1.6 ml	×	219004	50	500066
Polypropylene, pyramid bottom	1.0 ml	×	219004	50	219008
Polypropylene, pyramid bottom, sterile, inner bag of 5	1.0 ml	✓	219019	50	219026
Polypropylene, pyramid bottom	350 µl	×	219004	50	219006
Polypropylene, pyramid bottom, sterile, inner bag of 5	350 µl	✓	219019	50	219025

Storage plates: 96-well deep round (SEE PAGE 12)

Rim and bottom well shape	Colour	Well volume	Sterile	Use cap mat	Qty/case	Cat. no.
Polypropylene, raised-round DNA/RNAase free, inner bag of 5	Natural	1 ml	×	219036	50	219002
Polypropylene, raised-round DNA/RNAase free, inner bag of 5	Natural	1 ml	✓	219042	50	219012
Polypropylene, rimless-round DNA/RNAase free, inner bag of 5	Natural	1 ml	×	219036	50	219037
Polypropylene, raised-round DNA/RNAase free, inner bag of 5	Blue	1 ml	×	219036	50	219432
Polypropylene, raised-round DNA/RNAase free, inner bag of 5	Red	1 ml	×	219036	50	219422
Polypropylene, raised-round DNA/RNAase free, inner bag of 5	Black	1 ml	×	219036	50	219412
Polypropylene, rimless-round DNA/RNAase free, inner bag of 5	Natural	2 ml	×	219020	50	219020
Polypropylene, rimless-round DNA/RNAase free, inner bag of 5	Natural	2 ml	✓	219021	50	219021

Storage plates: 96-well deep round 'common wall' (SEE PAGE 12)

Description	Pk/Qty	Part No.
96 Deep well, 2 ml/well Polypropylene round well rimless DNA/RNAase free, inner bag of 5	50	219020
96 Deep well, 2 ml/well Sterile Polypropylene round well rimless DNA/RNAase free, inner bag of 5	50	219021

Storage plates: 96-well shallow round (SEE PAGE 13)

Rim and bottom well shape	Material	Well volume	Sterile	Qty/case	Cat. no.
No rim, flat	Polypropylene	350 µl	×	100	208003
Raised-round	Polypropylene	270 µl	×	100	209003
Raised-V	Polypropylene	220 µl	×	100	210003

Storage plates: 96-well glass vial storage plate (SEE PAGE 13)

Description	Qty/case	Cat. no.
96-well glass vial storage plate	12	229230
Square well silicone cap mat for 229230	5	229091

Storage plates: Deep Well Microplate Centrifuge & GenoGrinder Accessories (SEE PAGES 12-13)

Description	Qty/pack	Cat. no.
Silicone impact support mat for 219008 & 219026 1 ml square plates (replaces 228018)	1	500150
Silicone impact support mat for 219009 & 219027 2 ml square plates (replaces 228019)	1	500114
Silicone impact support mat for 219020 & 219021 2 ml round plates	1	500180
Silicone impact support mat for 360004 large volume plates	1	500212

Storage plates: Large volume microplates (SEE PAGE 14)

Well shape, bottom shape	No of wells	Working well volume	Sterile	Lid	Qty/ case	Cat. no.
Rectangle, V-bottom	24	10 ml	×	–	25	360013
Rectangle, V-bottom (bulk pack)	24	10 ml	✓	–	25	360115
Rectangle, V-bottom	24	10 ml	×	✓	25	360077
Rectangle, V-bottom (single pack)	24	10 ml	✓	✓	25	360079
Rectangle, V-bottom (with bar code)	24	10 ml	✓	✓	25	360080
Rectangle, round-bottom	24	10 ml	×	–	25	360117
Rectangle, V-bottom	48	5 ml	×		25	360002
Rectangle, V-bottom	48	7 ml	×		30	360004
Polystyrene Universal SLAS Lid	24/48/96	–	×	✓	100	229125

Storage plates: 384-well (SEE PAGE 14)

Well shape, top & bottom	Working well volume	Sterile	Qty/case	Cat. no.
Square-round	58 µl	×	60	224001
Square-V	300 µl	×	48	219040
Square-V	300 µl	✓	48	219041

Sealing caps for microplates: Friction sealing strips (SEE PAGE 15)

Description	Cross reference to Porvair Sciences' plates	Quantity/pack	Cat. no.
Pierceable Santoprene seal strip	360003	200	360005

Sealing caps for microplates: Cap mat friction seals (SEE PAGE 15)

Description	Cross reference to Porvair Sciences' plates	Quantity/pack	Cat. no.
EVA sealing mat to fit 96-square well plates	219006, 219008, 219009	50	219004
Pierceable Santoprene seal mat to fit 48-well plates	360002, 360004	100	360006
Pierceable sealing cap, round 96-well	219002	50	219044
Mat for round 96-well plates (standard silicone)	219002 and round well plates	5	229090
Mat for square 96-well plates (standard silicone)	229230 and square well plates	5	229091
Mat for square 96-well plate (PTFE coated silicone)	229230 and square well plates	5	229093
Cap mat for 1.1 ml low profile storage plate	219250	5	219251
EVA Sealing Cap	219001	50	219003
TPE cap mat pierceable, round well with double O-ring	219020/021 Common wall plates	50	500243

LC/MS Sample Preparation accessories: Mat Capper (SEE PAGE 16)

Description	Quantity/pack	Cat. no.
Mat Capper, applicator for storage and assay plates	1	229078

LC/MS Sample Preparation accessories: AutoCapper electrically operated mat capper (SEE PAGE 16)

Description	Quantity/pack	Cat. no.
AutoCapper electrically operated mat capper for storage plates and vial racks 110/220V	1	500246

LC/MS Sample Preparation accessories: Universal robotic manifold (SEE PAGE 18)

Description	Quantity/pack	Cat. no.
Universal robotic compatible manifold to hold deep 96-well collection plate	1	228020
Adaptor 1 for medium skirt/medium drip director plates	1	228021
Adaptor 2 for short skirt/long drip director plates	1	228022

LC/MS Sample Preparation accessories: MicroLute™ acrylic manifold (SEE PAGE 17)

Description	Quantity/pack	Cat. no.
Standard MicroLute™ manifold to hold deep 96-well collection plate	1	228008

LC/MS Sample Preparation accessories: Spares and accessories for all Porvair Manifolds

Description	Quantity/pack	Cat. no.
Replacement gasket, profile (to fit between top plate and vacuum chamber), for 228008/228020	1	228007
Replacement gasket, flat (to fit top plate below filtration plate), for 228008/228020	1	228009
Optional spacer insert, polypropylene, to allow use of 1 ml round well polypropylene microplates (219002) in acrylic deep well manifolds (228008/228020)	1	228010
Optional spacer insert, HDPE, to allow use of 350 µl microplates in acrylic manifolds (228008/228020)	1	228012
Disposable reservoir tray, PVC	25	219010

Solvent concentrators/evaporators: MiniVap™ blowdown sample concentrator (SEE PAGE 19)

Description	Quantity/pack	Cat. no.
MiniVap® Blowdown Evaporator (110/230V), with 96 spiral needles	1	229201
MiniVap® Blowdown Evaporator (110/230V), with 96 straight needles	1	229200
MiniVap® Blowdown Evaporator (110/230V), with 24 straight needles	1	229204
MiniVap® Blowdown Evaporator (110/230V), without a head	1	229206

Solvent concentrators/evaporators: MiniVap™ Gemini blowdown sample concentrator (SEE PAGE 20)

Description	Quantity/pack	Cat. no.
MiniVap® Gemini Blowdown Evaporator (110/230V), with two 96 spiral needle heads	1	500232
MiniVap® Gemini Blowdown Evaporator (110/230V), with two 96 straight needle heads	1	500233
MiniVap® Gemini Blowdown Evaporator (110/230V), without heads	1	500234

Solvent concentrators/evaporators: Ultravap® Levante sample concentrator (SEE PAGE 21)

Description	Quantity/pack	Cat. no.
Ultravap® Levante fully robot compatible Blowdown Evaporator with 96 spiral needles, 110/230V	1	500224
Ultravap® Levante fully robot compatible Blowdown Evaporator with 96 straight needles, 110/230V	1	500225
Ultravap® Levante fully robot compatible Blowdown Evaporator without needle head, 110/230V	1	500226
Optional fume extractor fan complete plug-in assembly with housing	1	500194

Solvent concentrators/evaporators: Accessories and spares for all Porvair evaporators (except Rapid Mini)

Description	Quantity/pack	Cat. no.
Replacement 96 Needle Head with spiral needles for all Porvair evaporators	1	229072
Replacement 96 Needle Head with straight needles for all Porvair evaporators	1	229036
Replacement 384 Needle Head with straight for Ultravap® RC. Mistral & Levante only	1	229073
Replacement 24 Needle Head with straight for all Porvair evaporators	1	229409
Dedicated 48 Needle Head straight for use with HPLC vial adaptor for all Porvair evaporators	1	229410
Gasket for Needle Head manifold, for all Porvair evaporators	1	229048
Vial adaptor for 48 x 1.5 ml HPLC vials (Agilent/Chromacol etc.) black polypropylene	1	500109
24-well 12 mm i.d. Vial Holder for solid aluminium, for all Porvair evaporators	1	229650
Disposable plastic vial rack with clear bottom for 13.75 mm o.d. glass vials x 24	5	229216

Solvent concentrators/evaporators: Ultravap® Mistral sample concentrator (SEE PAGE 22)

Description	Quantity/pack	Cat. no.
Ultravap® Mistral fully robot-compatible blowdown evaporator with 96 spiral needles, 110/230V	1	500147
Ultravap® Mistral fully robot-compatible blowdown evaporator with 96 straight needles, 110/230V	1	500148
Ultravap® Mistral fully robot-compatible blowdown evaporator without needle head, 110/230V	1	500149
Mistral CAN bus interface cable with RS232 initiator and CAN terminator plugs	1	500193

Solvent concentrators/evaporators: Rapid Mini sample concentrator (SEE PAGE 23)

Description	Quantity/pack	Cat. no.
Rapid Mini Nitrogen blow down concentrator 110/220V	1	500252
Rack for glass vials	12 x 75 mm (4ml RIA Vials)	500253
Rack for glass test tubes	16x100 mm (12 ml)	500254
Rack for glass test tubes	16x125 mm (16 ml)	500255
Rack for glass test tubes	20x150 mm (30 ml)	500256

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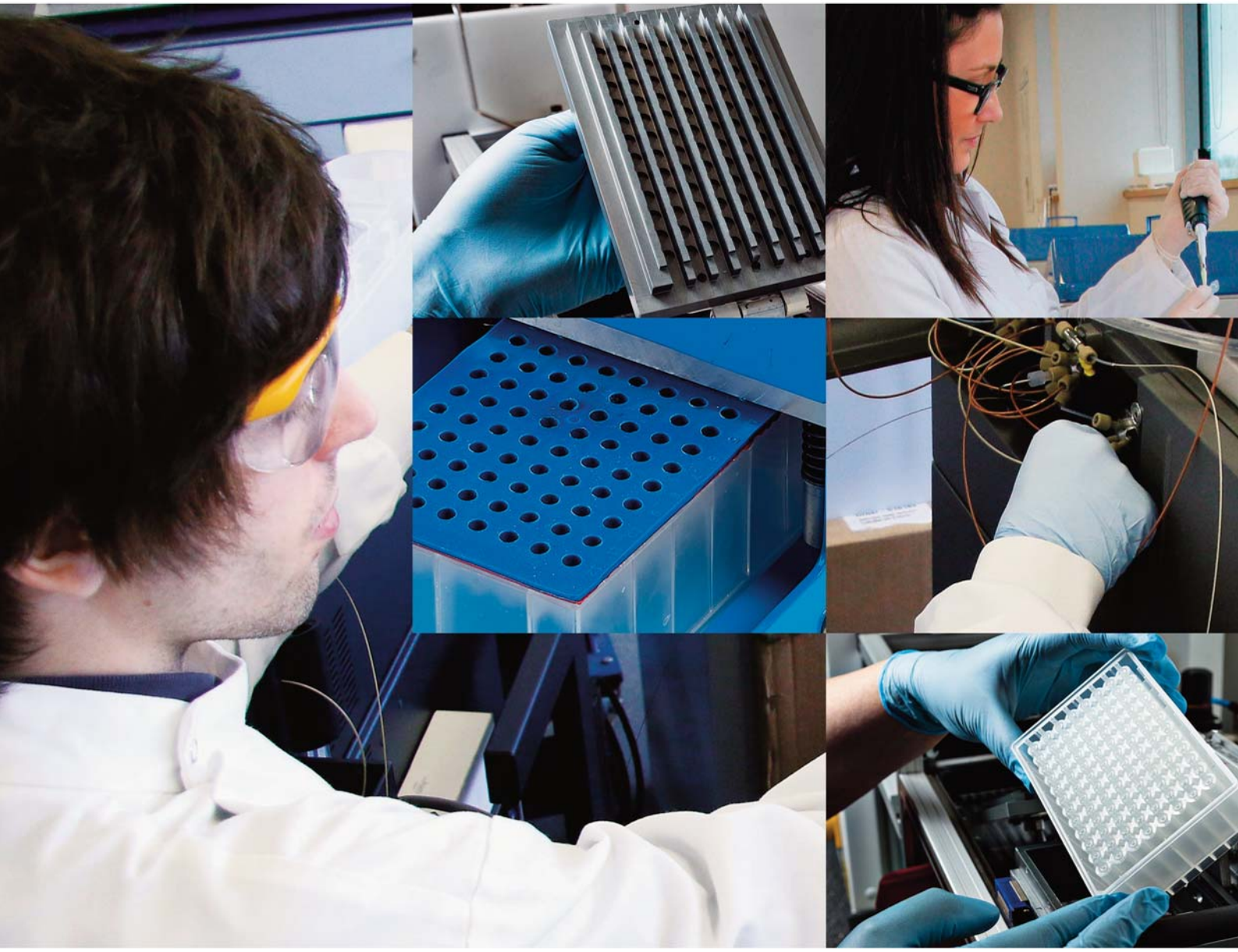
Accounts
Porvair plc
7 Regis Place
Bergen Way Kings Lynn
Norfolk UK PE30 2JW
Tel: 44 (0)1553 765500
Fax: +44 (0)1553 765599

Customer Services and Sales Office
Porvair Sciences Ltd
Clywedog Road South
Wrexham Industrial Estate
Wrexham North Wales
UK LL13 9XS
Tel: +44 (0) 1978 666222
Fax: +44 (0) 1978 660007
email: int.sales@porvair-sciences.com
www.microplates.com