

## Solid Phase Extraction - SPE

Porvair offers a wide range of products for Solid Phase Extraction (SPE). The solved sample can be purified and concentrated to be eluted and then analysed by LC-MS.

### P<sup>3</sup> Protein Microlute®

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.

- Pre-filter frit at 100 µm traps flocculant particles >100 µm
- Secondary frit traps fine protein particles at <10µm
- The frits are hydrophobic and oleophobic. This retains sample/acetonitrile in the well to allow precipitation of proteins until vacuum is applied.
- Chemically inert filter material minimizes adsorption of samples
- Frit structure prevents breakthrough of protein particles
- PPLR frit consists of co-sintered plastics and chromatography media. The hydrophobic top frit prevents sample passing into the media during mixing.

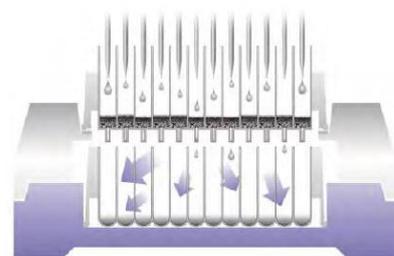


Cat. No.	Description	Cs.
240100	P <sup>3</sup> Protein Precipitation Plate	1
240200	P <sup>3</sup> Protein Precipitation Plate (bulk package of 5 pieces)	5
240010	<b>High efficiency P<sup>3</sup> Protein Precipitation Plate</b> , with untreated frits, for samples which are mixed with acetonitrile before added to the plate	1
PPLR025P-001	Microlute® PLR, 25 mg bed weight, 96-well plate	1

### Microlute® SLE for viscous liquids

Diatomaceous-Earth is known for its big pore size and a high pore volume as well as high pH-resistance (1 - 13). These characteristics allow to remove hydrophilic contamination with high amounts of protein, phospholipids and salt being retained.

For purification of blood, plasma or serum before LC/MS analysis, environment and nutrition analysis as well as extraction of small amounts of water from hydrophobic solvents.



Cat. No.	Description	Cs.
PSLE200P-001	Microlute® SLE, 200 mg bed weight, 96-well plate	1
PSLE400P-001	Microlute® SLE, 400 mg bed weight, 96-well plate	1

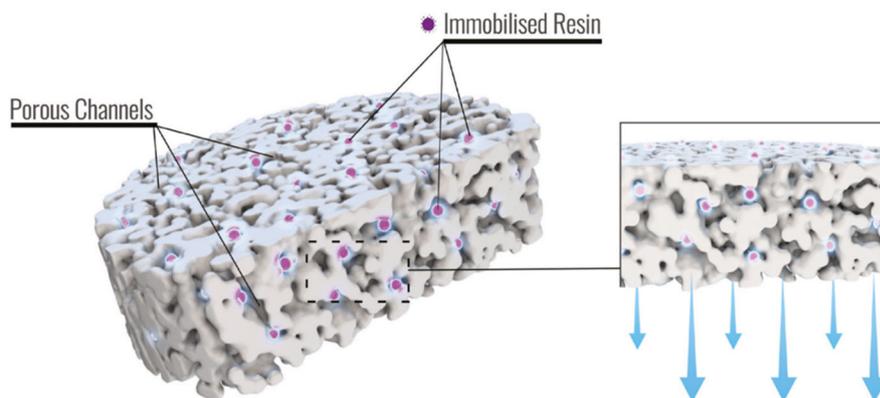
### Microlute® Accessories

Cat. No.	Description	Cs.
219010	Single-use reservoir, PVC, for collection of waste	25
219004	Sealing mat, square wells, for upper plate side	50
219005	Drain mat, seals plate bottom	50

## Microlute® CSi and Microlute® CP

Microlute® CSi and CP take SPE to a new level of performance by enhancing the **reproducibility** of analyte extraction and **recovery** from biological, environmental and chemical samples.

Unlike traditional loose-filled SPE methods, Microlute® CSi and CP use a hybrid structure, a solid interconnected network of evenly distributed pores combined with the retentive media (see image below). This design enhances the flow-through of samples to maximise interactions between analytes and the solid phase to deliver a reproducible SPE method that excels in performance, cleanliness and sensitivity.



**Product range:** C18, HLB, SCX and SAX

**Format:** 96-well plates

**Bed Weight:** 2 mg or 10 mg each well

**Analysis:** UHPLC, HPLC, GC, LCMS, GCMS

**Applications:** Drug research, ADME tox, metabolism, forensic labs, clinical studies

**Advantages:** Improved flow, greater reproducibility, less solvent use, faster processing and increased confidence

**C18/HLB:** Retention of neutral compounds through hydrophobic interaction with some retention of polars.

**Strong Cation Exchange (SCX):** Sulphonic acid functional group on a polymeric base with a pKa of <1 provides a wide pH range for cationic exchange.

**Strong Anion Exchange (SAX):** Quarternary ammonium chemistry on a polymeric base with a pKa >18 which is ideal for the capture of acidic analytes.

Product Range	Cat. No.	Description	Chemistry	Format	Cs.
Microlute® CSi	SC18010P-001	10 mg C18	Silica	96-well plate	1
Microlute® CSi	SC18002P-001	2 mg C18	Silica	96-well plate	1
Microlute® CSi	SSCX010P-001	10 mg SCX	Silica	96-well plate	1
Microlute® CSi	SSCX002P-001	2 mg SCX	Silica	96-well plate	1
Microlute® CSi	SSAX010P-001	10 mg SAX	Silica	96-well plate	1
Microlute® CSi	SSAX002P-001	2 mg SAX	Silica	96-well plate	1
Microlute® CP	SP96HLBD001	10 mg HLB	Polymeric	96-well plate	1
Microlute® CP	SP96HLBM001	2 mg HLB	Polymeric	96-well plate	1
Microlute® CP	SP96PCXD001	10 mg SCX	Polymeric	96-well plate	1
Microlute® CP	SP96PCXM001	2 mg SCX	Polymeric	96-well plate	1
Microlute® CP	SP96PAXD001	10 mg SAX	Polymeric	96-well plate	1
Microlute® CP	SP96PAXM001	2 mg SAX	Polymeric	96-well plate	1

\* = Please contact us to receive further information.

## Combinatorial Microlute®

Combinatorial Microlute® allows to use customized sorbents which conform to the requirements of the separation.



- Up to 2 ml sample volume possible
- Low dehydration and support of frits
- 10 mg up to 100 mg sorbent/well compressed
- Up to 4 times faster than classic filter separation
- Plate design ideal for automation, conforms to ANSI/SLAS standards
- Long drips at the wells prevent contamination and ensure to hit the collection plate exactly

<b>Cat. No.</b>	<b>Description</b>	<b>Cs.</b>
240002	Combinatorial – Microlute® plate, uncompressed, with PE-bottom frits, pore size 36 µm	1
600033	Same as 240002 but as bulk package	20
240054	Combinatorial – Microlute® plate, uncompressed, with PE-bottom frits, pore size 10 µm	1
240011	Empty 96-well Microlute® chamber without top or bottom frits	40

## Manifolds for SPE, Filter Plates and Automation

Vacuum manifolds are used to suck liquid during solid phase extraction or use of simple filter plates into special collection plates or deep well plates.

### Microlute® Manifold (Acryl)

- Machined from crystal clear acrylic (top plate) and acetal polymer (plenum chamber)
- Suitable for most filter plates in ANSI/SLAS standard with long drip directors and for SPE plates, i. e. MicroLute®
- Valve controlling knob (on-off) for precise control of vacuum
- Compatible with deep well collecting plates with square wells of 350 µl, 1 ml or 2 ml and plates with a height up to 44 mm
- Airtight sealing through O-ring, removable cover plate
- Medium resistance to alcohols and weak acids



<b>Cat. No.</b>	<b>Description</b>	<b>Cs.</b>
228008	<b>Standard MicroLute® Manifold</b> for 96-well collecting plates	1
228010	Spacer Insert, PP, 1 ml, for use of round well PP plates, optional	1
219010	Disposable reservoir, PVC	25

### Universal Robotic Manifold

- Designed to be easily assembled and disassembled by robotic manipulators
- Compatible with any filter plate type with short, medium or long drip directors (adapter available)
- Automated purification of SPE or DNA clean-up procedures
- Integrated valve for vacuum to provide complete control of vacuum pressure
- Fully compatible with most commercial robotic liquid handling systems
- Able to accommodate collection plates of 14 mm - 44 mm in height
- Chemically resistant



<b>Cat. No.</b>	<b>Description</b>	<b>Cs.</b>
228020	<b>Universal Robotic Manifold</b> , compatible with 96-deep well collection plates	1
228021	Adaptor 1 for plates with half rim / semi long drips	1
228022	Adaptor 2 for plates with short rim / long drips	1
228010	Spacer Insert, PP, 1 ml, for PP round well plates (Cat. No. 219002), optional	1
228023	Spacer Insert, for 30 ml Clara™ cell culture plate	1
228024	Spacer Insert, for 50 ml Clara™ cell culture plate	1

## UltraPPM LITE Manifold

- Positive pressure device
- Ideal for viscous and difficult to handle solutions
- Consistent pressure for reproducible results
- Simple to set up and use
- Only gas source required
- Precise control of gas and sample flow
- Applications are microplate-based filtrations such as SPE, SLE, PLR and protein precipitation.



Cat. No	Description
250-10083	<b>UltraPPM LITE Manifold</b> for viscous samples
150-10083-001	UltraPPM LITE 96 Well Processing Head
150-10083-002	UltraPPM LITE 384 Well Processing Head
150-10083-003	UltraPPM LITE 48 Well Processing Head
150-10083-004	UltraPPM LITE 24 Well Processing Head

## **Microlute®** – a complete 96-well sample preparation system from Porvair Sciences

### **Components of the Microlute® system:**

- Filterplate
- Vacuum Manifold
- Deep well block or other reservoir
- Optionally:  
Microlute® P<sup>3</sup>-plate



### **Can be perfectly combined with the evaporators from Porvair Sciences:**

- Ultravap® MINI (manual)
- Ultravap® Gemini (manual with two positions for evaporation)
- Ultravap® Levante (fully automatic)
- Ultravap® Mistral (fully automatic and robot compatible)



### **Fields of application:**

- Purification of biological samples
- Protein precipitation
- Removal of phospholipids
- Removal of proteins

### **Advantages of the Microlute® system:**

- Manifold from clear acrylic for easy handling
- Plates from 100 % polypropylene prevent contamination
- 3 standard sizes (350 µl, 1 ml and 2 ml) for good recovery
- Standardized height of reservoirs

➔ Please ask for our separate flyer to receive more information on the evaporators and sealers from Porvair Sciences.