

## PowerPrep™

**Automated Multi Column Sample Cleanup for Trace Analysis**

# PowerPrep Multicolumn Sample Cleanup

## Automated Sample Cleanup for Trace Analysis

The Powerprep Multi Column Sample Cleanup system automates error prone, complex, tedious, manual sample cleanup and fractionation in the laboratory. It replaces older manual techniques by automating the sample loading, washing, elution, fractionation and evaporation steps of the process increasing the laboratories throughput by performing sample cleanup and fractionation in hours instead of days.



### Rapid Sample Processing:

The Power-Prep™ system automates the entire manual sample cleanup process, unattended in hours versus days.

### Cost Effective & Reliable Analysis:

Performs the entire column chromatography, automatically and unattended achieving consistent, reproducible recoveries for all analytes. Unattended operation of the system saves labor and time, reducing glassware and solvents. It automates difficult manual sample cleanup procedures specifically for the trace analysis of Dioxins, BFRs, PCBs, Pesticides and PAHs.

### High Recovery of all Analytes:

FMS columns are certified and guaranteed for the cleanup of samples for the trace analysis of Dioxins, PAHs, PBDEs, and PCBs producing the highest recoveries for all analytes of interest.

### Modular, Expandable, & Affordable:

The PowerPrep system is Modular and can be Expanded from 1 to 6 Samples. Both expansion and module replacement are done via FMS's quick connect modules. Reducing system down time, increasing laboratory throughput and eliminating cross contamination from sample to sample.

### Disposable Columns:

The PowerPrep System uses FMS proprietary columns that are made from teflon and contain packing's such as multi layer silica, acidic silica, basic silica, neutral silica, alumina, carbon and florisil. FMS columns are tested for purity and performance. Prior to shipment they are certified and guaranteed.

### Easy Documentation:

Programs and stores an unlimited amount of methods and runs.

## INDUSTRIES

Agricultural

Clinical

Environmental

Chemical Products

Food and Beverage

Pharmaceutical Products

Natural Products

PetroChemical





# PRINCIPALS of OPERATION

The PowerPrep Multi Column Sample Cleanup System is the only automated sample processing system of its kind in today's laboratories. The automated liquid chromatography system performs simultaneous sample processing automatically and unattended. The total sample prep process, sample loading, washing, elution and fraction collection is done automatically. Built by design specifically to replace difficult, error prone, time and labor consuming manual processes involved in sample cleanup for trace analysis. The PowerPrep Multi Column Sample Cleanup System performs the sample cleanup process in hours versus days for the trace analysis of Persistent Organic Pollutants in all sample matrices.

Modular design for easy maintenance and expansion

The Sample Processing Module is designed for Multicolumn Sample Cleanup and Fractionation. Patented pump ensures precise delivery to achieve reproducible results

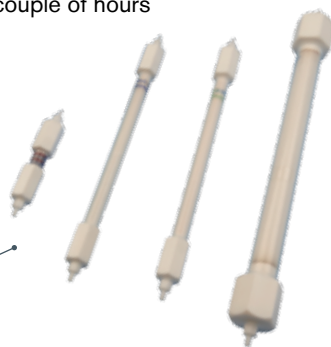
The Sample Processing Modules can be easily swapped out to perform single column sample cleanup chemistries allowing the lab to multipurpose the PowerPrep for automating other sample prep processes.



Expandable from 1 to 6 Channels

Runs six samples simultaneously in less than a couple of hours

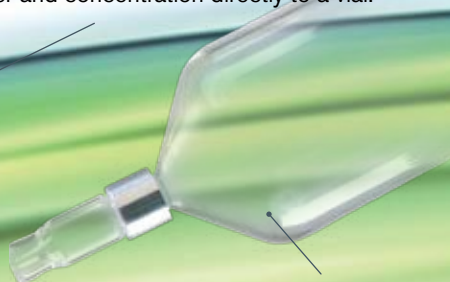
FMS columns are Certified and Guaranteed for the cleanup of sample for the Trace Analysis of Dioxins, PAHs, PBDEs, and PCBs producing the Highest Recoveries for all analytes of interest



Dispense up to 5 solvents using a Positive displacement pump to deliver precise volumes and flow rates for column conditioning and elution.



The PowerVap Concentrator is a dry, waterless system which is programmable and can preheat as well as ramp up to final temperature. It automatically senses the extract being delivered to each vessel, starts nitrogen blow down and shuts off nitrogen when the final volume is achieved for each extract. Samples are cleaned up and directly fractionated to the PowerVap Concentrator for unattended transfer and concentration directly to a vial.



Concentrates samples up to 250ml directly to a Vial.

## Specifications

### PowerVap

Dimensions:  
13"W x 13"D x 12"H

Weight:  
20 lbs.

Gas Requirements:  
Nitrogen - 20 PSI minimum

Electrical Input:  
110/220 Volts, 50/60 HZ

Controller:  
PC based

Bath:  
Dry

### PowerPrep MultiColumn Cleanup System

Dimensions:  
15"W x 18"D x 35"H

Weight:  
130 lbs.

Pump:  
Piston Displacement

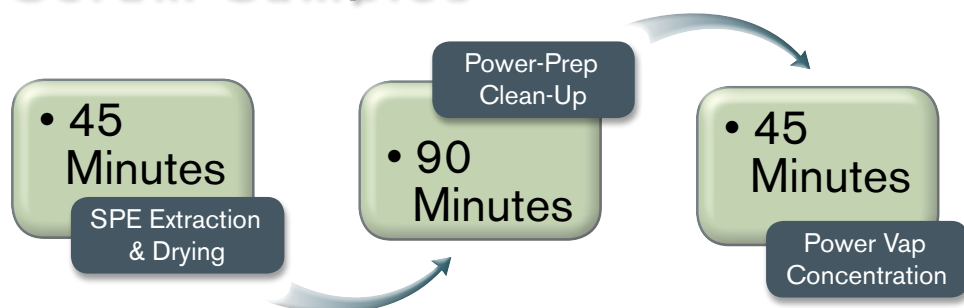
Flow rate:  
0.2 to 15ml/minute

Electrical Input:  
110/220 Volts, 50/60 HZ

Controller:  
PC based

# Unattended Total Sample Prep produces Excellent Results

## Serum Samples

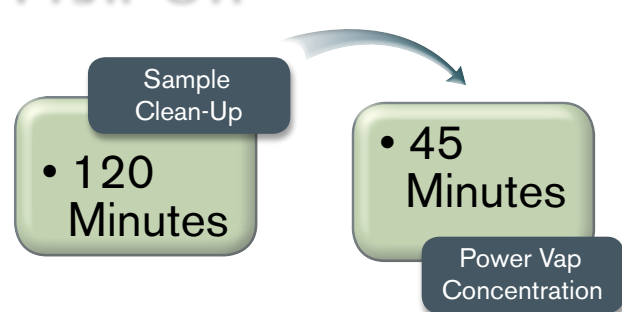


Dioxins In serum – Unattended Total Sample Prep time = 180 minutes

## Dioxins in Serum

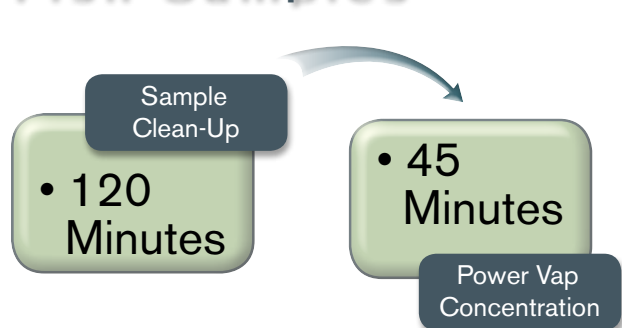
Compound Dioxins	Amount Spiked	Percentage Recovery
2378D	.25 ng	72%
12378D	.25 ng	72%
123478D	.6 ng	74%
123678D	.6 ng	71%
123789D	.6 ng	72%
123678D	.6 ng	66%
1234679D	.6 ng	66%
OCDD	1.25 ng	54%
Furans	Amount Spiked	Percentage Recovery
2378F	.25 ng	70%
12378F	.25 ng	72%
23478F	.25 ng	73%
123478F	.625 ng	67%
123678F	.625 ng	68%
123789F	.625 ng	67%
234678F	.625 ng	66%
1234678F	.625 ng	58%
1234789F	.625 ng	58%
OCDF	1.25 ng	55%
OCDF	1.25 ng	55%
Coplanar PCB's	Amount Spiked	Percentage Recovery
3344P	.25 ng	62%
3445P	.25 ng	54%
33445P	.36 ng	64%
334455P	.48 ng	65%

## Fish Oil



Dioxins, PCBs, PBDEs In Fish Oil  
Total Sample Prep time = 165 minutes

## Fish Samples



Dioxins, PCBs, PBDEs In Fish – Unattended  
Total Sample Prep time = 165 minutes

## Dioxins in Fish

Compound	Percent Recovery
2,3,7,8-TCDF C13	71%
2,3,7,8-TCDD C13	74%
2,3,4,7,8-PeCDF C13	89%
1,2,3,7,8-PeCDF C13	84%
1,2,3,7,8-PeCDD C13	92%
1,2,3,4,7,8-HxCDF C13	111%
1,2,3,6,7,8-HxCDF C13	119%
1,2,3,4,7,8-HxCDD C13	108%
1,2,3,6,7,8-HxCDD C13	121%
2,3,4,6,7,8-HxCDF C13	105%
1,2,3,7,8,9-HxCDD C13	122%
1,2,3,7,8,9-HxCDF C13	122%
1,2,3,4,6,7,8-HpCDF C13	96%
1,2,3,4,6,7,8-HpCDD C13	99%
OCDF C13	55%
OCDD C13	61%
3,4,4',5-TCB C13	49%
3,3',4,4'-TCB C13	57%
3,3',4,4',5-PeCB C13	74%
3,3',4,4',5,5'-HxCB C13	90%

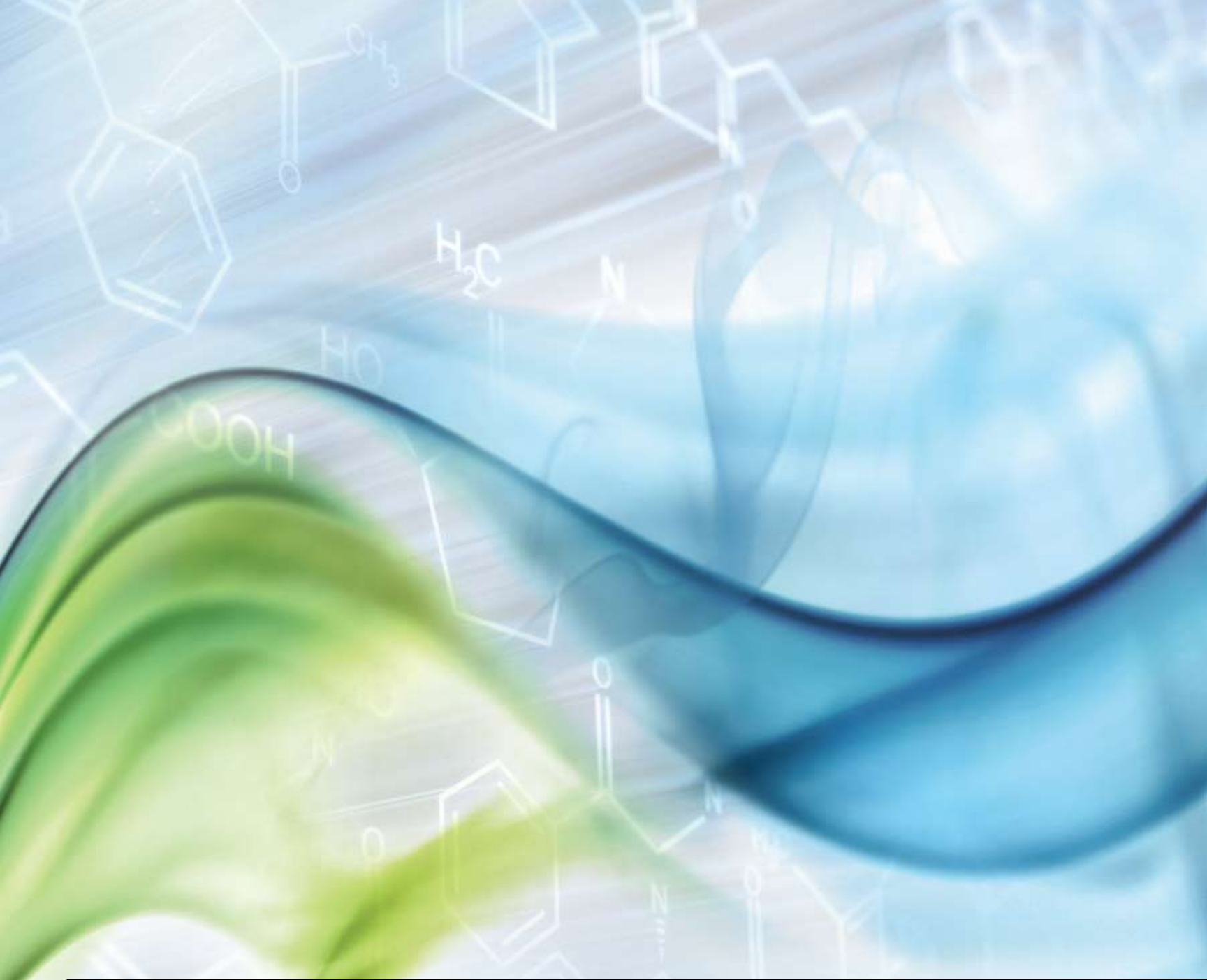
## Dioxins in Omega 3 Fish Oil

Compound	Percent Recovery
2,3,7,8-TCDF C13	98%
2,3,7,8-TCDD C13	106%
2,3,4,7,8-PeCDF C13	112%
1,2,3,7,8-PeCDF C13	111%
1,2,3,7,8-PeCDD C13	120%
1,2,3,4,7,8-HxCDF C13	74%
1,2,3,6,7,8-HxCDF C13	81%
1,2,3,4,7,8-HxCDD C13	76%
1,2,3,6,7,8-HxCDD C13	89%
2,3,4,6,7,8-HxCDF C13	92%
1,2,3,7,8,9-HxCDF C13	106%
1,2,3,4,6,7,8-HpCDF C13	80%
1,2,3,4,6,7,8-HpCDD C13	93%
1,2,3,4,7,8,9-HpCDF C13	83%
OCDD C13	72%

## PBDE in Fish

Compound	Percent Recovery
BDE-28	76%
BDE-47	112%
BDE-100	106%
BDE-99	109%
BDE-154	102%
BDE-153	104%
BDE-183	104%
BDE-209	84%





## Applications

## Automated Sample Preparation

For the analysis of

### Liquids

Milk

Oil

Serum

Water

Waste Water

### Solids

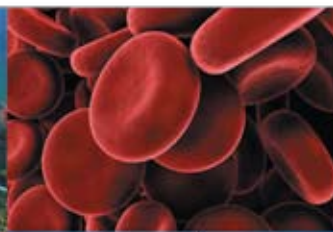
Fish

Feed

Meat

Soil

Fly Ash



# PowerPrep Consumables

Part Number	Description
<b>Low capacity Columns</b>	
LCDS-ABN-STD	Low Capacity Disposable Silica ABN Column
LCDA-BAS-006	Low Capacity Disposable Basic Alumina Column
CLDC-CCE-034	Disposable Carbon/Celite (.34g) Column
<b>Low Capacity PCB Free Columns</b>	
PCBL-ABN-STD	PCB Free Low Capacity Disposable Silica ABN Column
PCBL-BAS-006	PCB Free Low Capacity Disposable Alumina (6g) Column
PCBC-CCE-034	PCB Free Classical Disposable Carbon/celite Column .34g
<b>Low Capacity PBDE free columns</b>	
PBDEL-BAS-006	PBDE Free Low Capacity Disposable Alumina (6g) Column
PBDEL-ABN-STD	PBDE Free Low Capacity Disposable Silica ABN Column
	PBDE Free low capacity Disposable Carbon/Celite column .34 g
<b>Classical Columns</b>	
CLDS-ABN-STD	Classical Disposable Silica ABN Column
CLDA-BAS-011	Disposable Basic Alumina (11g) Column
CLDC-CCE-034	Disposable Carbon/Celite (.34g) Column
HCDS-ABN-STD	High Capacity Disposable ABN Silica Column
HCDS-ACD-STD	High Capacity Disposable Acidic Silica Column
HCDS-ABN-STD-TFC	High Capacity Disposable ABN Silica Column with Teflon Chip
HCDS-ACD-STD-TFC	High Capacity Disposable Acidic Silica Column with Teflon Chip
<b>PCB Free classical columns</b>	
PCBS-ABN-STD	PCB Free Classical Disposable Silica ABN Column
PCBA-BAS-011	PCB Free Disposable Alumina (11g) Column
PCBC-CCE-034	PCB Free Classical Disposable Carbon Column
PCB-HCDS-ABN	PCB Free High Capacity Disposable ABN Silica Column
PCB-HCDS-ACD	PCB Free High Capacity Disposable Acidic Silica Column
PCB-HCDS-ABN-TFC	PCB Free High Capacity Disposable ABN Silica Column with Teflon Chip
PCB-HCDS-ACD-TFC	PCB Free High Capacity Disposable Acidic Silica Column with Teflon Chip
<b>PBDE Free classical columns</b>	
PBDES-ABN-STD	PBDE Free Classical Disposable Silica ABN Column
PBDEA-BAS-011	PBDE Free Disposable Alumina (11g) Column
PBDEC-CCE-034	PBDE Free Classical Disposable Carbon/Celite Column
PBDE-HCDS-ABN	PBDE Free High Capacity Disposable ABN Silica Column
PBDE-HCDS-ACD	PBDE Free High Capacity Disposable Acidic Silica Column
PBDE-HCDS-ABN-TFC	PBDE Free High Capacity Disposable ABN Silica Column with Teflon Chip
PBDE-HCDS-ACD-TFC	PBDE Free High Capacity Disposable Acidic Silica Column with Teflon Chip
<b>Silver Nitrate /Silica columns</b>	
CLDS-ABN-SNT	Classical Disposable ABN Silica + Silver Nitrate Column
PCBS-ABN-SNT	PCB Free Classical Disposable ABN Silica + Silver Nitrate Column
PBDES-ABN-SNT	PBDE Free Classical Disposable ABN Silica + Silver Nitrate Column
HCDS-ABN-SNT	High Capacity Disposable ABN Silica + Silver Nitrate Column
<b>Carbon/Silica columns</b>	
CLDC-CSI-002	Disposable Carbon/Silica (2g) Column
PCBC-CSI-002	PCB Free Disposable Carbon/Silica (2g) Column
PBDEC-CSI-002	PBDE Free Disposable Carbon/Silica (2g) Column
<b>Florisil columns</b>	
CLDF-FLR-705	Classical Disposable Florisil (7.5g) Column
PCBF-FLR-705	PCB Free Disposable Florisil Column
<b>Miscellaneous columns</b>	
CLDF-FLR-705	Classical Disposable Florisil (7.5g) Column
CLDS-ACD-008	Classical Disposable Acidic Silica (8g) Column
CLDS-NSS-060	Classical Disposable Neutral Silica (6g) Column
PCBA-5BAS-011	PCB Free Disposable 0.5% Deactivated Alumina (11g) Column
PBDEA-5BAS-011	PBDE Free Disposable 0.5% Deactivated Alumina (11g) Column
<b>Hex Fittings</b>	
CLTF-FIT-000	Fitting Teflon Hex For Classical Teflon Columns
CLTF-FIT-025	Fitting Teflon Hex For High Capacity Columns
<b>Tefzel fittings</b>	
UNI-TFZ-028	Fitting Tefzel Union
MLU-TFZ-028	Fitting Tefzel Male Luer
FLU-TFZ-028	Fitting Tefzel Female Luer
<b>Delrin Fittings</b>	
UNI-DEL-028	Fitting Delrin Union
MLU-DEL-028	Fitting Delrin Male Luer
FLU-DEL-028	Fitting Delrin Female Luer
<b>Fritz</b>	
FRZ-TFE-678	Small Fritz
FRZ-TFE-901	Large Fritz
<b>Vial &amp; Syringe</b>	
TUBE-CEN-015	Glass Sample Vials With Caps 15ml
SYRI-POL-010	Polypropylene Syringes

# Accessories

## Sample Prep Modules

### Add versatility to your existing system

PAH/EPH Cleanup and Fractionation

Column Module (for 5 samples)

Multicolumn Cleanup Column Module (for 1 sample)

SPE Cartridge Module (for 5 samples)

Portable Cart and Tray

PowerVap Integrated

Part Number	Description
TFE-TUB-071GR	Teflon Tubing Assembly Flanged any color, 7"
TFE-TUB-09IGR	Teflon Tubing Assembly Flanged any color, 9"
TFE-TUB-16IGR	Teflon Tubing Assembly Flanged any color, 16"
TFE-TUB-24IGR	Teflon Tubing Assembly Flanged any color, 24"
PVAP-TUB-200M	Evaporator Glass Tubes
PVAP-TUB-200M-GC	Evaporator Glass Tubes Standard - GC
PVAP-UNI-TFZ Tefzel	GC Vial union

# PowerVap Consumables

Part Number	Description
PVAP-TUB-GC	Concentrator Tubes Standard - GC
PVAP-VIA-GC	GC Vial
PVAP-UNI-GC	GC Vial Union
PVAP-TUB-1ml	250ml Concentrator tubes 1 ml tip
PVAP-TUB-500ul	250ml Concentrator tubes 500 ul tip
PVAP-FLT-HC	Hepa/Carbon filter



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