



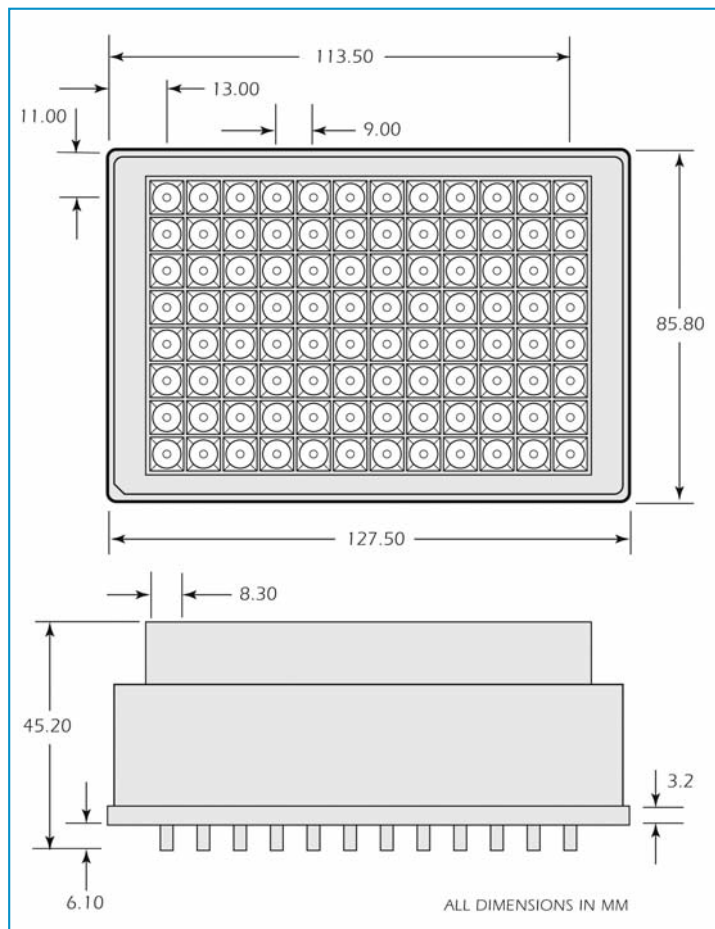
## MicroLute™

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 popular sorbents
- Packed bed volumes from 10mg to 100mg per well
- Frit pore size 20µm
- No channelling due to proprietary sorbent loading technique
- Working volume of 2ml 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/SBS 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.



## MicroLute™ packed with Varian sorbent

Description	10mg	15mg	25mg	50mg	100mg
C18	242001	244001	246001	248001	250001
C8	242002	244002	246002	228002	250002
C2	242003	244003	246003	248003	250003
C1	242004	244004	246004	248004	250004
PH	242005	244005	246005	248005	250005
CH	242006	244006	246006	248006	250006
CN-E	242007	244007	246007	248007	250007
C18-OH	242008	244008	246008	248008	250008
CN-N	242009	244009	246009	248009	250009
20H	242010	244010	246010	248010	250010
Si	242011	244011	246011	248011	250011
CBA	242012	244012	246012	248012	250012
PRS	242013	244013	246013	248013	250013
SCX	242014	244014	246014	248014	250014
NH2	242015	244015	246015	248015	250015
PSA	242016	244016	246016	248016	250016
DEA	242017	244017	246017	248017	250017
SAX	242018	244018	246018	248018	250018
PBA	242019	244019	246019	248019	250019
ENV	242020	244020	246020	248020	–
LMS	242021	244021	246021	248021	–
PPL	242022	244022	246022	248022	–
C18HF	242023	244023	246023	248023	–
Certify	242024	244024	246024	248024	250024
Certify HF	242025	244025	246025	248025	–
Certify II	242026	244026	246026	248026	250026
Certify II HF	242027	244027	246027	248027	–

## 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, 10µm and 30µm, however, we recommend the use of 30µm top frits to ensure a good flow rate in both cases.

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

### Combinatorial MicroLute™

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

## MaxiLute™

The development of a 48-well solid-phase extraction (SPE) system allows the step between SPE cartridges and SPE 96-well plates to be managed.

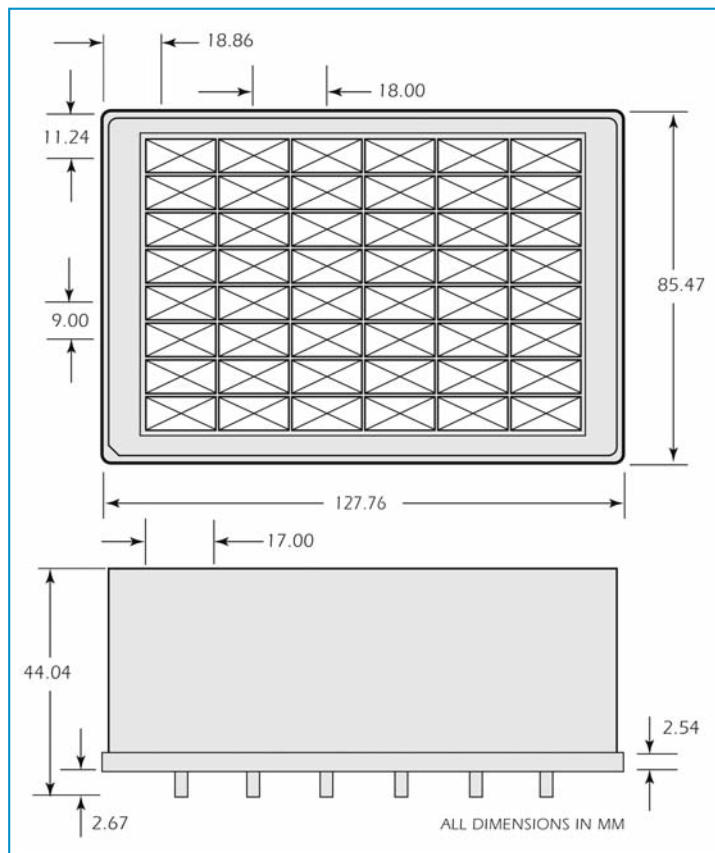
With the larger packed bed volume and increased sample volume, the design of the MaxiLute™ offers advantages for drug development, food and environmental laboratories currently using SPE cartridges.

Manufactured from virgin polypropylene and loaded with a choice of sorbents and volumes.

- *Unique design eliminates mess associated with traditional manual SPE cartridge methods*
- *Up to 4 times faster than cartridge methods*
- *Constructed from a single piece of high quality polymer which will not bend or distort*
- *A range of packed bed volumes ranging from 250mg, through to 1500mg*
- *Capability to process up to 200ml of sample in one plate*
- *Frit pore size of 20µm*
- *Each well has an individual drain spout ensuring 100% sample transfer and zero cross-contamination*
- *Manufactured within ANSI/SBS standard to allow easy automation*

### MaxiLute™

Sorbent volume	250mg	500mg	1000mg	1500mg
SCX	322001	321001	318001	320001
SAX	322002	321002	318002	320002
Silica	322003	321003	318003	320003
C18	322004	321004	318004	320004



## P<sup>3</sup> Protein Precipitation Plates

Biological samples commonly contain proteins that interfere with downstream applications. The P<sup>3</sup> plate uses the CRASH method, in which the protein is denatured with acetonitrile and the flocculant filtered out, allowing 96 samples to be handled at one time.

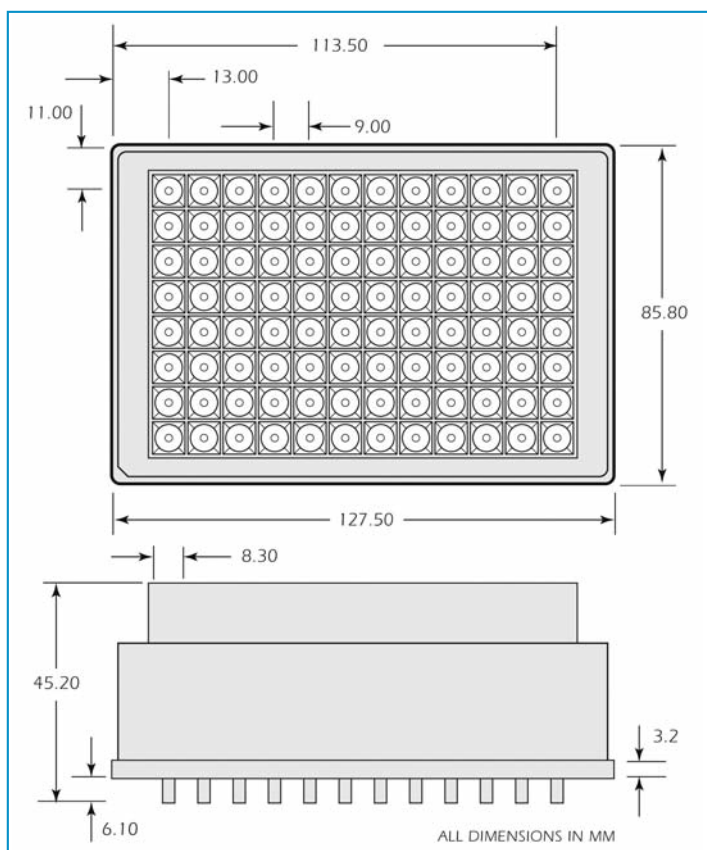
The Protein Precipitation Plate, P<sup>3</sup>, is based on the industry standard MicroLute™ format, but without the chromatographic sorbent. Protein 'crashes' out of solution and precipitates directly in each well when acetonitrile is added, thus solving all common problems associated with the CRASH 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<sup>3</sup> 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 41).

- Dual frit design
- Pre-filter frit at 100µm traps large flocculant particles
- Secondary frit traps fine protein particles at <10µm
- Frits are Hydrophobic/Oleophobic. 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

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



### MicroLute™ Protein Precipitation Plate

Description	Qty/pack	Cat. no.
P <sup>3</sup> Protein Precipitation Plate (single pack)	1	240100
P <sup>3</sup> Protein Precipitation Plate (bulk pack)	5	240200
P <sup>3</sup> Protein Precipitation Plate High Efficiency*	1	240010

## SPE starter pack

This kit has been designed to form the starting point for SPE analysis. This gives the researcher the necessary hardware to process samples using an SPE plate and to collect under vacuum the analyte for further analysis.

The kit consists of:

- 2 x 50mg MicroLute™ – containing: 50mg of Varian C18, C8, C2, SAX, SCX, Certify, Certify II and CBA, 1 x 50mg Varian C18
- 1 x acrylic manifold
- 1 x 1ml spacer insert
- 3 x 2ml 96-well microplates
- 3 x disposable reservoir trays

### MicroLute™ starter pack

Starter pack

271023



## Development MicroLute™

This is an SPE Development MicroLute™, which is designed for research and development laboratories, where it may not be known which sorbent best suits the process.

The system allows the researcher to specify which sorbents go into specific wells, with what designated packed bed volume. This allows the researcher to have full control of the SPE plate.

- Uses an industry standard SPE plate, MicroLute™
- Sorbents from Varian
- Packed bed volumes ranging from 10mg to 100mg
- Allows up to 2ml of sample to be tested
- Can be packed either in 8-row or 12-column format
- Manufactured within ANSI/SBS standard to allow for automation

### MicroLute™ – Development

	10mg	15mg	25mg	50mg	100mg
Eight sorbents	271014	271016	271018	271020	271022
Twelve sorbents	271024	271026	271028	271030	271032

## MicroLute™ accessories

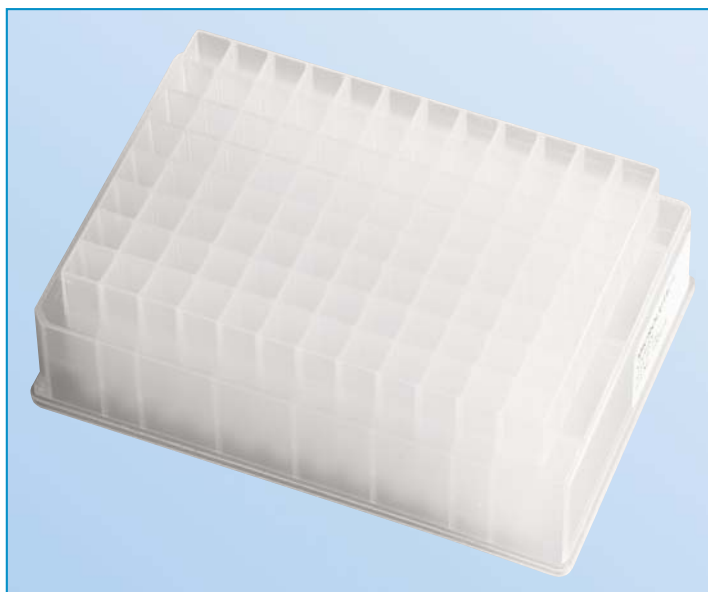
- Disposable reservoir tray. Used for the collection of waste products in the vacuum manifold
- Sealing cap, square well, fits top of MicroLute™. Used for retaining the sample in the well during transit or stopping the well from becoming contaminated
- Drain cap mat that seals the bottom of the plate, preventing liquid leakage

### MicroLute™ – accessories

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

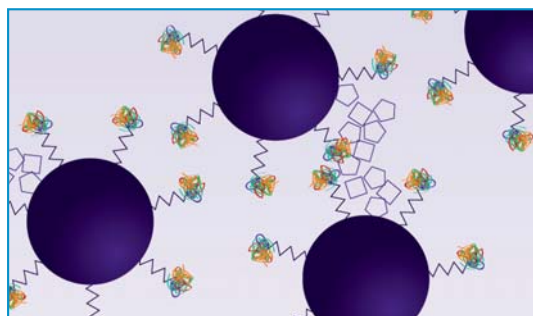
## MicroLute™ BioVyon Co-sinter products

BioVyon™ Co-sinter products are made using a solid-state media created from an ultra-pure and highly modified polymeric material with the lowest levels of extractables and leachables. Our proprietary BioVyon™ technology allows high-purity silica resins to be supported in a matrix which provides a high surface area whilst reducing channelling through the column. As the porous material is co-sintered under high pressure and temperature with the BioVyon™ polymer matrix, the resultant frit or column is impervious to further compression and easily resists channelling of liquids, even at high flow rates.



## BioVyon C8 and C18 products

Porvair Sciences have introduced MicroLute™ BioVyon™ Co-sintered C8 and C18 silica SPE 96-well plates for low volume assays. Offered in 96-well MicroLute™ plates as a 10mg per well loading of C8 or C18 suitable for low sample volume bioassay preps and clean ups.



Micro structure of BioVyon substrate



A MicroLute solid phase extraction plate in use with the new Porvair Sciences robotic compatible vacuum manifold.

### MicroLute™ BioVyon™ Co-sinter products

Solid Phase Extraction		
Description	Qty/pack	Cat. no.
C8 96-well plate 10mg per well	1	240030
C18 96-well plate 10mg per well	1	240031

# 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 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 conform to ANSI/SBS 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.



underneath. You get simple, fast, clean, clear samples every time. The Microlute P<sup>3</sup> 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 – 2ml, 1ml and 350 µl. 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.



For biological sample clean up – such as protein and phospholipid removal prior to analysis – Porvair Sciences offer the Microlute P<sup>3</sup> 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 superhydrophobic 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



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 provide 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 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, whilst the programmable, microprocessor-controlled Ultravap can also be linked directly to your Tecan or Hamilton liquid handler for extra workflow efficiency.

**CALL NOW FOR A FREE SAMPLE  
PLATE OR DEMONSTRATION  
01978 666240**

## ORDERING INFORMATION

### Microlute solid phase extraction starter system

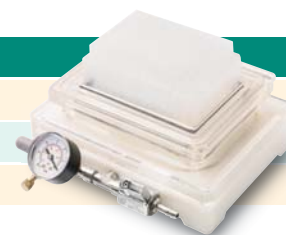
Cat. No.	Description
271023	2 x 50mg of Agilent-Varian C18, C8, C2, SAX, SCX, Certify, Certify II and CBA for method development 1 x 50mg standard Microlute™ (specify sorbent required), 1 x Acrylic Manifold 228008 1 x 1ml Spacer Insert 228010 3 x 2ml 96-well microplates 3 x Disposable reservoir trays



For a list of available sorbents and loadings please visit our website [www.microplates.com](http://www.microplates.com)

### Microlute vacuum manifolds

Cat. No.	Description
228008	Acrylic vacuum manifold to hold deep well collection plates
228020	Robotic-compatible Universal Vacuum Manifold, acrylic with gauge
219010	Disposable reservoir tray



### Collection plates

Cat. No.	Description	
219009	96 deep well, 2ml/well, polypropylene, square well, DNase/ RNase free, inner pack of 5	Pk of 50
219008	96 deep well, 1ml/well, polypropylene, square well, DNase/RNase free, inner bag of 5	Pk of 50
219006	96 deep well, 350µl/well, polypropylene, square well, DNase/ RNase free, inner pack of 5	Pk of 50



### P3 - Microlute™ Protein Precipitation Plates

Cat. No.	Description
240100	P3 Protein Precipitation Plate packed individually in a rigid shell
240200	P3 Protein Precipitation Plate - bulk packed in a bag of 5, no individual shells.



### Sample concentrators

Cat. No.	Description
229201	Blowdown Evaporator MiniVap™ (230V), with 96 spiral needles
229135	Ultravap RC robot-compatible Blowdown Evaporator with 96 straight needles, (230V)



**porvair**  
sciences

Porvair Sciences Limited

Dorset House Regent Park Kingston Road Leatherhead UK KT22 7PL

Tel: +44 (0)1372 824290 Fax: +44 (0)1372 824271 email: [int.sales@porvair-sciences.com](mailto:int.sales@porvair-sciences.com) [www.microplates.com](http://www.microplates.com)