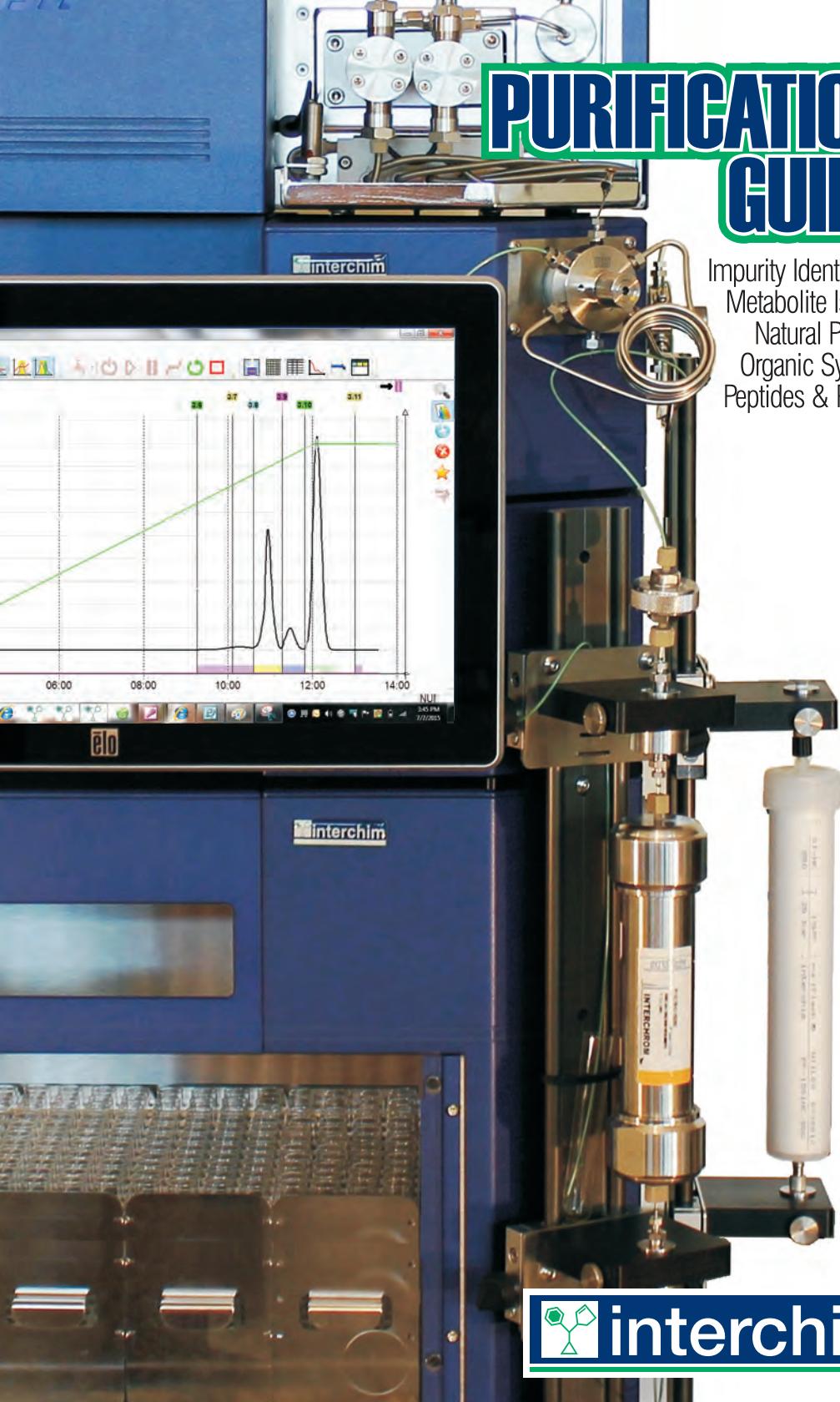


# PURIFICATION GUIDE

Impurity Identification  
Metabolite Isolation  
Natural Products  
Organic Synthesis  
Peptides & Proteins



*Interchim is a French multinational company dedicated to life sciences with a well established R&D program. Instruments and consumables are manufactured at two sites in central France to support industry and academia. The company was founded in 1970 by Colette & Jean Boch, a former Research Director at Sanofi-Aventis. The family-owned business continues today under the management of Lionel Boch, Chairman of the Board and Corinne Jourdain, General Manager.*

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**Biopurification**

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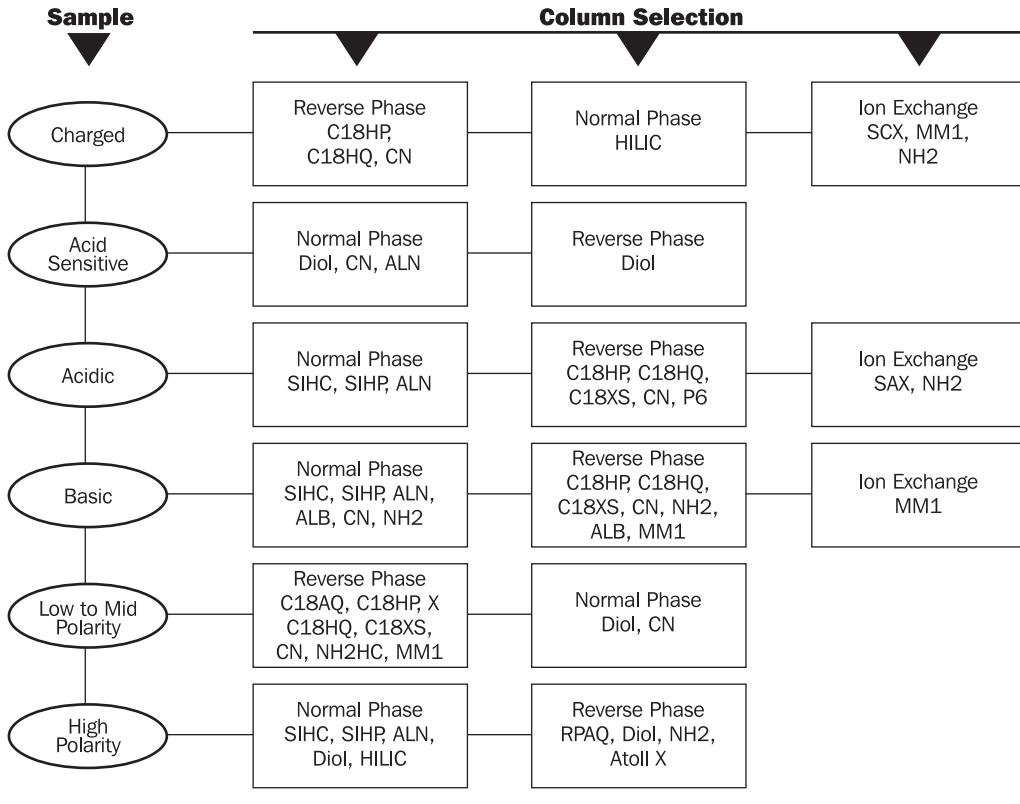
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For more pricing options, go to [www.interchiminc.com](http://www.interchiminc.com)

## Column Selection Chart



### **FLASH COLUMN, SAMPLE LOADING CAPACITY**

Sample loading is dependent on the complexity of the sample, the mode of chromatography and the column sorbent. The charts below indicate the sample loading by sorbent type with difficult samples (0.1% loading) and maximum loading with less complex samples. The maximum loading varies by sorbent type with silica and alumina from 10 to 20%, bonded silica at 5% and Polymers at up to 25%. For detailed information on sorbents refer to pages 10-12 & page 20.

<b>Silica and Alumina: Normal Phase</b>				<b>Bonded Silica: Normal &amp; Reverse Phase, HILIC and Ion Exchange</b>			<b>Polymers: Reverse Phase</b>		
<b>SORBENT</b>	<b>Si HP, IR</b>	<b>Si, ALN,</b>	<b>ALB</b>	<b>SORBENT</b>			<b>Atoll X, P6</b>	<b>SORBENT</b>	
	<b>Si HC</b>			<b>C18, C18AQ, C18HP</b>	<b>C18HQ, C18T, C18XS, C4</b>	<b>C8, CN, Diol, HIA, MM1, NH2, SAX, SCX</b>	<b>Column Size</b>	<b>0.1% Load</b>	<b>25% Load</b>
<b>Column Size</b>	<b>0.1% Load</b>	<b>10% Load</b>	<b>20% Load</b>	<b>Column Size</b>	<b>0.1% Load</b>	<b>5% Load</b>	<b>Column Size</b>	<b>0.1% Load</b>	<b>25% Load</b>
4 g	4 mg	0.4 g	0.8 g	6 g	6 mg	0.3 g	6 g	2 mg	2 g
12 g	12 mg	1.2 g	2.4 g	20 g	20 mg	1 g	20 g	7 mg	7 g
25 g	25 mg	2.5 g	5 g	35 g	35 mg	1.8 g	35 g	10 mg	10 g
40 g	40 mg	4 g	8 g	55 g	55 mg	2.8 g	55 g	18 mg	18 g
80 g	80 mg	8 g	16 g	120 g	120 mg	6 g	120 g	40 mg	40 g
120 g	120 mg	12 g	24 g	175 g	175 mg	8.8 g	175 g	55 mg	55 g
200 g	200 mg	20 g	40 g	300 g	300 mg	15 g	300 g	100 mg	100 g
300 g	300 mg	30 g	60 g	450 g	450 mg	23 g	450 g	150 mg	150 g
800 g	800 mg	80 g	160 g	1250 g	1250 mg	63 g	1250 g	400 mg	400 g
1600 g	1600 mg	160 g	320 g	2500 g	2500 mg	125 g	2500 g	800 mg	800 g

## PuriFlash Column Specifications

Column Type	Sorbent Weight	ID (mm)	Length (mm)	Column Volume (ml)	Empty Volume (ml)	Max Pressure	Typical Flow Range
0004	4g Si, 6g Bonded	12	62	5	7	22 bar/ 320 PSI	5-20 ml/min
0012	12g Si, 20g Bonded	21	78	19	27	22 bar/ 320 PSI	15-50 ml/min
0025	25g Si, 35g Bonded	21	130	32	45	22 bar/ 320 PSI	15-50 ml/min
0040	40g Si, 55g Bonded	27	130	48	75	20 bar/ 290 PSI	20-70 ml/min
0080	80g Si, 120g Bonded	31	193	102	145	20 bar/ 290 PSI	30-100 ml/min
0120	120g Si, 175g Bonded	36	212	153	215	20 bar/ 290 PSI	40-150 ml/min
0200	200g Si, 300g Bonded	60	133	269	375	20 bar/ 290 PSI	80-300 ml/min
0300	300g Si, 450g Bonded	60	205	405	575	20 bar/ 290 PSI	80-300 ml/min
0800	800g Si, 1250g Bonded	78	323	1078	1540	7 bar/ 100 PSI	150-300 ml/min
1600	1600g Si, 2500g Bonded	104	365	2170	3100	7 bar/ 100 PSI	200-500 ml/min

## PuriFlash Columns: General Guidelines, Cleaning & Storage

Before initial use, store at room temperature away from direct sunlight. Once the column has been activated, never dry it. When cleaning the column, backflush/reverse flow improves removal of impurities at the column inlet.

**Normal Phase:** In normal-phase chromatography, the stationary phase is polar and the mobile phase is less polar. The more polar the solvent, the greater the elution strength. To determine optimum conditions, please refer to TLC Optimization on pages 8 & 9.

**Reverse Phase:** In reverse-phase chromatography, the stationary phase is non-polar or weakly polar and the mobile phase is more polar. A less polar solvent has higher elution strength. Combinations of water with either methanol or acetonitrile are most often used for gradient elution. Compared to normal phase, reverse phase provides higher efficiency and improved selectivity but lower sample loading capacity.

**HILIC:** Highly polar compounds are well retained and elute in order of increasing hydrophobicity, the inverse of reverse phase. Think of it as aqueous normal phase using water and acetonitrile (>70%).

Phase	Equilibration/Activation	Cleaning Between Runs	Long Term Storage
Atoll X, C18, C18HC, C18HP, C18HQ, C18RP, C18XS, C18T, C4, C8, PHC4	Rinse with 4 column volumes of 1:1 MeOH : H2O. A minimum of 5% organic is required to maintain bonded phase activity.	Rinse with 4 column volumes of strong organic solvent (100% acetonitrile, methanol, etc.).	After cleaning procedure, Rinse with 7 column volumes of 50% MeOH or Acetonitrile and 50% water or 100% isopropanol.
C18AQ, RPAQ	Rinse with 4 column volumes of 1:1 MeOH : H2O. Equilibrate for 3-4 column volumes up to 100% water. Organic solvent is not required to maintain activity.	Rinse with 4 column volumes of organic solvent (100% acetonitrile, methanol, etc.).	After cleaning procedure, Rinse with 7 column volumes of 50% MeOH or Acetonitrile and 50% water or 100% isopropanol.
CN Diol NH2	Normal Phase: Rinse with 4 column volumes of Heptane. Reverse Phase: Rinse with 4 column volumes of 1:1 MeOH : H2O. A minimum of 5% organic is required to maintain bonded phase activity.	Rinse with 4 column volumes of strong organic solvent (100% acetonitrile, methanol, etc.).	After cleaning procedure, Rinse with 6-8 column volumes of 50% EtOH or isopropanol and 50% water or 100% isopropanol. <b>DO NOT STORE IN HEPTANE OR HEXANE.</b>
Hilic HIA, HIT	Rinse with 4 column volumes of 7:3 Acetonitrile : H2O.	Rinse with 4 column volumes of organic solvent (acetonitrile or methanol).	After cleaning procedure, store in acetonitrile. Do not store in ethanol, methanol, acetone or isopropanol.
P6	Rinse with 4 column volumes of starting eluent.	Rinse with 4 column volumes of organic solvent (acetonitrile or methanol).	After cleaning procedure, rinse with 4 column volumes of isopropanol. Do not store in dichloromethane or DMF.

**Ion Exchange:** In ion exchange chromatography, the stationary phase is bonded with ionic functional groups that retain the solute ions of opposite charge. Includes: SCX, SAX, MM1, NH2HC, NH2, DEAP

**To Retain:** Anion Exchange — pKa of the target compound < pH < pKa of the sorbent

Cation Exchange — pKa of the sorbent < pH < pKa of the target compound

**To Elute:** Anion Exchange — pKa of the sorbent < pH < pKa of the target compound

Cation Exchange — pKa of the target compound < pH < pKa of the sorbent

Phase	Equilibration/Activation	Cleaning Between Runs	Long Term Storage
SCX MM1	Rinse with 7 column volumes of 1:1 MeOH : H2O.	Rinse with 7 column volumes of organic solvent (acetonitrile, methanol etc.).	After cleaning procedure, Rinse with 9 column volumes of 1M acetic acid in MeOH. Store in 1:1 EtOH:H2O + 0.5% sodium azide or isopropanol + 0.5% sodium azide.
SAX	Rinse with 6-8 column volumes of 1:1 MeOH : H2O.	Rinse with 7 column volumes of strong organic solvent (100% acetonitrile, methanol etc.).	After cleaning procedure, Rinse with 9 column volumes of 5% NH4OH in MeOH. Store in 1:1 EtOH:H2O + 0.5% sodium azide or isopropanol + 0.5% sodium azide.

## Prep HPLC Columns: Cleaning & Storage

Sample precipitation is the leading cause of Prep HPLC column pressure build-up and is easily prevented by using a pre-column filter. Regular back-flushing of the column will remove adsorbed sample using a number of strong organic solvents. When cleaning, increased temperature will also improve solubility and removal of adsorbed sample. For overnight storage the mobile phase is suitable. For more than two days, remove buffer and increase organic to at least 50% For long term storage follow the guidelines below.

Phase	Cleaning	Storage
C18, C18-3, C18-AQ, C18-HQ, C18-OD2, C18-RP, C18-WOD, C4, C4-WC4, C4-WD4, C4-WT4, C8, Phenyl-C4	Rinse with 3 column volumes a) mobile phase/ 1:1 water:organic b) Methanol c) Acetonitrile d) Acetonitrile:IPA (75:25) e) IPA f) Dichloro- methane g) Hexane h) IPA. i) mobile phase without buffer j) mobile phase with buffer.	After cleaning procedure through step h, flush with 3 column volumes of acetonitrile.
CN, Diol, NH2	Rinse with 3 column volumes a) mobile phase/ 1:1 water:organic b) Methanol c) Acetonitrile d) Acetonitrile:IPA (75:25) e) IPA f) Dichloro- methane g) Hexane h) IPA. i) mobile phase without buffer j) mobile phase with buffer.	After cleaning procedure through step h, store in IPA.
Hilic HIA, HIT	Rinse with 3 column volumes a) mobile phase/ 1:1 water:organic b) Methanol c) Acetonitrile d) Acetonitrile:IPA (75:25) e) IPA f) Dichloro- methane g) Hexane h) IPA. i) mobile phase without buffer j) mobile phase with buffer.	After cleaning procedure through step h, flush with 3 column volumes of acetonitrile. Do not store in ethanol, methanol, acetone or isopropanol.

## PuriFlash Pre-Column Filter

Pre-column filters are an inexpensive alternative to guard columns and protect the prep column from the most common cause of reduced lifetime: sample precipitation.

Part number	Description	Unit	Price
CE4600	Prep Pre-column / Inline Filter Holder (includes 2 $\mu$ Filter)	EA	\$360
CE4620	Prep Pre-column / Inline Filter, 2.0 $\mu$ Stainless Steel Filter	EA	\$21
CE4630FC	Prep Pre-column / Inline Filter, O-Rings, Fluorocarbon	EA	\$22



## TLC to Flash Optimization

TLC is used to determine optimum solvent compositions for flash chromatography. Since flow cannot be controlled, retention is measured in distance rather than time or column volume. The Retention Factor,  $R_f$ , is defined as the distance traveled and  $\Delta R_f$  is the distance between the compounds. A suitable solvent system is one that moves the compound to an  $R_f$  of 0.1 - 0.3 and will separate the compound from others by a  $\Delta R_f$  of at least 0.1. Unlike TLC, Flash chromatography is governed by column volumes (CV). CV is the number of column volumes required to elute the compound from the column.  $\Delta CV$  is the number of column volumes between the compounds. A suitable flash solvent systems is one which elutes the compound in 3-6 CV and will separate compounds by a  $\Delta CV$  greater than 1.

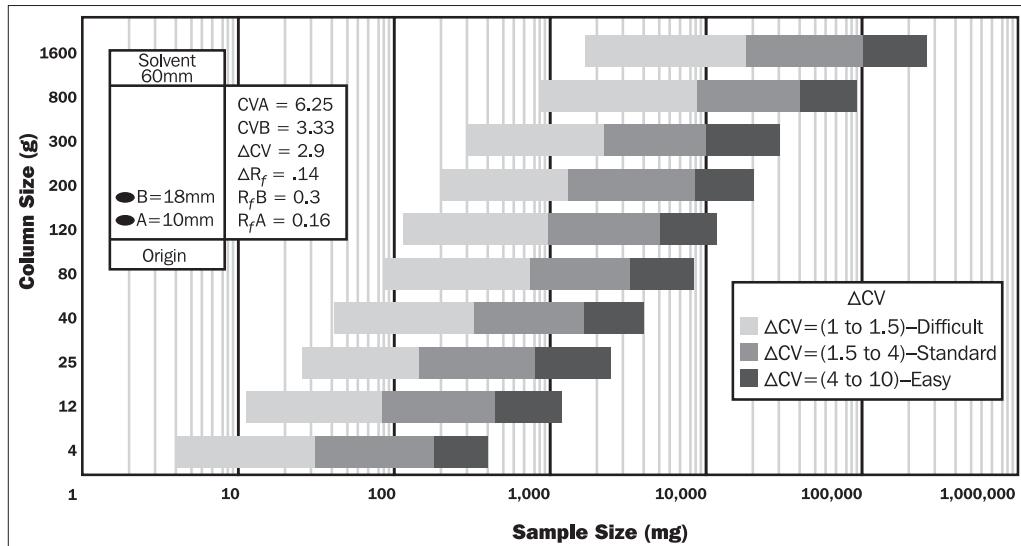
The loading chart below provides guidelines based on sample load and  $\Delta CV$  to determine the appropriate sized column. The chart is based on using 50 $\mu$  HC silica columns under normal phase conditions. Expect 2-3 times higher loading with 25 $\mu$  and 15 $\mu$  silica.

$$R_f = \frac{\text{Distance travelled by the compound}}{\text{Distance travelled by the solvent front}}$$

$$\Delta R_f = R_{fB} - R_{fA}$$

$$CV = \frac{1}{R_f}$$

$$\Delta CV = R_{fA} - R_{fB}$$



Interchim provides a wide variety of high performance TLC plates to match the column offering. To transpose a TLC run to a Flash run, the same type of silica/sorbent should be used for both techniques.

Puriflash Columns	Part No.	TLC Plate	Unit	Price
SIHP, SIHC	PFT-1000	Silica Gel, 2.5 x 7.5cm	100/PK	\$185
C18HP, C18HC, C18HQ, RPAQ, PP-C18T, PT-C18T	PFT-1001	C18, 2.5 x 7.5cm	50/PK	\$775
PP-C8, PT-C8	PFT-15684-1	C8, acid stable, 5 x 10cm	25/PK	\$435
ALN (Alumina neutral)	PFT-1002	Alumina, 2.5 x 7.5cm	100/PK	\$295
CN	PFT-1003	CN (Cyan), 2.5 x 7.5cm	50/PK	\$775
Diol	PFT-1004	Diol, 2.5 x 7.5cm	50/PK	\$775
NH2	PFT-1005	NH2 (Amino), 2.5 x 7.5cm	50/PK	\$775
C18XS	PFT-15683-3	C18, acid stable, 5 x 20cm	50/PK	\$616
	PFT-GC-05	Spotting Capillary, 0.5ul, 32mm	100/PK	\$75

Part Number	TLC Plates	Particle Size	Layer Thickness	Surface Area
PFT-1000	Silica Gel, 2.5 x 7.5cm	5-17 $\mu$	250 $\mu$	500m <sup>2</sup> /g
PFT-1001	C18, 2.5 x 7.5cm	5-17 $\mu$	250 $\mu$	500m <sup>2</sup> /g
PFT-15684-1	C8, acid stable, 5 x 10cm	10-12 $\mu$	230 $\mu$	520m <sup>2</sup> /g
PFT-1002	Alumina, 2.5 x 7.5cm		250 $\mu$	200m <sup>2</sup> /g
PFT-1003	CN (Cyan), 2.5 x 7.5cm	2-10 $\mu$	200 $\mu$	500m <sup>2</sup> /g
PFT-1004	Diol, 2.5 x 7.5cm	2-10 $\mu$	200 $\mu$	500m <sup>2</sup> /g
PFT-1005	NH2 (Amino), 2.5 x 7.5cm	2-10 $\mu$	200 $\mu$	500m <sup>2</sup> /g
PFT-15683-3	C18, acid stable, 5 x 20cm	10-12 $\mu$	230 $\mu$	520m <sup>2</sup> /g

## TLC Optimization

Prior to running a sample on a flash instrument/column it is important to determine the optimum solubility, selectivity and resolution by TLC. The following solvent systems provide a wide range of selectivities and are a useful screening tool. Valuable information is obtained by running the sample in several mobile phases and will improve the odds of obtaining purity using Flash. It is also useful to create a weak and strong polarity for each of the mobile phases to obtain additional data points.

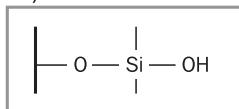
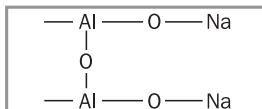
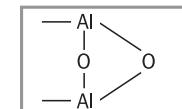
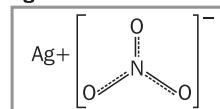
The TLC plate which best correlates to puriFlash HC & HP silica columns is part PFT-1000. For additional information, refer to page 8.

Solvent	Compound	TLC Conditions	Comments
EtOAc:Hexanes	Lipophilic molecules without ionizable groups	Start at 1:1 and adjust until Rf of target is 0.2 - 0.3	Mixture applied to flash column should be soluble or partially soluble in the mobile phase. Adding DCM will aid solubility but reduce retention.
DCM:MeOH	Lipophilic molecules without ionizable groups	If above conditions do not move target at 100% EtOAc, add MeOH to DCM at 1% up to 15%	If you have an ester functional group in your product, transesterification is possible. This happens when the product ester is exchanged with the solvent alcohol used in the mobile phase—if you have an ethyl ester in your product and you use MeOH in the mobile phase you may end up with a small amount of methyl ester in your product. Silica can be acidic and will promote this type of reaction.
DCM:MeOH + NH3	Molecules with basic amine functionality	90:10 DCM:MeOH and adjust MeOH until Rf of target is 0.2 - 0.3.	It is common for streaking to occur with basic amines. To reduce streaking/band broadening add an amine modifier (a few drops of NH3 or a solution of NH3 in MeOH). Adding an amine modifier can improve compound recovery from the column.
DCM:Hexanes: MeOH + NH3	Molecules with basic amine functionality	90:10 DCM:MeOH and adjust Hexanes until Rf of target is 0.2 - 0.3	If you need to use DCM:MeOH but it is still too polar you can add hexanes (or replace the DCM with hexanes). This will improve the Rf without changing the nature of the column and retain the solubilizing power of the mobile phase.
Diethyl ether: Hexanes or THF	Non-polar molecules	Start at 1:1 and adjust until Rf of target is 0.2 - 0.3	Use methyl tetrahydrofuran instead of THF which does not readily form peroxides.

## PuriFlash Column Selection Guide

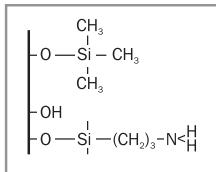
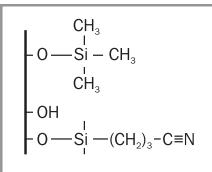
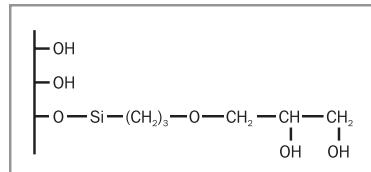
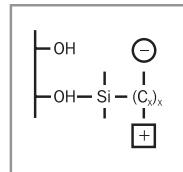
### **NORMAL PHASE: BARE SILICA, ALUMINA, DRY-LOAD AND DECOLORIZATION**

Type	Application	Loading Capacity	Base Material	pH Stability	Particle Sizes	Page
SIHC	Non-ionic polar organic compounds. Methanol stable, high loading capacity and high resolution.	20%	High Capacity Spherical Silica	1.5 - 6.5	15, 25 & 50 $\mu$	22, 24
SIHP	Non-ionic polar organic compounds. Methanol stable, high separation efficiency at high flow rates.	10%	High Performance Spherical Silica	1.5 - 6.5	15 & 30 & 50 $\mu$	23, 24
IR	Non-ionic polar organic compounds. Lower cost alternative to spherical silica.	5-10%	Irregular Shaped Silica	1.5 - 6.5	40-605 $\mu$	22
ALB	Basic compound purification. Eliminate the use of TEA (triethylamine) to avoid streaking or tailing under normal or reverse phase conditions.	10%	Granular Basic Alumina	1 - 12	45 $\mu$	25
ALN	Acid sensitive compounds that would degrade if exposed to normal phase silica.	10%	Granular Neutral Alumina	1-12	45 $\mu$	25
Dry-Load	Hand tight, no adapters, stable to 15 bar/215 PSI	NA	Silica or Celite	1.5 - 6.5	50 $\mu$	16
Carbon	Decolorization, no exposure to carbon dust	10%	Activated Carbon	1 - 14	50 $\mu$	28
AgNO <sub>3</sub>	Argentation chromatography (Electron donor-acceptor) facilitates separation of cis/trans isomers	5%	High Performance Spherical Silica	1.5 - 6.5	50 $\mu$	27

**HC, HP Silica****Alumina Basic****Alumina Neutral****AgNO<sub>3</sub>**

### **NORMAL PHASE: BONDED SILICA**

Type	Application	Loading Capacity	Base Material	pH Stability	Particle Sizes	Page
NH <sub>2</sub>	Polar amine compounds with reduced amine-silanol interaction. Suitable for carbohydrates. Eliminate the use of TEA (triethylamine) for basic compounds	5%	High Performance Spherical Silica	2 - 6.5	15, 30 & 50 $\mu$	27
HILIC	Very polar water soluble compounds; dyes, solvent systems. Reduce the use of chlorinated solvents using 100% MeOH or H <sub>2</sub> O. Reduced rota-vap time by using less water.	7%	High Performance	2.5 - 7	15 $\mu$	25
DIOL	Enhanced selectivity and higher retention for low to medium polarity compounds vs. bare silica.	6%	High Performance Spherical Silica	1.5 - 6.5	15, 30 & 50 $\mu$	26
CN	Mid-range polarity between bare silica and C18.	6%	High Performance Spherical Silica	1.5 - 7	15 & 50 $\mu$	26

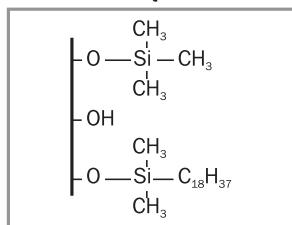
**NH<sub>2</sub> & NH<sub>2</sub> HC****CN****Diol****HILIC**

**PuriFlash Column Selection Guide**  
**REVERSE PHASE BONDED SILICA AND POLYMERS**

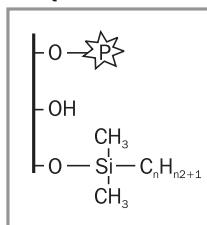
Type	Application	Loading Capacity	Base Material	pH Stability	Particle Sizes	Page
C18HP	Non polar and ionic compounds. Routine purification.	5%	High Performance Spherical Silica	1.5 - 7.0	15, 30 & 50 $\mu$	29
C18HQ	Non polar and ionic compounds. Lower cost alternative to reverse phase Prep HPLC.	5%	HPLC Prep Grade, Spherical Silica	1.5 - 8.0	15 $\mu$	29
C18AQ	Mid polar compounds. Start gradient with 100% water.	5%	High Performance Spherical Silica	2.0 - 7.5	15 & 30 $\mu$	31
C18XS	pH stable from 1.5 to 9, basic compounds	5%	High Performance Spherical Silica	1.5 - 9.0	15 & 30 $\mu$	30
RPAQ	Polar compounds. Start gradient with 100% water	5%	High Performance Spherical Silica	2.0 - 7.5	15 & 30 $\mu$	31
PHC4	Phenyl-Butyl bonded silica for balanced aromatic and hydrophobic selectivity	5%	High Performance Silica	2.0 - 7.0	15 $\mu$	30
IRC18	Non polar and ionic compounds. Lower cost alternative to spherical silica	2-5%	Irregular shaped silica	1.5 - 7.0	50 $\mu$	29
Atoll X	Atoll X is a universal polymer for mid & non polar compounds, MW <3 kDa. High capacity reverse phase.	25%	SDVB Polymer	1 - 13	40 $\mu$	30
P6	Amide functionality for aromatic and natural products; flavonoids, chalkones, anthraquinones, aromatic nitro compounds, DNP amino acids, phenols, carbonic acids, acid amides, sulphonlic acids and amides of sulphonlic acids and amines.	25%	Polyamide	1 - 8	50 $\mu$	28

**The following phases can also be used for reverse phase: CN, NH2, ALB (page 10) and MM1 (page 12)**

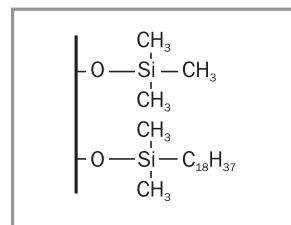
**C18HP & C18HQ**



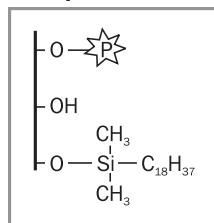
**RPAQ**



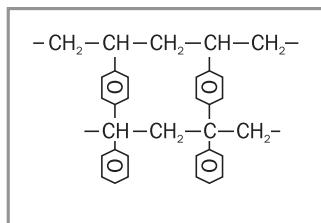
**C18XS**



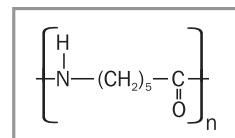
**C18AQ**



**Atoll X**



**P6**



## PuriFlash Column Selection Guide

### ION EXCHANGE BONDED SILICA

Type	Application	Loading Capacity	Base Material	pH Stability	Particle Sizes	Page
SCX	Sulfonic acid functionality which retains weak basic compounds that have one or more positive charges. Remove or isolate basic compounds.	0.3 meq/g	High Performance Spherical Silica	1 - 7.5	50μ	28
SAX	Quaternary amine functionality which remains strong ( $pK_a < 1$ ) or weak acids ( $pK_a > 2$ ).	0.3 meq/g	Granular Silica	1.5 - 7	50μ	28
MM1	Unique selectivity of basic, charged and non-polar compounds via ion exchange and hydrophobic chains (SCX/C8). Compounds that possess basic functionality are retained by ion exchange. A washing step with an appropriate pH, elutes ionizable compounds. Retained compounds from hydrophobic bonding are eluted with an organic solvent.	0.1 meq/g	Granular Silica	1.0 - 7.5	50μ	28
NH2	Weak anion exchange for strong acids.	0.3 meq/g	High Performance	2 - 6.5	30 & 50μ	27

#### **Technical Tips**

##### **1. To catch**

Anion Exchange:  $pK_a$  of the compound of interest  $< pH < pK_a$  of the sorbent

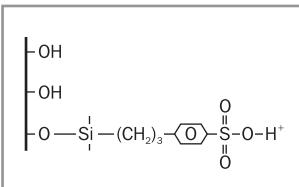
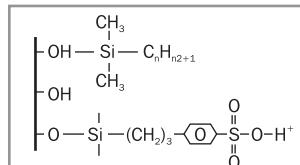
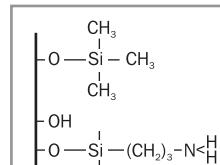
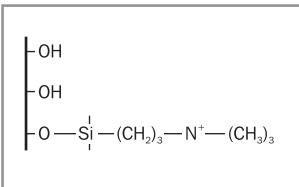
Cation Exchange:  $pK_a$  of the sorbent  $< pH < pK_a$  of the compound of interest

##### **2. To release**

Anion Exchange:  $pK_a$  of the sorbent  $< pH < pK_a$  of the compound of interest

Cation Exchange:  $pK_a$  of the compound of interest  $< pH < pK_a$  of the sorbent

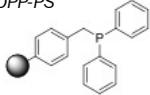
(Typical ionic sorbent: SCX, SAX, MM1, NH2)

**SCX****MM1****NH2****SAX**

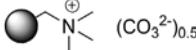
Removal of metal residues and reaction byproducts is simplified with the use of a wide range of scavengers. Significant time savings in reaction synthesis is achieved by selecting a media specifically suited to your chemistry.

### METAL SCAVENGER REFERENCE GUIDE

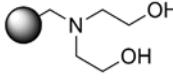
	Ag	Au	Co	Cu	Fe	Pb	Hg	Ni	Pd	Pt	Rh	Ru	Ti	Al	Sn	Zn
BDPP									✓		✓	✓				
DEAM				✓	✓		✓						✓	✓	✓	
Thiol	✓	✓		✓		✓	✓	✓	✓		✓	✓			✓	
ThU	✓	✓					✓		✓	✓	✓				✓	
TMT	✓	✓						✓	✓	✓	✓	✓			✓	
TRIS				✓	✓	✓	✓	✓	✓	✓	✓	✓				✓

Media	Description	Loading mmol/g	Particle Size	Solvents	pH Range
	Benzylidiphenylphosphine PS is the polymer equivalent of triphenyl and benzylidiphenyl phosphine which provides standard transformations including halogenation and Mitsunobu reactions.	1.4 - 1.6	75-150μ	THF DMF NMP DCM	1 - 14

10g - SR-BD-PS/10G...\$75.00 • 25g - SR-BD-PS/25G...\$175.00

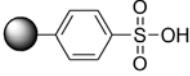
	The macroporous resin functionalized with a tetraalkylammonium carbonate end group is used for the quenching and neutralization of acidic media. It is highly effective in freebasing amines isolated from an acid buffered HPLC purification.	2.5 - 2.8	330-1225μ	THF DMF NMP DCM DCE ACN MeOH EtOH	1 - 14
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10g - SR-CA-PS/10G...\$47.00 • 25g - SR-CA-PS/25G...\$110.00

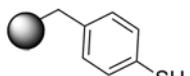
	Diethanolamine resin removes trace metal or boronic acids from reaction intermediates or final APIs. When combined with MP-Diisopropyl-ethylamine, it is effective in removing excess Lewis acid catalyst and byproducts of a variety of reactions including Sakuri and Mukaiyama Aldol.	PS 2.5 - 2.8  PSF 1.2 - 1.4	PS 330-1225μ  PSF 75-150μ	THF DMF NMP DCM DCE MeOH EtOH	1 - 14
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10g - SR-DE-PS/10G...\$60 • 25g - SR-DE-PS/25G...\$135

10g - SR-DE-PSF/10G...\$40 • 25g - SR-DE-PSF/25G...\$90

	Sulfonic acid resin is a strong anion exchanger for scavenging heterocyclic bases as well as primary, secondary and tertiary amines. It is also utilized in acid catalyzed reactions such as acetal and ketal formation. An excellent choice for 'catch and release' amine purification from a variety of reactions including reductive aminations.	4.8 - 5.2	400 - 1100μ	THF DMF Water DCE NMP DCM ACN MeOH	1 - 14
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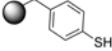
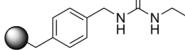
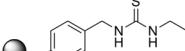
10g - SR-TS-PS/10G...\$30 • 25g - SR-TS-PS/25G...\$70

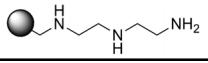
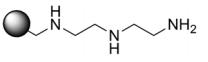
	Thiol PS is a macroporous polystyrene resin functionalized with a thiophenol end group. This scavenger is suitable for organometallic reagents with a strong affinity for Pd(II).	PS 4.8 - 5.0  PSF 2.4 - 2.5	PS 330-1225μ  PSF 75-150μ	THF DMF NMP DCM DCE MeOH EtOH	1 - 14
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10g - SR-TH-PS/10G...\$95 • 25g - SR-TH-PS/25G...\$225

10g - SR-TH-PSF/10G...\$65 • 25g - SR-TH-PSF/25G...\$155

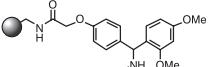
**Scavenger Media**

Media	Description	Loading mmol/g	Particle Size	Solvents	pH Range
Thiol-SI	 <p>Silica Thiol is a high surface area silica bonded with alkyl thiol. This versatile scavenger is suitable for a variety of metals including Pd, Pt, Cu, Ag and Pb. It is also useful for transition metals such as Sn, Rh, Ru, Ag and Hg. Silica Thiol is also useful for scavenging a variety of electrophiles including alkyl halides.</p>	1.0 - 1.2	35 - 75 $\mu$	THF DMF NMP DCM DCE ACN	6 - 7.5
		10g - SR-TH-SI/10G...\$44	• 25g - SR-TH-SI/25G...\$95		
ThU-PS	 <p>Thiourea PS is a macroporous polystyrene resin with a thiourea end group. It is a useful scavenger for organometallic reagents, in particular Pd(0).</p>	PS 3.4 - 3.6  PSF 1.7 - 1.8	PS 330-1225 $\mu$  PSF 75-150 $\mu$	THF DMF NMP DCM DCE MeOH	1 - 14
		10g - SR-TU-PS/10G...\$100	• 25g - SR-TU-PS/25G...\$230		
		10g - SR-TU-PSF/10G...\$70	• 25g - SR-TU-PSF/25G...\$160		
ThU-Si	 <p>Thiourea bonded silica is a useful scavenger for organometallic reagents, in particular Pd(0). It can also be used to scavenge Pt, Ru, V, Ag and Hg.</p>	0.7 - 0.9	35 - 75 $\mu$	THF DMF NMP DCM DCE ACN	6 - 7.5
		10g - SR-TU-SI/10G...\$50	• 25g - SR-TU-SI/25G...\$100		
TEA-PS	 <p>Triethylamine PS is useful for sequestering acidic residues allowing for one-pot synthesis of amides and sulfonamides from acyl/sulfonyl halides. Simple filtration provides the desired products, while acids and unreacted starting materials remain bound to the polymer. TEA liberates amines from their salts including salicylate, formate and acetate. It is also effective in removing aliphatic and aromatic carboxylic acid impurities.</p>	3.4 - 3.6	330-1225 $\mu$	THF DMF NMP DCM DCE	1 - 14
		10g - SR-TE-PS/10G...\$45	• 25g - SR-TE-PS/25G...\$105		
TMT-PS	 <p>Trimercaptotriazine PS is an exceptional scavenger of organometallic reagents. The macroporous polymer backbone allows for its use in all solvents. TMT is also extremely efficient in its ability to scavenge copper.</p>	PS 3.0 - 3.4  PSF 1.7 - 1.8	PS 330-1225 $\mu$  PSF 75-150 $\mu$	THF DMF NMP DCM DCE MeOH EtOH	1 - 14
		10g - SR-TM-PS/10G...\$105	• 25g - SR-TM-PS/25G...\$245		
		10g - SR-TM-PSF/10G...\$75	• 25g - SR-TM-PSF/25G...\$175		
TMT-SI	 <p>Trimercaptotriazine silica is an exceptional scavenger of organometallic reagents. The high surface area silica allows for its use in all solvents with the exception of the protic variety.</p>	0.3 - 0.35	35 - 75 $\mu$	THF DMF NMP DCM DCE ACN	6 - 7.5
		10g - SR-TM-SI/10G...\$50	• 25g - SR-TM-SI/25G...\$110		

Media	Description	Loading mmol/g	Particle Size	Solvents	pH Range
TRIS-PS	 Trisamine PS resin is a highly proficient scavenger of a variety of electrophilic species. TRIS is capable of scavenging acids from sulfonylations and acylations. It is also proficient in scavenging the excess acid and sulfonyl halides as well as isocyanates.	PS 4.0 - 4.3  PSF 2.0 - 2.1	PS 330-1225μ  PSF 75-150μ	THF DMF NMP DCM DCE MeOH EtOH	1 - 14
TRIS-SI	 Trisamine bonded silica is a highly proficient scavenger of a variety of electrophilic species. TRIS is capable of scavenging acids from sulfonylations and acylations. It is also proficient in scavenging the excess acid and sulfonyl halides as well as isocyanates.	1.0 - 1.2	35 - 75μ	THF DMF NMP DCM DCE ACN	6 - 7.5

**10g - SR-TR-PS/10G...\$60 • 25g - SR-TR-PS/25G...\$130**  
**10g - SR-TR-PSF/10G...\$40 • 25g - SR-TR-PSF/25G...\$90**  
**10g - SR-TR-SI/10G...\$35 • 25g - SR-TR-SI/25G...\$80**

## Peptide Synthesis

Media	Description	Loading mmol/g	Particle Size	Solvents	pH Range
Aminomethyl-PS	 Aminomethyl resin is a polystyrene support for solid phase synthesis of peptides and amides. Its primary functions as a handle for attaching carboxylic acid linkers.	0.9 - 1.0	75-150μ	THF DMF NMP DCM DCE	1-14
Merrifield-PS	 Merrifield polystyrene chloromethyl functional resin is used for direct immobilization of carboxylic acids including N-protected amino acids.	1.0 - 1.2	75-150μ	THF DMF DMA DCE DCM ACN	1-14
RINK Amide-PS	 Rink Amide polystyrene resin is the preferred support for solid phase synthesis of peptide amides using Fmoc chemistry. After removing the Fmoc group the resin-bound amino group can be acylated. Utilizing Fmoc-protected amino acids the peptide sequence is assembled under basic or neutral conditions. The assembled peptide is cleaved using acidic conditions.	0.6 - 0.7	75-150μ	THF DMF NMP DCM DCE	1-14

**10g - SR-RK-PS/10G...\$80 • 25g - SR-RK-PS/25G...\$185**  
**10g - SR-WG-PS/10G...\$45 • 25g - SR-WG-PS/25G...\$100**

Kit	Contents	Loading mmol/g	Unit	Particle Size	Part Number	Price
<b>Metal Scavenger, SI</b> Silica Particles	Thiol Thiourea Trimercaptotriazine Trisamine	1.0 - 1.2 0.7 - 0.9 0.3 - 0.35 1.0 - 1.2	5g 5g 5g 5g	35 - 75μ 35 - 75μ 35 - 75μ 35 - 75μ	SR-KMSI/5g	\$85
<b>Metal Scavenger, PS</b> Polystyrene Resin	Thiol Thiourea Trimercaptotriazine Trisamine Diethanolamine	4.8 - 5.0 3.4 - 3.6 3.0 - 3.4 4.0 - 4.3 2.5 - 2.8	5g 5g 5g 5g 5g	330 - 1225μ 330 - 1225μ 330 - 1225μ 330 - 1225μ 330 - 1225μ	SR-KMPS/5g	\$160
<b>Metal Scavenger, PSF</b> Fine Polystyrene Resin	Thiol Thiourea Trimercaptotriazine Trisamine Diethanolamine	2.4 - 2.5 1.7 - 1.8 1.7 - 1.8 2.0 - 2.1 1.2 - 1.4	5g 5g 5g 5g 5g	75 - 150μ 75 - 150μ 75 - 150μ 75 - 150μ 75 - 150μ	SR-KMPSF/5g	\$110

## PuriFlash Dry Load Columns

### **EMPTY OR PARTIALLY FILLED WITH SILICA OR CELITE**

- Self-contained, no adapters or special fittings
- Hand tight to 15 bar / 215 PSI
- Compatible with all Flash systems

Based on a proven design, the PuriFlash Dry Load columns are simple to load and the luer fittings provide a universal fit for all Flash systems.

The empty PuriFlash Dry Load columns allow you to add your own silica or celite. The HC Series is supplied with high capacity silica for maximum adsorption. The Celite Series is supplied with cellulose and recommended for non-adsorptive loading.



<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-DLE/4G	PuriFlash Dry Load Column, Empty, 7ml, 12 x 65mm (F08880)	\$80	20/PK
PF-DLE/12G	PuriFlash Dry Load Column, Empty, 30ml, 21 x 80mm (F08890)	\$105	20/PK
PF-DLE/25G	PuriFlash Dry Load Column, Empty, 45ml, 21 x 130mm (F08900)	\$135	20/PK
PF-DLE/40G	PuriFlash Dry Load Column, Empty, 75ml, 27 x 130mm (FL9521)	\$165	20/PK
PF-DLE/80G	PuriFlash Dry Load Column, Empty, 145ml, 31 x 193mm	\$95	5/PK
PF-DLE/120G	PuriFlash Dry Load Column, Empty, 215ml, 36 x 212mm	\$100	5/PK
PF-DLE/200G	PuriFlash Dry Load Column, Empty, 375ml, 60 x 133mm	\$125	5/PK
PF-DLE/300G	PuriFlash Dry Load Column, Empty, 575ml, 60 x 205mm	\$185	5/PK
PF-DLE/KA	PuriFlash Dry Load Column, Empty, 2 Each: 4g, 12g, 25g, 40g	\$35	KIT
PF-DLSIHCO8/4G	PuriFlash Dry Load Column, HC Silica, 3g, 7ml, 12 x 65mm	\$95	20/PK
PF-DLSIHCO8/12G	PuriFlash Dry Load Column, HC Silica, 11g, 30ml, 21 x 80mm	\$140	20/PK
PF-DLSIHCO8/25G	PuriFlash Dry Load Column, HC Silica, 20g, 45ml, 21 x 130mm	\$157	20/PK
PF-DLSIHCO8/40G	PuriFlash Dry Load Column, HC Silica, 32g, 75ml, 27 x 130mm	\$189	20/PK
PF-DLSIHCO8/K	PuriFlash Dry Load Column Kit, HC Silica, 4 each: 3g, 11g, 20g, 32g	\$125	KIT
PF-DLCET08/12G	PuriFlash Dry Load Column, Celite, 5g, 30ml, 21 x 80mm	\$140	20/PK
PF-DLCET08/25G	PuriFlash Dry Load Column, Celite, 10g, 45ml, 21 x 130mm	\$180	20/PK
PF-DLCET08/40G	PuriFlash Dry Load Column, Celite, 15g, 75ml, 27 x 130mm	\$210	20/PK
PF-CLDET08/4G	PuriFlash Dry Load Column, Celite, 2g, 7ml, 12 x 65mm	\$95	20/PK
PF-DLP/4G	Top Frit Plunger for 12mm ID columns	\$10	EA
PF-DLP/25G	Top Frit Plunger for 21mm ID columns (12 & 25g)	\$10	EA
PF-DLP/40G	Top Frit Plunger for 27mm ID columns	\$10	EA
PF-DLP/80G	Top Frit Plunger for 31mm ID columns	\$20	EA
PF-DLP/120G	Top Frit Plunger for 36mm ID columns	\$25	EA
PF-DLP/200G	Top frit Plunger for 60mm ID columns (200 & 300g)	\$30	EA
FQ5191	Frits for PuriFlash Dry Load Column, 4g	\$44	20/PK
FQ5461	Frits for PuriFlash Dry Load Column, 12g	\$84	20/PK
FQ5471	Frits for PuriFlash Dry Load Column, 25g	\$84	20/PK
FQ5921	Frits for PuriFlash Dry Load Column, 40g	\$106	20/PK
J00261	Frits for PuriFlash Dry Load Column, 80g	\$71	10/PK
J00271	Frits for PuriFlash Dry Load Column, 120g	\$106	10/PK
J00281	Frits for PuriFlash Dry Load Column, 200g	\$100	5/PK
J00291	Frits for PuriFlash Dry Load Column, 300g	\$100	5/PK



PuriFlash FM series of columns allows you to easily pack your own flash columns with any media. Many of our silicas and polymers are listed in bulk throughout the column guide. For other media, please call Interchim at 800.560.8262 or email: info@interchiminc.com

The solvent-resistant polypropylene cartridges are available in 15, 25, 70 and 150ml volumes.

The plunger compensates for any bed height so it is well suited to preparing a dry load column.

Cartridges are rated at 7 bar/100 PSI and easily connect to any Flash system with luer fittings.

<b>Cartridge Frit Configuration</b>	<b>15mL</b>	<b>25mL</b>	<b>70mL</b>	<b>150mL</b>
<b>Part number</b>	<b>Description</b>		<b>Price</b>	<b>Unit</b>
541440	FM 15ml Empty Column	1/8"	\$45	100/PK
541450	FM 25ml Empty Column	1/8"	\$95	100/PK
823370	FM 70ml Empty Column	1/16"	\$155	50/PK
S28581	FM 150ml Empty Column		\$300	25/PK
DC0010	FM 15ml Plunger		\$815	EA
DC0020	FM 25ml Plunger		\$835	EA
DC0030	FM 70ml Plunger		\$805	EA
DC0040	FM 150ml Plunger		\$1140	EA
DC4510	FM 15ml Plunger Seal		\$195	EA
DC4520	FM 25ml Plunger Seal		\$255	EA
DC4530	FM 70ml Plunger Seal		\$385	EA
DC4540	FM 150ml Plunger Seal		\$445	EA
823280	FM 15ml Frits 1/16" 20μ PE		\$60	100/PK
885460	FM 25ml Frits 1/16" 20μ PE		\$45	100/PK
823380	FM 70ml Frits 1/16" 20μ PE		\$57	50/PK
S08600	FM 15ml Frits 1/8" 20μ PE		\$145	100/PK
S08610	FM 25ml Frits 1/8" 20μ PE		\$225	100/PK
S08620	FM 70ml Frits 1/8" 20μ PE		\$140	50/PK
S28600	FM 150ml Frits 1/8" 20μ PE		\$345	50/PK

## BioWorks Media for Biopurification

WorkBeads™ media is produced from agarose using a cross-linking method that results in a highly porous and physically stable stationary phase. Agarose based media has been successfully used for decades in biotechnology research and in industrial purification of proteins, DNA, carbohydrates etc. There is minimal non-specific interaction due to the hydrophilic nature of agarose. Unlike media made from synthetic polymers, agarose does not have micro pores that can contribute to local pH variations in the column which results in poor peak shape. Detailed instructions are available at [www.interchiminc.com](http://www.interchiminc.com).

- Chemically Stable for Cleaning in Place
- Physically Stable for easy column packing
- Available in prepacked 1ml and 5ml columns

Type	Separation Mechanism	Separation Range	Exclusion Limit	pH Stability	Agarose Content	Particle Size	Max Flow rate cm/hr
WorkBeads 40/100 SEC	Size exclusion or Gel Filtration	10 - 150 kD	150 kD	1 - 14	9%	45μ	600
WorkBeads 40 SEC	Size exclusion or Gel Filtration	50 - 1,200 kD	1200 kD	1 - 14	7%	45μ	600
WorkBeads 40/10000 SEC	Size exclusion or Gel Filtration	1000 - 10,000 kD	10,000	1 - 14	5%	45μ	600

Type	Separation Mechanism	Ionic Group	Ionic Capacity mmol/ml	pH Stability	Agarose Content	Protein Capacity	Particle Size	Max Flow rate cm/hr
WorkBeads 40 DEAE	Weak anion exchange	Di-ethylaminoethyl	0.11 - 0.16	1 - 14	7%	85mg/mL, BSA	45μ	600
WorkBeads 40 Q	Strong anion exchange	Quaternary Amine	0.18 - 0.25	1 - 14	7%	130mg/mL, BSA	45μ	600
WorkBeads 40 S	Strong cation exchange	Sulphonic Acid	0.18 - 0.25	1 - 14	7%	70 mg/mL, IgG	45μ	600

Type	Separation Mechanism	Ionic Group	Ionic Capacity	pH Stability	Agarose Content	Protein Capacity	Particle Size	Max Flow rate cm/hr
WorkBeads 40 Ni	Metal affinity for His-tagged proteins	Ni <sup>2+</sup>	50-60 μmol Ni/ml	1 - 14	7%	<60 mg/ml	45μ	600
BabyBio Ni-NTA	Metal affinity for His-tagged proteins	Ni <sup>2+</sup> - NTA	>15 μmol Ni/ml	1 - 14		<70 mg/ml		
WorkBeads 40 IDA	Suitable for coupling ligands containing Sulphydryl-, Amino- or Hydroxyl groups in aqueous solution and neutral pH.	Iminodiacetic acid	50-60 μmol/ml	1 - 14	7%		45μ	600
WorkBeads 40 Tren		Tris(2-ethylaminoethyl) amine	50-60 μmol/ml	1 - 14	7%		45μ	600

Type	Activated media for custom ligand coupling	Activated Group	Degree of Substitution	Agarose Content	Particle Size	Max Flow rate cm/hr
WorkBeads 40 ACT	Coupling of peptides and proteins	Bromide	~ 250 μmol/ml	7%	45μ	600
WorkBeads 40/10 000 ACT	Coupling of large proteins	Bromide	~ 150 μmol/ml	5%	45μ	600

Type	Separation Mechanism	Coupling Chemistry	Dynamic Binding Capacity	pH Stability	Max Flow rate cm/hr
BabyBio A	Affinity for mono and polyclonal antibodies	Bromohydrin	>40 mg IgG	1 - 14	500

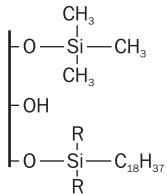
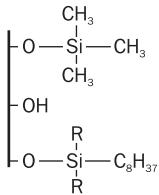
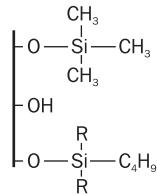
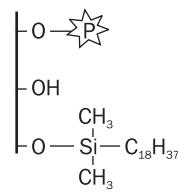
Type	Separation Mechanism	Media	pH Stability
BabyBio Dsalt	Size exclusion for desalting	Dextran	1 - 14

Part number	Description	Unit	Price
<b>SIZE EXCLUSION MEDIA</b>			
WB-SEC4-0025	WorkBeads 40 SEC	25ml	\$68
WB-SEC4-0300	WorkBeads 40 SEC	300ml	\$441
WB-SEC4-1000	WorkBeads 40 SEC	1L	\$725
WB-SEC41-0025	WorkBeads 40/100 SEC	25ml	\$76
WB-SEC41-0300	WorkBeads 40/100 SEC	300ml	\$503
WB-SEC41-1000	WorkBeads 40/100 SEC	1L	\$825
WB-SEC10K-0025	WorkBeads 40/10000 SEC	25ml	\$76
WB-SEC10K-0300	WorkBeads 40/10000 SEC	300ml	\$503
WB-SEC10K-1000	WorkBeads 40/10000 SEC	1L	\$825
<b>ION EXCHANGE MEDIA</b>			
WB-Q4-0025	WorkBeads 40 Q	25ml	\$83
WB-Q4-0200	WorkBeads 40 Q	200ml	\$263
WB-Q4-1000	WorkBeads 40 Q	1L	\$858
WB-D4-0025	WorkBeads 40 DEAE	25ml	\$71
WB-D4-0200	WorkBeads 40 DEAE	200ml	\$224
WB-D4-1000	WorkBeads 40 DEAE	1L	\$737
WB-S4-0025	WorkBeads 40 S	25ml	\$83
WB-S4-0200	WorkBeads 40 S	200ml	\$263
WB-S4-1000	WorkBeads 40 S	1L	\$858
<b>IMMOBILIZED METAL AFFINITY CHROMATOGRAPHY (IMAC)</b>			
WB-N4-0025	WorkBeads 40 Ni	25ml	\$163
WB-N4-0150	WorkBeads 40 Ni	150ml	\$877
WB-N4-1000	WorkBeads 40 Ni	1L	\$4437
WB-IH4-0025	WorkBeads 40 IDA high	25ml	\$153
WB-IH4-0150	WorkBeads 40 IDA high	150ml	\$588
WB-IH4-1000	WorkBeads 40 IDA high	1L	\$1763
WB-T4-0025	WorkBeads 40 TREN high	25ml	\$153
WB-T4-0150	WorkBeads 40 TREN high	150ml	\$588
WB-T4-1000	WorkBeads 40 TREN high	1L	\$1763
<b>ACTIVATED MEDIA</b>			
WB-A4-0050	WorkBeads 40 ACT	50ml	\$280
WB-A4-0300	WorkBeads 40 ACT	300ml	\$1061
WB-A4-1000	WorkBeads 40 ACT	1L	\$1672
WB-A41-0050	WorkBeads 40/10 000 ACT	50ml	\$325
WB-A41-0300	WorkBeads 40/10 000 ACT	300ml	\$1204
WB-A41-1000	WorkBeads 40/10 000 ACT	1L	\$1895
<b>BABYBIO DISPOSABLE PREPACKED COLUMNS</b>			
WB-BD1-1	BabyBio Dsalt Column 1ml	EA	\$29.90
WB-BD1-10	BabyBio Dsalt Column 1ml	10PK	\$264.45
WB-BD1-100	BabyBio Dsalt Column 1ml	100PK	\$2380.05
WB-BD5-1	BabyBio Dsalt Column 5ml	EA	\$45.70
WB-BD5-10	BabyBio Dsalt Column 5ml	10PK	\$343.52
WB-BD5-100	BabyBio Dsalt Column 5ml	100PK	\$3091.68
WB-BA1-1	BabyBio A Column 1ml	EA	\$98.50
WB-BA1-5	BabyBio A Column 1ml	5PK	\$427.20
WB-BA1-10	BabyBio A Column 1ml	10PK	\$811.68
WB-BA5-1	BabyBio A Column 5ml	EA	\$399.20
WB-BA5-5	BabyBio A Column 5ml	5PK	\$1777.60
WB-BA5-10	BabyBio A Column 5ml	10PK	\$3377.44
WB-BN1-1	BabyBio NiNTA Column 1ml	EA	\$36.98
WB-BN1-10	BabyBio NiNTA Column 1ml	10PK	\$264.28
WB-BN1-100	BabyBio NiNTA Column 1ml	100PK	\$2378.54
WB-BN5-1	BabyBio NiNTA Column 5ml	EA	\$118.99
WB-BN5-5	BabyBio NiNTA Column 5ml	5PK	\$464
WB-BN5-10	BabyBio NiNTA Column 5ml	10PK	\$881.60
WB-BQ1-1	BabyBio Q Column 1ml	EA	\$29
WB-BQ1-10	BabyBio Q Column 1ml	10PK	\$248
WB-BQ5-1	BabyBio Q Column 5ml	EA	\$58
WB-BQ5-10	BabyBio Q Column 5ml	10PK	\$495
WB-BS1-1	BabyBio S Column 1ml	EA	\$29
WB-BS1-10	BabyBio S Column 1ml	10PK	\$248
WB-BS5-1	BabyBio S Column 5ml	EA	\$58
WB-BS5-10	BabyBio S Column 5ml	10PK	\$495
WB-BDE1-1	BabyBio DEAE Column 1ml	EA	\$29
WB-BDE1-10	BabyBio DEAE Column 1ml	10PK	\$248
WB-BDE5-1	BabyBio DEAE Column 5ml	EA	\$58
WB-BDE5-10	BabyBio DEAE Column 5ml	10PK	\$495

## PuriFlash Column Selection Guide

### REVERSE PHASE FOR BIOPURIFICATION

Type	Application	Loading Capacity	Base Material	pH Stability	Particle Sizes	Page
PP-C18T	Moderately hydrophobic peptides & oligopeptides. <40 kDa	2%	300Å Spherical Silica	1.5 - 8	15 & 30μ	33
PT-C18T	Weak hydrophobic peptides/oligopeptides. <50 kDa	2%	200Å Spherical Silica	1.5 - 8	15μ	32
PT-C18AQ	Mid-polar BioDrugs & Peptides. Stable in 100% water.	2%	200Å Spherical Silica	1.5 - 8	15μ	32
PP-C18	Weakly hydrophobic peptides & oligopeptides up to 50 kD	2%	300Å Spherical Silica	1.5 - 8	15μ	33
PT-C8	Moderately hydrophobic peptides & oligopeptides. <60 kDa	2%	200Å Spherical Silica	2 - 7	15μ	32
PP-C4	Hydrophobic proteins & polypeptides 50 - 150 kDa	2%	300Å Spherical Silica	2 - 7	15μ	33
PT-C4	Hydrophobic peptides & oligopeptides. <60 kDa	2%	200Å Spherical Silica	2 - 7	15μ	32

**PT-C18T, PP-C18T****PT-C8****PP-C4, PT-C4****PT-C18AQ**

## SureFlash Chiral Purification

Affordable chiral purification is now a reality. SureFlash columns are packed with a variety of chiral stationary phases which match those used in analytical development.

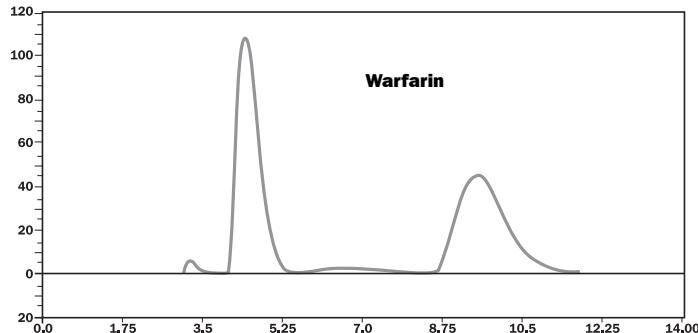
SureFlash columns are stable up to 80 bar/1160 PSI and use axial compression to compensate for voids at the inlet which may develop over time.



High Pressure  
Axial Compression  
Column Hardware

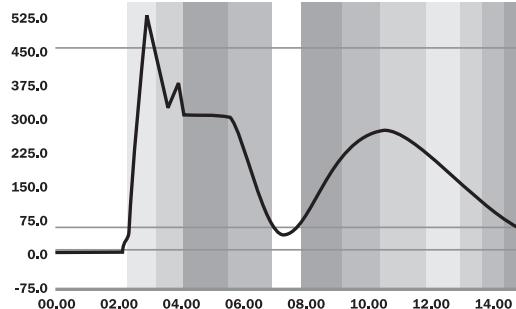
Eliminate voids  
by rotating the  
end fitting.

### Analytical



### 120mg

Column Size	Scaling Factor	Sample Load
250 x 4.6mm	1	<5 mg
250 x 10mm	5	53 mg
250 x 15mm	11	120 mg
250 x 25mm	30	333 mg
250 x 50mm	118	1333 mg



Phase	250 x 10mm 80 bar	Price	250 x 15mm 50bar	Price	250 x 25mm 50bar	Price	250 x 50mm 30bar	Price
Chiraldex AD 20 $\mu$ m	SF10101	\$2900	SF20101	\$3600	SF30101	\$5900	SF40101	Quote
Chiraldex OD 20 $\mu$ m	SF10102	\$2900	SF20102	\$3600	SF30102	\$5900	SF40102	Quote
Chiraldex IA 20 $\mu$ m	SF10103	\$3200	SF20103	\$3900	SF30103	\$6200	SF40103	Quote
Chiraldex IC 20 $\mu$ m	SF10104	\$3200	SF20104	\$3900	SF30104	\$6200	SF40104	Quote

The analytical method was scaled up from a 250 x 4.6mm to a 250 x 15mm column

100% purity was achieved on sample loads of 40mg and 120mg. The column was run on the puriFlash 430 at an average pressure of 7 bar.

Based on the scaling factors, a 250 x 50mm column would be suitable for sample loads in excess of 1 gram.

### Test Conditions

Sample: Warfarin

Chiral Phase: Chiraldex AD

Mobile Phase: 80:20 Heptane:Ethanol + 0.2% TFA

Analytical: 250 x 4.6mm, 10  $\mu$ m particle size  
11.0 ml/min, 100 PSI

Preparative: 250 x 15mm, 20  $\mu$ m particle size  
11.0 ml/min, 7 Bar / 100 PSI

**PuriFlash Normal Phase****HC: HIGH CAPACITY SILICA & IR: IRREGULAR SHAPED SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15SIHCKA	PuriFlash Column Kit, 15 $\mu$ Si HC, 4 each: 4g, 12g, 25g, 40g	\$325	KIT
PF-15SIHCKB	PuriFlash Column Kit, 15 $\mu$ Si HC, 1 each: 80g, 120g, 200g, 300g	\$625	KIT
PF-15SIHCKC	PuriFlash Column Kit, 15 $\mu$ Si HC, 2 each: 4g, 12g, 25g, 40g	\$165	KIT
PF-25SIHCKA	PuriFlash Column Kit, 25 $\mu$ Si HC, 4 each: 4g, 12g, 25g, 40g	\$195	KIT
PF-25SIHCKB	PuriFlash Column Kit, 25 $\mu$ Si HC, 2 each: 80g, 120g, 200g, 300g	\$675	KIT
PF-25SIHCKC	PuriFlash Column Kit, 25 $\mu$ Si HC, 1 each: 80g, 120g, 200g, 300g	\$350	KIT
PF-50SIHCKA	PuriFlash Column Kit, 50 $\mu$ Si HC, 4 each: 4g, 12g, 25g, 40g	\$135	KIT
PF-50SIHCKB	PuriFlash Column Kit, 50 $\mu$ Si HC, 2 each: 80g, 120g, 200g, 300g	\$395	KIT
SC-15SHC/1G	PuriFlash Column, 15 $\mu$ Si HC, 1g	\$265	50/PK
PF-15SIHC/4G	PuriFlash Column, 15 $\mu$ Si HC, 4g	\$220	20/PK
PF-15SIHC/12G	PuriFlash Column, 15 $\mu$ Si HC, 12g	\$530	20/PK
PF-15SIHC/25G	PuriFlash Column, 15 $\mu$ Si HC, 25g	\$485	12/PK
PF-15SIHC/40G	PuriFlash Column, 15 $\mu$ Si HC, 40g	\$715	12/PK
PF-15SIHC/80G	PuriFlash Column, 15 $\mu$ Si HC, 80g	\$505	4/PK
PF-15SIHC/120G	PuriFlash Column, 15 $\mu$ Si HC, 120g	\$725	4/PK
PF-15SIHC/200G	PuriFlash Column, 15 $\mu$ Si HC, 200g	\$620	2/PK
PF-15SIHC/300G	PuriFlash Column, 15 $\mu$ Si HC, 300g	\$775	2/PK
PF-15SIHC/KG	PuriFlash, 15 $\mu$ m Si HC, Bulk	\$1175	KG
PF-25SIHC/4G	PuriFlash Column, 25 $\mu$ Si HC, 4g	\$370	40/PK
PF-25SIHC/12G	PuriFlash Column, 25 $\mu$ Si HC, 12g	\$385	30/PK
PF-25SIHC/25G	PuriFlash Column, 25 $\mu$ Si HC, 25g	\$495	25/PK
PF-25SIHC/40G	PuriFlash Column, 25 $\mu$ Si HC, 40g	\$530	20/PK
PF-25SIHC/80G	PuriFlash Column, 25 $\mu$ Si HC, 80g	\$415	10/PK
PF-25SIHC/120G	PuriFlash Column, 25 $\mu$ Si HC, 120g	\$450	8/PK
PF-25SIHC/200G	PuriFlash Column, 25 $\mu$ Si HC, 200g	\$400	4/PK
PF-25SIHC/300G	PuriFlash Column, 25 $\mu$ Si HC, 300g	\$635	4/PK
PF-25SIHC/800G	PuriFlash Column, 25 $\mu$ Si HC, 800g	\$445	EA
PF-25SIHC/1600G	PuriFlash Column, 25 $\mu$ Si HC, 1600g	\$785	EA
PF-25SIHC/KG	PuriFlash, 25 $\mu$ Si HC, Bulk	\$310	KG
PF-50SIHC/4G	PuriFlash Column, 50 $\mu$ Si HC, 4g	\$275	40/PK
PF-50SIHC/12G	PuriFlash Column, 50 $\mu$ Si HC, 12g	\$305	30/PK
PF-50SIHC/25G	PuriFlash Column, 50 $\mu$ Si HC, 25g	\$320	25/PK
PF-50SIHC/40G	PuriFlash Column, 50 $\mu$ Si HC, 40g	\$320	20/PK
PF-50SIHC/80G	PuriFlash Column, 50 $\mu$ Si HC, 80g	\$335	10/PK
PF-50SIHC/120G	PuriFlash Column, 50 $\mu$ Si HC, 120g	\$370	8/PK
PF-50SIHC/200G	PuriFlash Column, 50 $\mu$ Si HC, 200g	\$310	4/PK
PF-50SIHC/300G	PuriFlash Column, 50 $\mu$ Si HC, 300g	\$425	4/PK
PF-50SIHC/800G	PuriFlash Column, 50 $\mu$ Si HC, 800g	\$260	EA
PF-50SIHC/1600G	PuriFlash Column, 50 $\mu$ Si HC, 1600g	\$530	EA
PF-50SIHC/KG	PuriFlash, 50 $\mu$ Si HC, Bulk	\$220	KG
IR-50SI/4G	PuriFlash Column, 50 $\mu$ Si ECO, 4g	\$240	40/PK
IR-50SI/12G	PuriFlash Column, 50 $\mu$ Si ECO, 12g	\$244	30/PK
IR-50SI/25G	PuriFlash Column, 50 $\mu$ Si ECO, 25g	\$275	25/PK
IR-50SI/40G	PuriFlash Column, 50 $\mu$ Si ECO, 40g	\$260	20/PK
IR-50SI/80G	PuriFlash Column, 50 $\mu$ Si ECO, 80g	\$236	10/PK
IR-50SI/120G	PuriFlash Column, 50 $\mu$ Si ECO, 120g	\$320	8/PK
IR-50SI/200G	PuriFlash Column, 50 $\mu$ Si ECO, 200g	\$190	4/PK
IR-50SI/300G	PuriFlash Column, 50 $\mu$ Si ECO, 300g	\$300	4/PK
IR-50SI/800G	PuriFlash Column, 50 $\mu$ Si ECO, 800g	\$180	EA
IR-50SI/1600G	PuriFlash Column, 50 $\mu$ Si ECO, 1600g	\$206	EA
IR-50SI/KG	PuriFlash, 50 $\mu$ Si ECO, Bulk	\$180	KG

**PuriFlash Normal Phase****HP: HIGH PERFORMANCE SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15SIHPKA	PuriFlash Column Kit, 15 $\mu$ Si HP, 4 each: 4g, 12g, 25g, 40g	\$475	KIT
PF-15SIHPKB	PuriFlash Column Kit, 15 $\mu$ Si HP, 1 each: 80g, 120g, 200g, 300g	\$985	KIT
PF-15SIHPKC	PuriFlash Column Kit, 15 $\mu$ Si HP, 2 each: 4g, 12g, 25g, 40g	\$240	KIT
PF-30SIHPKA	PuriFlash Column Kit, 30 $\mu$ Si HP, 4 each: 4g, 12g, 25g, 40g	\$195	KIT
PF-30SIHPKB	PuriFlash Column Kit, 30 $\mu$ Si HP, 2 each: 80g, 120g, 200g, 300g	\$675	KIT
PF-30SIHPKC	PuriFlash Column Kit, 30 $\mu$ Si HP, 1 each: 80g, 120g, 200g, 300g	\$340	KIT
PF-50SIHPKA	PuriFlash Column Kit, 50 $\mu$ Si HP, 4 each: 4g, 12g, 25g, 40g	\$145	KIT
PF-50SIHPKB	PuriFlash Column Kit, 50 $\mu$ Si HP, 2 each: 80g, 120g, 200g, 300g	\$460	KIT
SC-15SIHP/1G	PuriFlash Column, 15 $\mu$ Si HP, 1g	\$265	50/PK
PF-15SIHP/4G	PuriFlash Column, 15 $\mu$ Si HP, 4g	\$220	20/PK
PF-15SIHP/12G	PuriFlash Column, 15 $\mu$ Si HP, 12g	\$530	20/PK
PF-15SIHP/25G	PuriFlash Column, 15 $\mu$ Si HP, 25g	\$485	12/PK
PF-15SIHP/40G	PuriFlash Column, 15 $\mu$ Si HP, 40g	\$715	12/PK
PF-15SIHP/80G	PuriFlash Column, 15 $\mu$ Si HP, 80g	\$505	4/PK
PF-15SIHP/120G	PuriFlash Column, 15 $\mu$ Si HP, 120g	\$725	4/PK
PF-15SIHP/200G	PuriFlash Column, 15 $\mu$ Si HP, 200g	\$620	2/PK
PF-15SIHP/300G	PuriFlash Column, 15 $\mu$ Si HP, 300g	\$775	2/PK
PF-15SIHP/KG	PuriFlash, 15 $\mu$ m Si HP, Bulk	\$1175	KG
PF-30SIHP/4G	PuriFlash Column, 30 $\mu$ Si HP, 4g	\$370	40/PK
PF-30SIHP/12G	PuriFlash Column, 30 $\mu$ Si HP, 12g	\$385	30/PK
PF-30SIHP/25G	PuriFlash Column, 30 $\mu$ Si HP, 25g	\$495	25/PK
PF-30SIHP/40G	PuriFlash Column, 30 $\mu$ Si HP, 40g	\$530	20/PK
PF-30SIHP/80G	PuriFlash Column, 30 $\mu$ Si HP, 80g	\$415	10/PK
PF-30SIHP/120G	PuriFlash Column, 30 $\mu$ Si HP, 120g	\$450	8/PK
PF-30SIHP/200G	PuriFlash Column, 30 $\mu$ Si HP, 200g	\$400	4/PK
PF-30SIHP/300G	PuriFlash Column, 30 $\mu$ Si HP, 300g	\$635	4/PK
PF-30SIHP/800G	PuriFlash Column, 30 $\mu$ Si HP, 800g	\$445	EA
PF-30SIHP/1600G	PuriFlash Column, 30 $\mu$ Si HP, 1600g	\$785	EA
PF-30SIHP/KG	PuriFlash, 30 $\mu$ Si HP, Bulk	\$340	KG
PF-50SIHP/4G	PuriFlash Column, 50 $\mu$ Si HP, 4g	\$265	40/PK
PF-50SIHP/12G	PuriFlash Column, 50 $\mu$ Si HP, 12g	\$295	30/PK
PF-50SIHP/25G	PuriFlash Column, 50 $\mu$ Si HP, 25g	\$310	25/PK
PF-50SIHP/40G	PuriFlash Column, 50 $\mu$ Si HP, 40g	\$310	20/PK
PF-50SIHP/80G	PuriFlash Column, 50 $\mu$ Si HP, 80g	\$325	10/PK
PF-50SIHP/120G	PuriFlash Column, 50 $\mu$ Si HP, 120g	\$360	8/PK
PF-50SIHP/200G	PuriFlash Column, 50 $\mu$ Si HP, 200g	\$275	4/PK
PF-50SIHP/300G	PuriFlash Column, 50 $\mu$ Si HP, 300g	\$415	4/PK
PF-50SIHP/800G	PuriFlash Column, 50 $\mu$ Si HP, 800g	\$250	EA
PF-50SIHP/1600G	PuriFlash Column, 50 $\mu$ Si HP, 1600g	\$390	EA
PF-50SIHP/KG	PuriFlash Column, 50 $\mu$ Si HP, Bulk	\$140	KG

**PuriFlash Normal Phase Jumbo Packs****HP: HIGH PERFORMANCE SILICA**

<b>Part Number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15SIHP-JP/4G	PuriFlash Column, 15μ SI HP, 4g	\$836	80/PK
PF-15SIHP-JP/12G	PuriFlash Column, 15μ SI HP, 12g	\$2014	80/PK
PF-15SIHP-JP/25G	PuriFlash Column, 15μ SI HP, 25g	\$1843	48/PK
PF-15SIHP-JP/40G	PuriFlash Column, 15μ SI HP, 40g	\$2717	48/PK
PF-15SIHP-JP/80G	PuriFlash Column, 15μ SI HP, 80g	\$1919	16/PK
PF-15SIHP-JP/120G	PuriFlash Column, 15μ SI HP, 120g	\$2755	16/PK
PF-15SIHP-JP/200G	PuriFlash Column, 15μ SI HP, 200g	\$2356	8/PK
PF-15SIHP-JP/300G	PuriFlash Column, 15μ SI HP, 300g	\$2945	8/PK
PF-3OSIHP-JP/4G	PuriFlash Column, 30μ SI HP, 4g	\$1406	160/PK
PF-3OSIHP-JP/12G	PuriFlash Column, 30μ SI HP, 12g	\$1463	120/PK
PF-3OSIHP-JP/25G	PuriFlash Column, 30μ SI HP, 25g	\$1881	100/PK
PF-3OSIHP-JP/40G	PuriFlash Column, 30μ SI HP, 40g	\$2014	80/PK
PF-3OSIHP-JP/80G	PuriFlash Column, 30μ SI HP, 80g	\$1577	40/PK
PF-3OSIHP-JP/120G	PuriFlash Column, 30μ SI HP, 120g	\$1710	32/PK
PF-3OSIHP-JP/200G	PuriFlash Column, 30μ SI HP, 200g	\$1520	16/PK
PF-3OSIHP-JP/300G	PuriFlash Column, 30μ SI HP, 300g	\$2413	16/PK
PF-3OSIHP-JP/800G	PuriFlash Column, 30μ SI HP, 800g	\$1691	4/PK
PF-3OSIHP-JP/1600G	PuriFlash Column, 30μ SI HP, 1600g	\$2983	4/PK
PF-5OSIHP-JP/4G	PuriFlash Column, 50μ SI HP, 4g	\$1007	160/PK
PF-5OSIHP-JP/12G	PuriFlash Column, 50μ SI HP, 12g	\$1121	120/PK
PF-5OSIHP-JP/25G	PuriFlash Column, 50μ SI HP, 25g	\$1178	100/PK
PF-5OSIHP-JP/40G	PuriFlash Column, 50μ SI HP, 40g	\$1178	80/PK
PF-5OSIHP-JP/80G	PuriFlash Column, 50μ SI HP, 80g	\$851	40/PK
PF-5OSIHP-JP/120G	PuriFlash Column, 50μ SI HP, 120g	\$1368	32/PK
PF-5OSIHP-JP/200G	PuriFlash Column, 50μ SI HP, 200g	\$1045	16/PK
PF-5OSIHP-JP/300G	PuriFlash Column, 50μ SI HP, 300g	\$1577	16/PK
PF-5OSIHP-JP/800G	PuriFlash Column, 50μ SI HP, 800g	\$950	4/PK
PF-5OSIHP-JP/1600G	PuriFlash Column, 50μ SI HP, 1600g	\$1482	4/PK

**HC: HIGH CAPACITY SILICA**

<b>Part Number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15SIHC-JP/4G	PuriFlash Column, 15μ SI HC, 4g	\$836	80/PK
PF-15SIHC-JP/12G	PuriFlash Column, 15μ SI HC, 12g	\$2014	80/PK
PF-15SIHC-JP/25G	PuriFlash Column, 15μ SI HC, 25g	\$1843	48/PK
PF-15SIHC-JP/40G	PuriFlash Column, 15μ SI HC, 40g	\$2717	48/PK
PF-15SIHC-JP/80G	PuriFlash Column, 15μ SI HC, 80g	\$1919	16/PK
PF-15SIHC-JP/120G	PuriFlash Column, 15μ SI HC, 120g	\$2755	16/PK
PF-15SIHC-JP/200G	PuriFlash Column, 15μ SI HC, 200g	\$2356	8/PK
PF-15SIHC-JP/300G	PuriFlash Column, 15μ SI HC, 300g	\$2945	8/PK
PF-25SIHC-JP/4G	PuriFlash Column, 25μ SI HC, 4g	\$1406	160/PK
PF-25SIHC-JP/12G	PuriFlash Column, 25μ SI HC, 12g	\$1463	120/PK
PF-25SIHC-JP/25G	PuriFlash Column, 25μ SI HC, 25g	\$1881	100/PK
PF-25SIHC-JP/40G	PuriFlash Column, 25μ SI HC, 40g	\$2014	80/PK
PF-25SIHC-JP/80G	PuriFlash Column, 25μ SI HC, 80g	\$1577	40/PK
PF-25SIHC-JP/120G	PuriFlash Column, 25μ SI HC, 120g	\$1710	32/PK
PF-25SIHC-JP/200G	PuriFlash Column, 25μ SI HC, 200g	\$1520	16/PK
PF-25SIHC-JP/300G	PuriFlash Column, 25μ SI HC, 300g	\$2413	16/PK
PF-25SIHC-JP/800G	PuriFlash Column, 25μ SI HC, 800g	\$1691	4/PK
PF-25SIHC-JP/1600G	PuriFlash Column, 25μ SI HC, 1600g	\$2983	4/PK
PF-50SIHC-JP/4G	PuriFlash Column, 50μ SI HC, 4g	\$1045	160/PK
PF-50SIHC-JP/12G	PuriFlash Column, 50μ SI HC, 12g	\$1159	120/PK
PF-50SIHC-JP/25G	PuriFlash Column, 50μ SI HC, 25g	\$1216	100/PK
PF-50SIHC-JP/40G	PuriFlash Column, 50μ SI HC, 40g	\$1216	80/PK
PF-50SIHC-JP/80G	PuriFlash Column, 50μ SI HC, 80g	\$1273	40/PK
PF-50SIHC-JP/120G	PuriFlash Column, 50μ SI HC, 120g	\$1406	32/PK
PF-50SIHC-JP/200G	PuriFlash Column, 50μ SI HC, 200g	\$1178	16/PK
PF-50SIHC-JP/300G	PuriFlash Column, 50μ SI HC, 300g	\$1615	16/PK
PF-50SIHC-JP/800G	PuriFlash Column, 50μ SI HC, 800g	\$988	4/PK
PF-50SIHC-JP/1600G	PuriFlash Column, 50μ SI HC, 1600g	\$2014	4/PK

**PuriFlash Normal Phase**

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**BASIC & NEUTRAL ALUMINA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-ALB/7G	PuriFlash Column, 50 $\mu$ Al Basic, 7g	\$60	8/PK
PF-ALB/25G	PuriFlash Column, 50 $\mu$ Al Basic, 25g	\$45	4/PK
PF-ALB/40G	PuriFlash Column, 50 $\mu$ Al Basic, 40g	\$60	4/PK
PF-ALB/65G	PuriFlash Column, 50 $\mu$ Al Basic, 65g	\$80	4/PK
PF-ALB/135G	PuriFlash Column, 50 $\mu$ Al Basic, 135g	\$82	2/PK
PF-ALB/200G	PuriFlash Column, 50 $\mu$ Al Basic, 200g	\$115	2/PK
PF-ALB/355G	PuriFlash Column, 50 $\mu$ Al Basic, 355g	\$183	2/PK
PF-ALB/550G	PuriFlash Column, 50 $\mu$ Al Basic, 550g	\$138	EA
PF-ALB/1445G	PuriFlash Column, 50 $\mu$ Al Basic, 1445g	\$342	EA
PF-ALB/2900G	PuriFlash Column, 50 $\mu$ Al Basic, 2900g	\$568	EA
SC-ALN/1.3G	PuriFlash Column, 50 $\mu$ Al Neutral, 1.3G	\$175	25/PK
PF-ALN/7G	PuriFlash Column, 50 $\mu$ Al Neutral, 7g	\$59	8/PK
PF-ALN/25G	PuriFlash Column, 50 $\mu$ Al Neutral, 25g	\$56	4/PK
PF-ALN/40G	PuriFlash Column, 50 $\mu$ Al Neutral, 40g	\$77	4/PK
PF-ALN/65G	PuriFlash Column, 50 $\mu$ Al Neutral, 65g	\$106	4/PK
PF-ALN/135G	PuriFlash Column, 50 $\mu$ Al Neutral, 135g	\$109	2/PK
PF-ALN/200G	PuriFlash Column, 50 $\mu$ Al Neutral, 200g	\$156	2/PK
PF-ALN/355G	PuriFlash Column, 50 $\mu$ Al Neutral, 355g	\$253	2/PK
PF-ALN/550G	PuriFlash Column, 50 $\mu$ Al Neutral, 550g	\$194	EA
PF-ALN/1445G	PuriFlash Column, 50 $\mu$ Al Neutral, 1445g	\$483	EA
PF-ALN/2900G	PuriFlash Column, 50 $\mu$ Al Neutral, 2900g	\$857	EA
SC-15HIA/1G	PuriFlash Column, 15 $\mu$ HILIC HIA, 1g, Snap Cap	\$240	25/PK
PF-15HIA/4G	PuriFlash Column, 15 $\mu$ HILIC HIA, 4g	\$125	4/PK
PF-15HIA/12G	PuriFlash Column, 15 $\mu$ HILIC HIA, 12g	\$210	2/PK
PF-15HIA/25G	PuriFlash Column, 15 $\mu$ HILIC HIA, 25g	\$165	EA
PF-15HIA/40G	PuriFlash Column, 15 $\mu$ HILIC HIA, 40g	\$255	EA
PF-15HIA/80G	PuriFlash Column, 15 $\mu$ HILIC HIA, 80g	\$550	EA
PF-15HIA/120G	PuriFlash Column, 15 $\mu$ HILIC HIA, 120g	\$800	EA
PF-15HIA/200G	PuriFlash Column, 15 $\mu$ HILIC HIA, 200g	\$1395	EA
PF-15HIA/300G	PuriFlash Column, 15 $\mu$ HILIC HIA, 300g	\$2155	EA

**PuriFlash Normal Phase****DIOL & CN BONDED SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15DIOL/6G	PuriFlash Column, 15μ Diol, 6g	\$350	4/PK
PF-15DIOL/20G	PuriFlash Column, 15μ Diol, 20g	\$175	2/PK
PF-15DIOL/35G	PuriFlash Column, 15μ Diol, 35g	\$195	EA
PF-15DIOL/55G	PuriFlash Column, 15μ Diol, 55g	\$225	EA
PF-15DIOL/120G	PuriFlash Column, 15μ Diol, 120g	\$475	EA
PF-15DIOL/175G	PuriFlash Column, 15μ Diol, 175g	\$675	EA
PF-15DIOL/300G	PuriFlash Column, 15μ Diol, 300g	\$1250	EA
PF-15DIOL/450G	PuriFlash Column, 15μ Diol, 450g	\$1850	EA
PF-30DIOL/6G	PuriFlash Column, 30μ Diol, 6g	\$290	4/PK
PF-30DIOL/20G	PuriFlash Column, 30μ Diol, 20g	\$285	2/PK
PF-30DIOL/35G	PuriFlash Column, 30μ Diol, 35g	\$160	EA
PF-30DIOL/55G	PuriFlash Column, 30μ Diol, 55g	\$200	EA
PF-30DIOL/120G	PuriFlash Column, 30μ Diol, 120g	\$390	EA
PF-30DIOL/175G	PuriFlash Column, 30μ Diol, 175g	\$575	EA
PF-30DIOL/300G	PuriFlash Column, 30μ Diol, 300g	\$1075	EA
PF-30DIOL/450G	PuriFlash Column, 30μ Diol, 450g	\$1655	EA
PF-30DIOL/1250G	PuriFlash Column, 30μ Diol, 1250g	\$3410	EA
PF-30DIOL/2500G	PuriFlash Column, 30μ Diol, 2500g	\$6825	EA
PF-50DIOL/6G	PuriFlash Column, 50μ Diol, 6g	\$75	4/PK
PF-50DIOL/20G	PuriFlash Column, 50μ Diol, 20g	\$109	2/PK
PF-50DIOL/35G	PuriFlash Column, 50μ Diol, 35g	\$85	EA
PF-50DIOL/55G	PuriFlash Column, 50μ Diol, 55g	\$130	EA
PF-50DIOL/120G	PuriFlash Column, 50μ Diol, 120g	\$277	EA
PF-50DIOL/175G	PuriFlash Column, 50μ Diol, 175g	\$406	EA
PF-50DIOL/300G	PuriFlash Column, 50μ Diol, 300g	\$701	EA
PF-50DIOL/450G	PuriFlash Column, 50μ Diol, 450g	\$1081	EA
PF-50DIOL/1250G	PuriFlash Column, 50μ Diol, 1250g	\$2818	EA
PF-50DIOL/2500G	PuriFlash Column, 50μ Diol, 2500g	\$5537	EA
PF-15CN/6G	PuriFlash Column, 15μ CN, 6g	\$125	4/PK
PF-15CN/20G	PuriFlash Column, 15μ CN, 20g	\$195	2/PK
PF-15CN/35G	PuriFlash Column, 15μ CN, 35g	\$225	EA
PF-15CN/55G	PuriFlash Column, 15μ CN, 55g	\$255	EA
PF-15CN/120G	PuriFlash Column, 15μ CN, 120g	\$515	EA
PF-15CN/175G	PuriFlash Column, 15μ CN, 175g	\$750	EA
PF-15CN/300G	PuriFlash Column, 15μ CN, 300g	\$1305	EA
PF-15CN/450G	PuriFlash Column, 15μ CN, 450g	\$2015	EA
PF-50CN/6G	PuriFlash Column, 50μ CN, 6g	\$89	4/PK
PF-50CN/20G	PuriFlash Column, 50μ CN, 20g	\$138	2/PK
PF-50CN/35G	PuriFlash Column, 50μ CN, 35g	\$111	EA
PF-50CN/55G	PuriFlash Column, 50μ CN, 55g	\$173	EA
PF-50CN/120G	PuriFlash Column, 50μ CN, 120g	\$370	EA
PF-50CN/175G	PuriFlash Column, 50μ CN, 175g	\$543	EA
PF-50CN/300G	PuriFlash Column, 50μ CN, 300g	\$945	EA
PF-50CN/450G	PuriFlash Column, 50μ CN, 450g	\$1455	EA
PF-50CN/1250G	PuriFlash Column, 50μ CN, 1250g	\$3823	EA
PF-50CN/2500G	PuriFlash Column, 50μ CN, 2500g	\$7563	EA

## PuriFlash Normal Phase

### **NH<sub>2</sub> AND AGNO<sub>3</sub> BONDED SILICA**

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<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15NH2/6G	PuriFlash Column, 15μ NH <sub>2</sub> , 6g	\$350	4/PK
PF-15NH2/20G	PuriFlash Column, 15μ NH <sub>2</sub> , 20g	\$345	2/PK
PF-15NH2/35G	PuriFlash Column, 15μ NH <sub>2</sub> , 35g	\$205	EA
PF-15NH2/55G	PuriFlash Column, 15μ NH <sub>2</sub> , 55g	\$245	EA
PF-15NH2/120G	PuriFlash Column, 15μ NH <sub>2</sub> , 120g	\$515	EA
PF-15NH2/175G	PuriFlash Column, 15μ NH <sub>2</sub> , 175G	\$750	EA
PF-15NH2/300G	PuriFlash Column, 15μ NH <sub>2</sub> , 300g	\$1295	EA
PF-15NH2/450G	PuriFlash Column, 15μ NH <sub>2</sub> , 450g	\$1995	EA
PF-30NH2/6G	PuriFlash Column, 30μ NH <sub>2</sub> , 6g	\$280	4/PK
PF-30NH2/20G	PuriFlash Column, 30μ NH <sub>2</sub> , 20g	\$275	2/PK
PF-30NH2/35G	PuriFlash Column, 30μ NH <sub>2</sub> , 35g	\$165	EA
PF-30NH2/55G	PuriFlash Column, 30μ NH <sub>2</sub> , 55g	\$195	EA
PF-30NH2/120G	PuriFlash Column, 30μ NH <sub>2</sub> , 120g	\$409	EA
PF-30NH2/175G	PuriFlash Column, 30μ NH <sub>2</sub> , 175G	\$598	EA
PF-30NH2/300G	PuriFlash Column, 30μ NH <sub>2</sub> , 300g	\$1037	EA
PF-30NH2/450G	PuriFlash Column, 30μ NH <sub>2</sub> , 450g	\$1602	EA
PF-30NH2/1250G	PuriFlash Column, 30μ NH <sub>2</sub> , 1250g	\$4185	EA
PF-30NH2/2500G	PuriFlash Column, 30μ NH <sub>2</sub> , 2500g	\$8281	EA
PF-50NH2/6G	PuriFlash Column, 50μ NH <sub>2</sub> , 6g	\$95	4/PK
PF-50NH2/20G	PuriFlash Column, 50μ NH <sub>2</sub> , 20g	\$125	2/PK
PF-50NH2/35G	PuriFlash Column, 50μ NH <sub>2</sub> , 35g	\$100	EA
PF-50NH2/55G	PuriFlash Column, 50μ NH <sub>2</sub> , 55g	\$150	EA
PF-50NH2/120G	PuriFlash Column, 50μ NH <sub>2</sub> , 120g	\$320	EA
PF-50NH2/175G	PuriFlash Column, 50μ NH <sub>2</sub> , 175G	\$455	EA
PF-50NH2/300G	PuriFlash Column, 50μ NH <sub>2</sub> , 300g	\$795	EA
PF-50NH2/450G	PuriFlash Column, 50μ NH <sub>2</sub> , 450g	\$1200	EA
PF-50NH2/1250G	PuriFlash Column, 50μ NH <sub>2</sub> , 1250g	\$3050	EA
PF-50NH2/2500G	PuriFlash Column, 50μ NH <sub>2</sub> , 2500g	\$6500	EA
PF-50SIAG/4G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 4g	\$185	25/PK
PF-50SIAG/12G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 12g	\$224	12/PK
PF-50SIAG/25G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 25g	\$353	12/PK
PF-50SIAG/40G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 40g	\$344	8/PK
PF-50SIAG/80G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 80g	\$381	4/PK
PF-50SIAG/120G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 120g	\$274	2/PK
PF-50SIAG/200G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 200g	\$235	EA
PF-50SIAG/300G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 300g	\$358	EA
PF-50SIAG/800G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 800g	\$944	EA
PF-50SIAG/1600G	PuriFlash Column, Silica HP AGNO <sub>3</sub> , 50μ, 1600g	\$1788	EA

## SCX and SAX Bonded Silica

Part number	Description	Price	Unit
PF-50SCX/6G	PuriFlash Column, 50μ SCX, 6g	\$165	4/PK
PF-50SCX/20G	PuriFlash Column, 50μ SCX, 20g	\$268	2/PK
PF-50SCX/35G	PuriFlash Column, 50μ SCX, 35g	\$212	EA
PF-50SCX/55G	PuriFlash Column, 50μ SCX, 55g	\$336	EA
PF-50SCX/120G	PuriFlash Column, 50μ SCX, 120g	\$719	EA
PF-50SCX/175G	PuriFlash Column, 50μ SCX, 175g	\$1051	EA
PF-50SCX/300G	PuriFlash Column, 50μ SCX, 300g	\$1832	EA
PF-50SCX/450G	PuriFlash Column, 50μ SCX, 450g	\$2830	EA
PF-50SCX/1250G	PuriFlash Column, 50μ SCX, 1250g	\$7416	EA
PF-50SCX/2500G	PuriFlash Column, 50μ SCX, 2500g	Quote	EA
PF-50SAX/6G	PuriFlash Column, 50μ SAX, 6g	\$275	4/PK
PF-50SAX/20G	PuriFlash Column, 50μ SAX, 20g	\$375	2/PK
PF-50SAX/35G	PuriFlash Column, 50μ SAX, 35g	\$355	EA
PF-50SAX/55G	PuriFlash Column, 50μ SAX, 55g	\$540	EA
PF-50SAX/120G	PuriFlash Column, 50μ SAX, 120g	\$865	EA
PF-50SAX/175G	PuriFlash Column, 50μ SAX, 175g	\$1075	EA
PF-50SAX/300G	PuriFlash Column, 50μ SAX, 300g	\$1905	EA
PF-50SAX/450G	PuriFlash Column, 50μ SAX, 450g	\$3060	EA
PF-50SAX/1250G	PuriFlash Column, 50μ SAX, 1250g	\$8260	EA
PF-50SAX/2500G	PuriFlash Column, 50μ SAX, 2500g	\$16450	EA

## SCX/C8 Bonded Silica

Part number	Description	Price	Unit
PF-50MM1/6G	PuriFlash Column, 50μ MM1 (C8/SCX), 6g	\$95	4/PK
PF-50MM1/20G	PuriFlash Column, 50μ MM1 (C8/SCX), 20g	\$144	2/PK
PF-50MM1/35G	PuriFlash Column, 50μ MM1 (C8/SCX), 35g	\$115	EA
PF-50MM1/55G	PuriFlash Column, 50μ MM1 (C8/SCX), 55g	\$177	EA
PF-50MM1/120G	PuriFlash Column, 50μ MM1 (C8/SCX), 120g	\$377	EA
PF-50MM1/175G	PuriFlash Column, 50μ MM1 (C8/SCX), 175g	\$551	EA
PF-50MM1/300G	PuriFlash Column, 50μ MM1 (C8/SCX), 300g	\$954	EA
PF-50MM1/450G	PuriFlash Column, 50μ MM1 (C8/SCX), 450g	\$1475	EA
PF-50MM1/1250G	PuriFlash Column, 50μ MM1 (C8/SCX), 1250g	\$3849	EA
PF-50MM1/2500G	PuriFlash Column, 50μ MM1 (C8/SCX), 2500g	\$7610	EA

## Polyamide for Natural Products

Part number	Description	Price	Unit
PF-100P6/2G	PuriFlash Column, 100μ P6 Polyamide, 2g	\$30	4/PK
PF-100P6/8G	PuriFlash Column, 100μ P6 Polyamide, 8g	\$40	2/PK
PF-100P6/12G	PuriFlash Column, 100μ P6 Polyamide, 12g	\$60	2/PK
PF-100P6/20G	PuriFlash Column, 100μ P6 Polyamide, 20g	\$85	2/PK
PF-100P6/45G	PuriFlash Column, 100μ P6 Polyamide, 45g	\$88	EA
PF-100P6/65G	PuriFlash Column, 100μ P6 Polyamide, 65g	\$124	EA
PF-100P6/115G	PuriFlash Column, 100μ P6 Polyamide, 115g	\$209	EA
PF-100P6/175G	PuriFlash Column, 100μ P6 Polyamide, 175g	\$321	EA
PF-100P6/465G	PuriFlash Column, 100μ P6 Polyamide, 465g	\$819	EA
PF-100P6/940G	PuriFlash Column, 100μ P6 Polyamide, 940g	\$1531	EA

## PuriFlash Decolorization

Part number	Description	Price	Unit
PF-AC/3G	PuriFlash Carbon, 3g	\$105	16/PK
PF-AC/10G	PuriFlash Carbon, 10g	\$95	8/PK
PF-AC/18G	PuriFlash Carbon, 18g	\$125	8/PK
PF-AC/30G	PuriFlash Carbon, 30g	\$165	8/PK
PF-AC/60G	PuriFlash Carbon, 60g	\$190	4/PK
PF-AC/90G	PuriFlash Carbon, 90g	\$255	4/PK
PF-AC/160G	PuriFlash Carbon, 160g	\$405	4/PK
PF-AC/250G	PuriFlash Carbon, 250g	\$310	2/PK
PF-AC/650G	PuriFlash Carbon, 650g	\$420	EA
PF-AC/1300G	PuriFlash Carbon, 1300g	\$710	EA

## PuriFlash Reverse Phase

### **C18HP, C18HQ & IRC18 BONDED SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
SC-15C18HP/1.3G	PuriFlash Column, 15μ C18 HP, 1.3g	\$265	25/PK
PF-15C18HP/6G	PuriFlash Column, 15μ C18 HP, 6g	\$390	4/PK
PF-15C18HP/20G	PuriFlash Column, 15μ C18 HP, 20g	\$390	2/PK
PF-15C18HP/35G	PuriFlash Column, 15μ C18 HP, 35g	\$225	EA
PF-15C18HP/55G	PuriFlash Column, 15μ C18 HP, 55g	\$285	EA
PF-15C18HP/120G	PuriFlash Column, 15μ C18 HP, 120g	\$545	EA
PF-15C18HP/175G	PuriFlash Column, 15μ C18 HP, 175g	\$736	EA
PF-15C18HP/300G	PuriFlash Column, 15μ C18 HP, 300g	\$1281	EA
PF-15C18HP/450G	PuriFlash Column, 15μ C18 HP, 450g	\$1976	EA
PF-30C18HP/6G	PuriFlash Column, 30μ C18 HP, 6g	\$340	4/PK
PF-30C18HP/20G	PuriFlash Column, 30μ C18 HP, 20g	\$340	2/PK
PF-30C18HP/35G	PuriFlash Column, 30μ C18 HP, 35g	\$195	EA
PF-30C18HP/55G	PuriFlash Column, 30μ C18 HP, 55g	\$240	EA
PF-30C18HP/120G	PuriFlash Column, 30μ C18 HP, 120g	\$490	EA
PF-30C18HP/175G	PuriFlash Column, 30μ C18 HP, 175g	\$540	EA
PF-30C18HP/300G	PuriFlash Column, 30μ C18 HP, 300g	\$990	EA
PF-30C18HP/450G	PuriFlash Column, 30μ C18 HP, 450g	\$1490	EA
PF-30C18HP/1250G	PuriFlash Column, 30μ C18 HP, 1250g	\$3445	EA
PF-30C18HP/2500G	PuriFlash Column, 30μ C18 HP, 2500g	\$6995	EA
PF-50C18HP/6G	PuriFlash Column, 50μ C18 HP, 6g	\$110	4/PK
PF-50C18HP/20G	PuriFlash Column, 50μ C18 HP, 20g	\$118	2/PK
PF-50C18HP/35G	PuriFlash Column, 50μ C18 HP, 35g	\$91	EA
PF-50C18HP/55G	PuriFlash Column, 50μ C18 HP, 55g	\$141	EA
PF-50C18HP/120G	PuriFlash Column, 50μ C18 HP, 120g	\$300	EA
PF-50C18HP/175G	PuriFlash Column, 50μ C18 HP, 175g	\$430	EA
PF-50C18HP/300G	PuriFlash Column, 50μ C18 HP, 300g	\$760	EA
PF-50C18HP/450G	PuriFlash Column, 50μ C18 HP, 450g	\$1172	EA
PF-50C18HP/1250G	PuriFlash Column, 50μ C18 HP, 1250g	\$3054	EA
PF-50C18HP/2500G	PuriFlash Column, 50μ C18 HP, 2500g	\$6011	EA
SC-15C18HQ/1.3G	PuriFlash Column, 15μ C18 HQ, 1.3g	\$265	25/PK
PF-15C18HQ/6G	PuriFlash Column, 15μ C18 HQ, 6g	\$400	4/PK
PF-15C18HQ/20G	PuriFlash Column, 15μ C18 HQ, 20g	\$400	2/PK
PF-15C18HQ/35G	PuriFlash Column, 15μ C18 HQ, 35g	\$235	EA
PF-15C18HQ/55G	PuriFlash Column, 15μ C18 HQ, 55g	\$295	EA
PF-15C18HQ/120G	PuriFlash Column, 15μ C18 HQ, 120g	\$675	EA
PF-15C18HQ/175G	PuriFlash Column, 15μ C18 HQ, 175g	\$925	EA
PF-15C18HQ/300G	PuriFlash Column, 15μ C18 HQ, 300g	\$1510	EA
PF-15C18HQ/450G	PuriFlash Column, 15μ C18 HQ, 450g	\$2310	EA
IR-50C18/6G	PuriFlash Column, 50μ C18 ECO, 6g	\$120	4/PK
IR-50C18/20G	PuriFlash Column, 50μ C18 ECO, 20g	\$100	2/PK
IR-50C18/35G	PuriFlash Column, 50μ C18 ECO, 35g	\$95	EA
IR-50C18/55G	PuriFlash Column, 50μ C18 ECO, 55g	\$145	EA
IR-50C18/120G	PuriFlash Column, 50μ C18 ECO, 120g	\$270	EA
IR-50C18/175G	PuriFlash Column, 50μ C18 ECO, 175g	\$375	EA
IR-50C18/300G	PuriFlash Column, 50μ C18 ECO, 300g	\$675	EA
IR-50C18/450G	PuriFlash Column, 50μ C18 ECO, 450g	\$910	EA
IR-50C18/1250G	PuriFlash Column, 50μ C18 ECO, 1250g	\$2300	EA
IR-50C18/2500G	PuriFlash Column, 50μ C18 ECO, 2500g	\$4503	EA
IR-50C18/KG	PuriFlash Column, 50μ C18 ECO, KG	\$1950	KG

**Phenyl-Butyl Bonded Silica**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-15PHC4/6G	PuriFlash Column, 15μ Phenyl-Butyl, 6g	\$195	4/PK
PF-15PHC4/20G	PuriFlash Column, 15μ Phenyl-Butyl, 20g	\$295	2/PK
PF-15PHC4/35G	PuriFlash Column, 15μ Phenyl-Butyl, 35g	\$245	EA
PF-15PHC4/55G	PuriFlash Column, 15μ Phenyl-Butyl, 55g	\$375	EA
PF-15PHC4/120G	PuriFlash Column, 15μ Phenyl-Butyl, 120g	\$795	EA
PF-15PHC4/175G	PuriFlash Column, 15μ Phenyl-Butyl, 175g	\$1175	EA
PF-15PHC4/300G	PuriFlash Column, 15μ Phenyl-Butyl, 300g	\$2045	EA
PF-15PHC4/450G	PuriFlash Column, 15μ Phenyl-Butyl, 450g	\$3150	EA

**High Capacity Polymer**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PF-X/2G	PuriFlash Column, Atoll X 40μ, 2g	\$110	4/PK
PF-X/7G	PuriFlash Column, Atoll X 40μ, 7g	\$175	2/PK
PF-X/10G	PuriFlash Column, Atoll X 40μ, 10g	\$140	EA
PF-X/18G	PuriFlash Column, Atoll X 40μ, 18g	\$215	EA
PF-X/40G	PuriFlash Column, Atoll X 40μ, 40g	\$465	EA
PF-X/55G	PuriFlash Column, Atoll X 40μ, 55g	\$670	EA
PF-X/100G	PuriFlash Column, Atoll X 40μ, 100g	\$1150	EA
PF-X/150G	PuriFlash Column, Atoll X 40μ, 1500g	\$1775	EA
PF-X/400G	PuriFlash Column, Atoll X 40μ, 400g	\$4650	EA
PF-X/800G	PuriFlash Column, Atoll X 40μ, 800g	\$9290	EA

**pH Stable C18 Bonded Silica**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
SC-15C18XS/1.3G	PuriFlash Column, 15μ C18 XS, 1.3g	\$265	25/PK
PF-15C18XS/6G	PuriFlash Column, 15μ C18 XS, 6g	\$390	4/PK
PF-15C18XS/20G	PuriFlash Column, 15μ C18 XS, 20g	\$390	2/PK
PF-15C18XS/35G	PuriFlash Column, 15μ C18 XS, 35g	\$225	EA
PF-15C18XS/55G	PuriFlash Column, 15μ C18 XS, 55g	\$285	EA
PF-15C18XS/120G	PuriFlash Column, 15μ C18 XS, 120g	\$545	EA
PF-15C18XS/175G	PuriFlash Column, 15μ C18 XS, 175g	\$736	EA
PF-15C18XS/300G	PuriFlash Column, 15μ C18 XS, 300g	\$1281	EA
PF-15C18XS/450G	PuriFlash Column, 15μ C18 XS, 450g	\$1976	EA
PF-30C18XS/6G	PuriFlash Column, 30μ C18 XS, 6g	\$340	4/PK
PF-30C18XS/20G	PuriFlash Column, 30μ C18 XS, 20g	\$340	2/PK
PF-30C18XS/35G	PuriFlash Column, 30μ C18 XS, 35g	\$195	EA
PF-30C18XS/55G	PuriFlash Column, 30μ C18 XS, 55g	\$240	EA
PF-30C18XS/120G	PuriFlash Column, 30μ C18 XS, 120g	\$490	EA
PF-30C18XS/175G	PuriFlash Column, 30μ C18 XS, 175g	\$610	EA
PF-30C18XS/300G	PuriFlash Column, 30μ C18 XS, 300g	\$1060	EA
PF-30C18XS/450G	PuriFlash Column, 30μ C18 XS, 450g	\$1650	EA
PF-30C18XS/1250G	PuriFlash Column, 30μ C18 XS, 1250g	\$4275	EA
PF-30C18XS/2500G	PuriFlash Column, 30μ C18 XS, 2500g	\$8525	EA

**HIGH AQUEOUS C18 BONDED SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
SC-15C18AQ/1.3G	PuriFlash Column, 15 $\mu$ C18 AQ, 1.3g	\$265	25/PK
PF-15C18AQ/6G	PuriFlash Column, 15 $\mu$ C18 AQ, 6g	\$390	4/PK
PF-15C18AQ/20G	PuriFlash Column, 15 $\mu$ C18 AQ, 20g	\$390	2/PK
PF-15C18AQ/35G	PuriFlash Column, 15 $\mu$ C18 AQ, 35g	\$225	EA
PF-15C18AQ/55G	PuriFlash Column, 15 $\mu$ C18 AQ, 55g	\$285	EA
PF-15C18AQ/120G	PuriFlash Column, 15 $\mu$ C18 AQ, 120g	\$545	EA
PF-15C18AQ/175G	PuriFlash Column, 15 $\mu$ C18 AQ, 175g	\$736	EA
PF-15C18AQ/300G	PuriFlash Column, 15 $\mu$ C18 AQ, 300g	\$1281	EA
PF-15C18AQ/450G	PuriFlash Column, 15 $\mu$ C18 AQ, 450g	\$1976	EA
PF-30C18AQ/6G	PuriFlash Column, 30 $\mu$ C18 AQ, 6g	\$340	4/PK
PF-30C18AQ/20G	PuriFlash Column, 30 $\mu$ C18 AQ, 20g	\$340	2/PK
PF-30C18AQ/35G	PuriFlash Column, 30 $\mu$ C18 AQ, 35g	\$195	EA
PF-30C18AQ/55G	PuriFlash Column, 30 $\mu$ C18 AQ, 55g	\$240	EA
PF-30C18AQ/120G	PuriFlash Column, 30 $\mu$ C18 AQ, 120g	\$490	EA
PF-30C18AQ/175G	PuriFlash Column, 30 $\mu$ C18 AQ, 175g	\$540	EA
PF-30C18AQ/300G	PuriFlash Column, 30 $\mu$ C18 AQ, 300g	\$990	EA
PF-30C18AQ/450G	PuriFlash Column, 30 $\mu$ C18 AQ, 450g	\$1490	EA
PF-30C18AQ/1250G	PuriFlash Column, 30 $\mu$ C18 AQ, 1250g	\$3445	EA
PF-30C18AQ/2500G	PuriFlash Column, 30 $\mu$ C18 AQ, 2500g	\$6995	EA
SC-15RPAQ/1.3G	PuriFlash Column, 15 $\mu$ RPAQ, 1.3g	\$265	25/PK
PF-15RPAQ/6G	PuriFlash Column, 15 $\mu$ RP AQ, 6g	\$390	4/PK
PF-15RPAQ/20G	PuriFlash Column, 15 $\mu$ RP AQ, 20g	\$390	2/PK
PF-15RPAQ/35G	PuriFlash Column, 15 $\mu$ RP AQ, 35g	\$225	EA
PF-15RPAQ/55G	PuriFlash Column, 15 $\mu$ RP AQ, 55g	\$285	EA
PF-15RPAQ/120G	PuriFlash Column, 15 $\mu$ RP AQ, 120g	\$545	EA
PF-15RPAQ/175G	PuriFlash Column, 15 $\mu$ RP AQ, 175g	\$736	EA
PF-15RPAQ/300G	PuriFlash Column, 15 $\mu$ RP AQ, 300g	\$1281	EA
PF-15RPAQ/450G	PuriFlash Column, 15 $\mu$ RP AQ, 450g	\$1976	EA
PF-30RPAQ/6G	PuriFlash Column, 30 $\mu$ RP AQ, 6g	\$340	4/PK
PF-30RPAQ/20G	PuriFlash Column, 30 $\mu$ RP AQ, 20g	\$340	2/PK
PF-30RPAQ/35G	PuriFlash Column, 30 $\mu$ RP AQ, 35g	\$195	EA
PF-30RPAQ/55G	PuriFlash Column, 30 $\mu$ RP AQ, 55g	\$240	EA
PF-30RPAQ/120G	PuriFlash Column, 30 $\mu$ RP AQ, 120g	\$490	EA
PF-30RPAQ/175G	PuriFlash Column, 30 $\mu$ RP AQ, 175g	\$540	EA
PF-30RPAQ/300G	PuriFlash Column, 30 $\mu$ RP AQ, 300g	\$990	EA
PF-30RPAQ/450G	PuriFlash Column, 30 $\mu$ RP AQ, 450g	\$1490	EA
PF-30RPAQ/1250G	PuriFlash Column, 30 $\mu$ RP AQ, 1250g	\$3445	EA
PF-30RPAQ/2500G	PuriFlash Column, 30 $\mu$ RP AQ, 2500g	\$6995	EA

**PuriFlash Reverse Phase Biopurification****200Å C8, C4 AND C18 BONDED SILICA**

<b>Part number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PT-15C8/6G	PuriFlash Column, 15μ PT 200Å C8, 6g	\$210	2/PK
PT-15C8/20G	PuriFlash Column, 15μ PT 200Å C8, 20g	\$210	EA
PT-15C8/35G	PuriFlash Column, 15μ PT 200Å C8, 35g	\$330	EA
PT-15C8/55G	PuriFlash Column, 15μ PT 200Å C8, 55g	\$521	EA
PT-15C8/120G	PuriFlash Column, 15μ PT 200Å C8, 120g	\$1119	EA
PT-15C8/175G	PuriFlash Column, 15μ PT 200Å C8, 175g	\$1640	EA
PT-15C8/300G	PuriFlash Column, 15μ PT 200Å C8, 300g	\$2868	EA
PT-15C8/450G	PuriFlash Column, 15μ PT 200Å C8, 450g	\$4429	EA
PT-15C4/6G	PuriFlash Column, 15μ PT 200Å C4, 6g	\$210	2/PK
PT-15C4/20G	PuriFlash Column, 15μ PT 200Å C4, 20g	\$212	EA
PT-15C4/35G	PuriFlash Column, 15μ PT 200Å C4, 35g	\$342	EA
PT-15C4/55G	PuriFlash Column, 15μ PT 200Å C4, 55g	\$539	EA
PT-15C4/120G	PuriFlash Column, 15μ PT 200Å C4, 120g	\$1154	EA
PT-15C4/175G	PuriFlash Column, 15μ PT 200Å C4, 175g	\$1690	EA
PT-15C4/300G	PuriFlash Column, 15μ PT 200Å C4, 300g	\$2954	EA
PT-15C4/450G	PuriFlash Column, 15μ PT 200Å C4, 450g	\$4562	EA
PT-15C18T/6G	PuriFlash Column, 15μ PT 200Å C18T, 6g	\$210	2/PK
PT-15C18T/20G	PuriFlash Column, 15μ PT 200Å C18T, 20g	\$224	EA
PT-15C18T/35G	PuriFlash Column, 15μ PT 200Å C18T, 35g	\$359	EA
PT-15C18T/55G	PuriFlash Column, 15μ PT 200Å C18T, 55g	\$565	EA
PT-15C18T/120G	PuriFlash Column, 15μ PT 200Å C18T, 120g	\$1213	EA
PT-15C18T/175G	PuriFlash Column, 15μ PT 200Å C18T, 175g	\$1776	EA
PT-15C18T/300G	PuriFlash Column, 15μ PT 200Å C18T, 300g	\$3110	EA
PT-15C18T/450G	PuriFlash Column, 15μ PT 200Å C18T, 450g	\$4800	EA
PT-15C18AQ/6G	PuriFlash Column, 15μ C18AQ 200Å, 6g	\$210	2/PK
PT-15C18AQ/20G	PuriFlash Column, 15μ C18AQ 200Å, 20g	\$210	EA
PT-15C18AQ/35G	PuriFlash Column, 15μ C18AQ 200Å, 35g	\$330	EA
PT-15C18AQ/55G	PuriFlash Column, 15μ C18AQ 200Å, 55g	\$521	EA
PT-15C18AQ/120G	PuriFlash Column, 15μ C18AQ 200Å, 120g	\$1119	EA
PT-15C18AQ/175G	PuriFlash Column, 15μ C18AQ 200Å, 175g	\$1640	EA
PT-15C18AQ/300G	PuriFlash Column, 15μ C18AQ 200Å, 300g	\$2868	EA
PT-15C18AQ/450G	PuriFlash Column, 15μ C18AQ 200Å, 450g	\$4429	EA

**300Å C18 BONDED SILICA**

<b>Part Number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PP-15C18T/6G	PuriFlash Column, 15μ PP 300Å C18T, 6g	\$210	2/PK
PP-15C18T/20G	PuriFlash Column, 15μ PP 300Å C18T, 20g	\$210	EA
PP-15C18T/35G	PuriFlash Column, 15μ PP 300Å C18T, 35g	\$345	EA
PP-15C18T/55G	PuriFlash Column, 15μ PP 300Å C18T, 55g	\$545	EA
PP-15C18T/120G	PuriFlash Column, 15μ PP 300Å C18T, 120g	\$1,166	EA
PP-15C18T/175G	PuriFlash Column, 15μ PP 300Å C18T, 175g	\$1,708	EA
PP-15C18T/300G	PuriFlash Column, 15μ PP 300Å C18T, 300g	\$2,989	EA
PP-15C18T/450G	PuriFlash Column, 15μ PP 300Å C18T, 450g	\$4,618	EA
PP-15C18/6G	PuriFlash Column, 15μ C18 300Å, 6g	\$210	2/PK
PP-15C18/20G	PuriFlash Column, 15μ C18 300Å, 20g	\$210	EA
PP-15C18/35G	PuriFlash Column, 15μ C18 300Å, 35g	\$330	EA
PP-15C18/55G	PuriFlash Column, 15μ C18 300Å, 55g	\$521	EA
PP-15C18/120G	PuriFlash Column, 15μ C18 300Å, 120g	\$1,119	EA
PP-15C18/175G	PuriFlash Column, 15μ C18 300Å, 175g	\$1,640	EA
PP-15C18/300G	PuriFlash Column, 15μ C18 300Å, 300g	\$2,868	EA
PP-15C18/450G	PuriFlash Column, 15μ C18 300Å, 450g	\$4,429	EA

**300Å C4 BONDED SILICA**

<b>Part Number</b>	<b>Description</b>	<b>Price</b>	<b>Unit</b>
PP-15C4/6G	PuriFlash Column, 15μ PP 300Å C4, 6g	\$210	2/PK
PP-15C4/20G	PuriFlash Column, 15μ PP 300Å C4, 20g	\$215	EA
PP-15C4/35G	PuriFlash Column, 15μ PP 300Å C4, 35g	\$345	EA
PP-15C4/55G	PuriFlash Column, 15μ PP 300Å C4, 55g	\$545	EA
PP-15C4/120G	PuriFlash Column, 15μ PP 300Å C4, 120g	\$1,166	EA
PP-15C4/175G	PuriFlash Column, 15μ PP 300Å C4, 175g	\$1,708	EA
PP-15C4/300G	PuriFlash Column, 15μ PP 300Å C4, 300g	\$2,989	EA
PP-15C4/450G	PuriFlash Column, 15μ PP 300Å C4, 450g	\$4,618	EA

## Preparative HPLC Columns

An Interchim prep column will operate at lower pressure which translates into longer column life. The lower pressure is attributed to the removal of fines (<1 $\mu$  diameter silica particles). The presence of fines in the column will gradually migrate to the outlet frit where they are trapped and cause pressure build up. Fines are removed from the bonded silica prior to packing the column. Compared to other manufacturers' prep columns an Interchim column will typically exhibit 30-40% lower pressure. Examples of lower pressure are found on the following page. In each of the applications pressure never exceeded 30 bar / 435 PSI.

Inner Diameter	Sample Load	Flow Rate
4.6mm	X	1.0 ml/min
10.0mm	5X	5.0 ml/min
21.2mm	20X	20-25 ml/min
30.0mm	30X	30-40 ml/min
50.0mm	100X	100-120 ml/min
75.0mm	250X	200-250 ml/min

Linear scale-up is achieved by developing an analytical method which uses the same bonded phase and particle size as the prep column. Alternatively, the analytical method can use the same bonded phase with a smaller particle on a shorter column.



After optimizing the separation on the analytical column, the appropriate prep column is selected based upon the desired sample load.

## Small Molecule Purification

Uptisphere Strategy provides linear scale up from UHPLC to Prep. The high surface area silica (425 m<sup>2</sup>/g, 100 $\text{\AA}$ ) is available in a range of particle sizes to suit any budget: 2.2 $\mu$  • 3 $\mu$  • 5 $\mu$  • 10 $\mu$  • 15 $\mu$

Phase	% C	End-capping	pH Range	Application
C18-3	22%	Multi-Step	1.0 - 12.0	Strong retention of non-polar compounds and basic drugs at high pH.
C18-HQ	19%	Multi-Step	1.0 - 10.0	High capacity loading for mid and non-polar compounds (formerly C18-2).
C18-RP	16%	Multi-Step	1.5 - 8.0	Mid and non-polar compounds under acidic or basic conditions.
C18-AQ	14%	One-Step	2.0 - 7.5	Stable in 100% aqueous mobile phase for mid and non-polar compounds.
Phenyl-C4	12%	One-Step	2.0 - 7.0	Very selective for cyclic aromatic and mid-polar compounds.
Hilic HIT	N/A	One-Step	1.5 - 7.0	Aqueous normal phase (ANP) for highly polar compounds. Typical mobile
Hilic HIA	N/A	One-Step	2.0 - 7.0	phase: water / ACN (>70%).
Si	NA	NA	1.5 - 7.0	Normal phase separation of non-ionic, polar compounds.

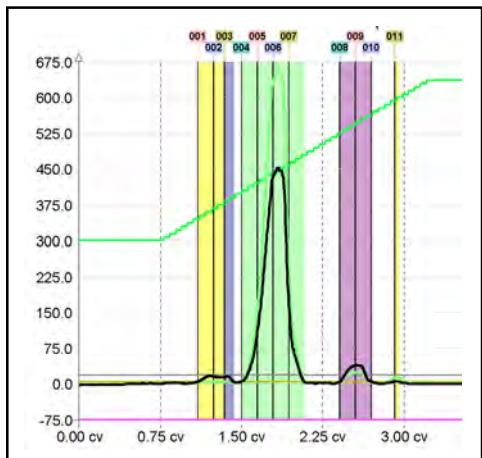
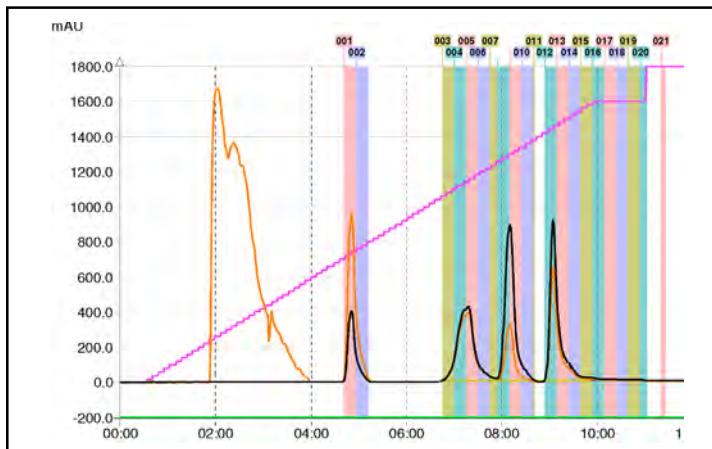
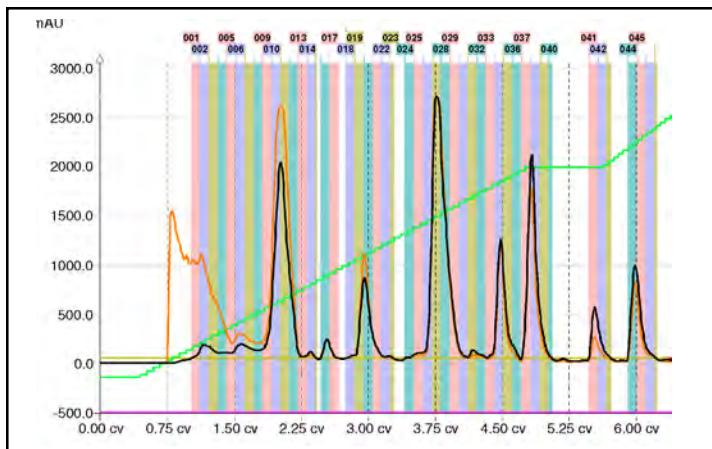
## Macro-Molecule Purification

Uptisphere X-Series is available in several pore sizes and bonded phases to address the wide range of selectivity required for biopurification.

Phase	% C	Bonding	Pore Size	pH Range	Application
C18-OD2	20%	Polyfunctional	130 $\text{\AA}$	1.0 - 13.0	Biopolymers <10 kDa, 130 $\text{\AA}$ silica
C18	14%	Polyfunctional	220 $\text{\AA}$	1.0 - 13.0	Biopolymers <30 kDa, 220 $\text{\AA}$ silica
C18-AQ	14%	Polyfunctional	220 $\text{\AA}$	1.0 - 10.0	Biopolymers <30 kDa, 220 $\text{\AA}$ silica, stable in 100% water
C8	8%	Polyfunctional	220 $\text{\AA}$	1.0 - 13.0	Biopolymers <50 kDa, 220 $\text{\AA}$ silica
C4	6%	Polyfunctional	220 $\text{\AA}$	1.0 - 13.0	Biopolymers <60 kDa, 220 $\text{\AA}$ silica
C18-WOD	10%	Monofunctional	300 $\text{\AA}$	1.5 - 7.0	Weakly hydrophobic biopolymers <50 kDa, 300 $\text{\AA}$ silica
C4-WC4	4%	Monofunctional	300 $\text{\AA}$	2.0 - 7.0	Hydrophobic biopolymers 50-150 kDa, 300 $\text{\AA}$ silica
C4-WD4	4%	Polyfunctional	300 $\text{\AA}$	1.5 - 8.0	Strongly hydrophobic biopolymers 50-150 kDa, 300 $\text{\AA}$ silica
C4-WT4	3%	Trifunctional	300 $\text{\AA}$	1.5 - 8.0	Strongly hydrophobic biopolymers 50-150 kDa, 300 $\text{\AA}$ silica

## Preparative HPLC Columns

**Reverse phase purification on the puriFlash 450 using a preparative HPLC column.**  
PuriFlash C18-HQ 10 $\mu$  30 x 150mm. (Part Number PF10C18HQ-150/300)



## Uptisphere Strategy Prep Columns

### FOR SMALL MOLECULE PURIFICATION

<b>Phase</b>	<b>2.2μ 50 x 4.6mm \$550</b>	<b>3μ 50 x 4.6mm \$505</b>	<b>3μ 150 x 4.6mm \$755</b>	<b>5μ 150 x 4.6mm \$645</b>
C18-3		US3C183-050/046	US3C183-150/046	US5C183-150/046
C18-HQ	US2.2C18HQ-050/046	US3C18HQ-050/046	US3C18HQ-150/046	US5C18HQ-150/046
C18-RP	US2.2RP-050/046	US3RP-050/046	US3RP-150/046	US5RP-150/046
C18-AQ	UP2.2HDO-050/046	UP3HDO-050/046	UP3HDO-150/046	UP5HDO-050/046
Phenyl-C4	US2.2PHC4-050/046	US3PHC4-050/046	US3PHC4-150/046	US5PHC4-150/046
Hilic HIT	US2.2HIT-050/046	US3HIT-050/046	US3HIT-150/046	US5HIT-150/046
Hilic HIA	US2.2HIA-050/046	US3HIA-050/046	US3HIA-150/046	US5HIA-150/046
Si	US2.2SI-050/046	US3SI-050/046	US3SI-150/046	US5SI-150/046

<b>Phase</b>	<b>5μ 100 x 21.2mm \$2540</b>	<b>5μ 100 x 30.0mm \$4700</b>	<b>5μ 150 x 21.2mm \$2930</b>	<b>5μ 150 x 30.0mm \$7100</b>
C18-3	US5C183-100/212	US5C183-100/300	US5C183-150/212	US5C183-150/300
C18-HQ	PF5C18HQ-100/212	PF5C18HQ-100/300	PF5C18HQ-150/212	PF5C18HQ-150/300
C18-RP	US5RP-100/212	US5RP-100/300	US5RP-150/212	US5RP-150/300
C18-AQ	PF5C18AQ-100/212	PF5C18AQ-100/300	PF5C18AQ-150/212	PF5C18AQ-150/300
Phenyl-C4	US5PHC4-100/212	US5PHC4-100/300	US5PHC4-150/212	US5PHC4-150/300
Hilic HIT	US5HIT-100/212	US5HIT-100/300	US5HIT-150/212	US5HIT-150/300
Hilic HIA	US5HIA-100/212	US5HIA-100/300	US5HIA-150/212	US5HIA-150/300
Si	US5SI-100/212	US5SI-100/300	US5SI-150/212	US5SI-150/300

<b>Phase</b>	<b>10μ 150 x 21.2mm \$2865</b>	<b>10μ 150 x 30.0mm \$5400</b>	<b>10μ 250 x 21.2mm \$3125</b>	<b>10μ 250 x 30.0mm \$7900</b>
C18-3	US10C183-150/212	US10C183-150/300	US10C183-250/212	US10C183-250/300
C18-HQ	PF10C18HQ-150/212	PF10C18HQ-150/300	PF10C18HQ-250/212	PF10C18HQ-250/300
C18-RP	US10RP-150/212	US10RP-150/300	US10RP-250/212	US10RP-250/300
C18-AQ	PF10C18AQ-150/212	PF10C18AQ-150/300	PF10C18AQ-250/212	PF10C18AQ-250/300
Phenyl-C4	US10PHC4-150/212	US10PHC4-150/300	US10PHC4-250/212	US10PHC4-250/300
Hilic HIT	US10HIT-150/212	US10HIT-150/300	US10HIT-250/212	US10HIT-250/300
Hilic HIA	US10HIA-150/212	US10HIA-150/300	US10HIA-250/212	US10HIA-250/300
Si	US10SI-150/212	US10SI-150/300	US10SI-250/212	US10SI-250/300

## PuriFlash Pre-Column Filter

Pre-column filters are an inexpensive alternative to guard columns and protect the prep column from the most common cause of reduced lifetime: sample precipitation.

<b>Part number</b>	<b>Description</b>	<b>Unit</b>	<b>Price</b>
CE4600	Prep Pre-column / Inline Filter Holder (includes 2μ Filter)	EA	\$360
CE4620	Prep Pre-column / Inline Filter, 2.0μ Stainless Steel Filter	EA	\$21
CE4630FC	Prep Pre-column / Inline Filter, O-Rings, Fluorocarbon	EA	\$22



**Uptisphere X-Series Prep Columns**  
**FOR MACRO-MOLECULE PURIFICATION**

Phase	3μ 50 x 4.6 mm \$505	3μ 150 x 4.6 mm UX3OD2-150/046	5μ 150 x 4.6 mm UX5OD2-150/046	5μ 250 x 4.6 mm UX5OD2-250/046
C18-OD2				
C18	UX3C18-050/046	UX3C18-150/046	UX5C18-150/046	UX5C18-250/046
C18-AQ	UX3AQ-050/046	UX3AQ-150/046	UX5AQ-150/046	UX5AQ-250/046
C8	UX3C8-050/046	UX3C8-150/046	UX5C8-150/046	UX5C8-250/046
C4	UX3C4-050/046	UX3C4-150/046	UX5C4-150/046	UX5C4-250/046
C18-WOD	UP3WOD-050/046	UP3WOD-150/046	UP5WOD-150/046	UP5WOD-250/046
C4-WT4			UP5WT4-150/046	UP5WT4-250/046
C4-WC4	UP3WC4-050/046	UP3WC4-150/046	UP5WC4-150/046	UP5WC4-250/046
C4-WD4	UP3WD4-050/046	UP3WD4-150/046	UP5WD4-150/046	UP5WD4-250/046
Phase	5μ 150 x 21.2 mm \$4,650	5μ 150x 30.0 mm UX5OD2-150/212	5μ 250 x 21.2 mm UX5OD2-250/212	5μ 250x 30.0 mm UX5OD2-250/300
C18-OD2				
C18-AQ	UX5AQ-150/212	UX5AQ-150/300	UX5AQ-250/212	UX5AQ-250/300
C18	UX5C18-150/212	UX5C18-150/300	UX5C18-250/212	UX5C18-250/300
C8	UX5C8-150/212	UX5C8-150/300	UX5C8-250/212	UX5C8-250/300
C4	UX5C4-150/212	UX5C4-150/300	UX5C4-250/212	UX5C4-250/300
C4-WT4	UP5WT4-150/212	UP5WT4-150/300	UP5WT4-250/212	UP5WT4-250/300
C18-WOD	UP5WOD-150/212	UP5WOD-150/300	UP5WOD-250/212	UP5WOD-250/300
C4-WC4	UP5WC4-150/212	UP5WC4-150/300	UP5WC4-250/212	UP5WC4-250/300
C4-WD4	UP5WD4-150/212	UP5WD4-150/300	UP5WD4-250/212	UP5WD4-250/300
Phase	10μ 150 x 21.2 mm \$2,865	10μ 150x 30.0 mm UX10C8-150/212	10μ 250 x 21.2 mm UX10C8-250/212	10μ 250x 30.0 mm UX10C8-250/300
C8				
Phase	15μ 150 x 21.2 mm \$1,750	15μ 150x 30.0 mm UX15OD2-150/212	15μ 250 x 21.2 mm UX15OD2-250/212	15μ 250x 30.0 mm UX15OD2-250/300
C18-OD2				
C18-AQ	UX15AQ-150/212	UX15AQ-150/300	UX15AQ-250/212	UX15AQ-250/300
C18	UX15C18-150/212	UX15C18-150/300	UX15C18-250/212	UX15C18-250/300
C8	UX15C8-150/212	UX15C8-150/300	UX15C8-250/212	UX15C8-250/300
C4	UX15C4-150/212	UX15C4-150/300	UX15C4-250/212	UX15C4-250/300
C4-WT4	UP15WT4-150/212	UP15WT4-150/300	UP15WT4-250/212	UP15WT4-250/300
C18-WOD	UP15WOD-150/212	UP15WOD-150/300	UP15WOD-250/212	UP15WOD-250/300
C4-WC4	UP15WC4-150/212	UP15WC4-150/300	UP15WC4-250/212	UP15WC4-250/300
C4-WD4	UP15WD4-150/212	UP15WD4-150/300	UP15WD4-250/212	UP15WD4-250/300

In 2010, Interchim introduced the PuriFlash instrument to support Prep HPLC and Flash. Intermediate and final purification is now possible in a small footprint using software designed with the chemist in mind. The PuriFlash 4250 is a compact Prep HPLC which supports high throughput purification with ease and simplicity.

PuriFlash software unleashes the restrictions of traditional Prep HPLC. A single screen allows for method creation, editing and control of all parameters during the run. Complete control to alter tube collection volume, gradient slope, threshold, flow rate, etc. is now possible **after the method has commenced**. (For details, see page 43.)

The **iQuat gradient** pump provides a true quaternary gradient plus a dedicated purge line (A+B+C+D, i). A ten second isopropanol purge prepares the flow path for either normal or reverse phase. The pump allows for simultaneous mixing of four solvents up to 3625 PSI/250 bar from 1-250ml/min. The UV-DAD (diode array detection) includes real time full spectra scanning to analyze purity. Detector options include MS, ELSD, RI and Conductivity.

### COLUMN SWITCHING

Set up two Prep columns or switch between Prep HPLC and Flash. Software-driven column switching allows for methods specific to either Prep HPLC or Flash, normal or reverse phase.

### HIGH THROUGHPUT AUTOMATION

Configure with an autosampler to support high throughput open access. High volume multiple injection sequence is a standard technique which supports a production environment. (For details, see page 42.)

### SAVE HOOD SPACE, TIME AND THE ENVIRONMENT

The fume enclosure option permits bench-top installation, freeing up hood space for increased productivity. Reduce solvent consumption and run time up to 70% with UPFP. (For details about Ultra-Performance Flash Purification, see the back cover.)



18.9 x 17.5 x 33.5" (WxDxH)

#### PuriFlash 4250

- Prep Columns 10–80mm ID
- Flash Columns 4g–2500g
- Sample loading 10mg–160g
- 15" HD Touch Screen Controller
- Solvent Level Monitoring
- Leak Detection
- 4 USB Ports
- Ethernet ready

#### Sample Loading

HPLC - Inline Loop Injection  
Flash - Dry Load and Liquid Load  
High Volume Multiple Injection Sequence  
Autosampler (option)

#### PuriFlash 4250

250 ml/min 250 bar / 3625 PSI  
Part Number: PF4250-250-S

#### PuriFlash 4100

250 ml/min 100 bar / 1450 PSI  
Part Number: PF4100-250

#### PuriFlash 450

250 ml/min 50 bar / 725 PSI  
Part Number: PF450-18

Standard configurations include a controller, pump, injection valve, UV-DAD and collector. (For options, refer to page 44.)

#### PuriFlash 4250 Standard Configuration

15" HD Touch Screen Controller  
**iQuat** HPLC Pump  
Injection and Column Switching valves  
UV-DAD 200-600nm  
Fraction Collector  
4 Racks, 176 x 18mm Tubes

Purification of synthesis reaction mixtures, natural product extracts, proteins and peptides from mg to gram quantities are easily accomplished with puriFlash instruments. The multi-wavelength UV-DAD (diode array detection) includes real time full spectra scanning to confirm purity. Detector options include MS, ELSD, RI and Conductivity.

The heart of the instrument is the **iQuat gradient** HPLC pump which provides a quaternary gradient plus a dedicated purge line (A+B+C+D, i). A ten second isopropanol purge prepares the flow path for either normal or reverse phase.

### NORMAL PHASE

The **iQuat gradient** pump has 1% gradient accuracy. This allows for shallow gradients without having to premix the mobile phase. 0 - 5% MeOH in DCM over 20 column volumes is accurate and reproducible.

### REVERSE PHASE

Pressure in reverse phase is much higher than normal phase and sample precipitation is also quite common. These pressure spikes present a major compromise with low pressure flash instruments. PuriFlash instruments are stable to 435 PSI/ 30 bar which support the use of columns packed with 15 $\mu$  spherical particles. **UPFP** (Ultra-Performance Flash Purification) columns packed with 15 $\mu$  particles provide resolution approaching Prep HPLC (see back cover).

### UV-DAD

The UV-Diode Array Detector is suitable for small and large scale purification. A minimum threshold of 5 mAU ensures low sample concentration will be detected and collected. With a range to 50,000 mAU, detector saturation is minimized and ensures no plateau shaped peaks. Collect and/or monitor four wavelengths or scan a range to analyze purity.

### SAVE HOOD SPACE, TIME AND THE ENVIRONMENT

The fume enclosure option permits bench-top installation freeing up hood space for increased productivity. Reduce solvent consumption and run time up to 70% with UPFP (Ultra-Performance Flash Purification; see back cover).

- Columns 4g–2500g
- Sample loading 10mg–160g
- 10.5" HD Touch Screen Controller
- Solvent Level Monitoring
- Leak Detection
- 4 USB Ports
- Ethernet ready

### Sample Loading

Dry Load

Liquid Load

High Volume Multiple Injection Sequence

### Ultra-Performance Flash Purification

#### PuriFlash 430

200 ml/min 30 bar / 435 PSI

Part Number: PF430-18



18.9 x 17.5 x 26.5" (WxDxH)

Standard configurations include a HD touch screen controller, pump, UV-DAD and collector. (For options, refer to page 44.)

#### PuriFlash Standard Configuration

10.4" HD Touch Screen Controller

**iQuat** HPLC Pump

UV-DAD 200-600 nm

Fraction Collector

4 Racks, 176 x 18mm Tubes

#### Flash Purification

#### PuriFlash 215

200 ml/min 15 bar / 220 PSI

Part Number: LO5660

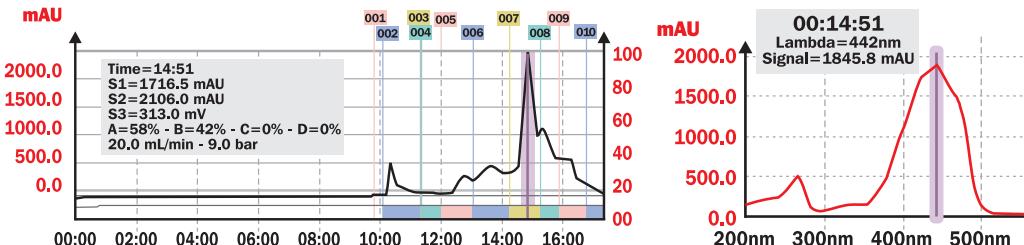
#### PuriFlash 800

800 ml/min 10 bar / 145 PSI

Part Number: PF800-4

The standard detector for all puriFlash instruments is a four channel UV-DAD with real time spectra scanning for purity confirmation. Spectra scanning can be set for the entire range or a narrow window eg. 250-350nm. A minimum threshold of 5 mAU ensures that very low sample concentration will be detected and collected. With a range from -500 to 50,000 mAU, detector saturation is minimized and ensures no plateau shaped peaks.

- 200 - 600nm, Standard
- 200 - 840nm, Option (Part G09630)
- 5mAU Threshold, **No Missed Peaks**
- Collect and/or monitor 4 wavelengths
- Adjustable Sensitivity: 0.3, 1.4 or 2.4 mm path length
- - 500 - 50,000 mAU Range, **No Plateau Peaks**



### **INTEGRATED ELSD FOR FLASH & PREP HPLC**

Evaporative light scattering detection (ELSD) is the most effective technique to identify compounds without a UV chromophore. With hood and bench space at a premium, the puriFlash integrated ELSD provides the optimum solution. The ELSD is integrated into the fraction collector with easy access to the nebulizer and fluidics. Semi-volatile and thermo-labile solutes can be analyzed with high sensitivities due to the Low-Temperature evaporation technology (patented). This unique feature minimizes the potential for evaporation and/or thermal decomposition of the compounds of interest.

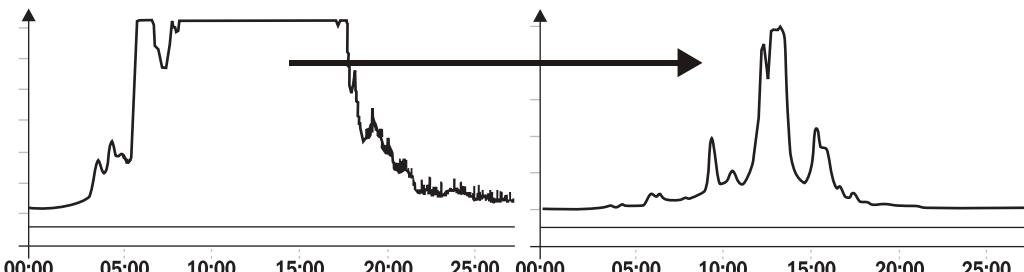


The automatic gain adjustment ensures that peaks will be resolved without signal saturation (flat top peaks). The fume enclosure option permits bench-top installation, outside of a fume hood.

Part No. 1A3640

- Automatic Gain Adjustment
- Minimal sample loss, 40 $\mu$ l/min
- Low gas consumption 2 bar/29 PSI
- Any column size, no flow limitation
- Improved detection of semi-volatile compounds
- Easy access to nebulizer and fluidics

### **AUTOMATIC GAIN ADJUSTMENT: ELIMINATE PLATEAUS, SEPARATE AND PURIFY**

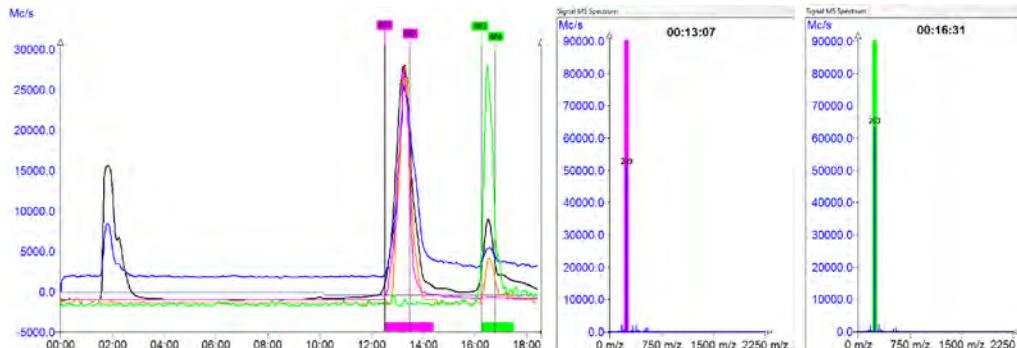


Purification and confirmation is achieved in a single step with the PuriFlash MS. Flash and Prep HPLC is used on a single instrument collecting up to 5 mass targets (TIC + 5 XIC). Flow injection analysis (FIA) confirms ionization of the target molecule which is then added to a purification method with a single mouse click .

Precise control of split flow to the MS maximizes sensitivity with no risk of saturating the ion source. The dynamic splitter delivers diluted eluate to the MS at a constant flow rate (0.2 - 0.5 ml/min) regardless of the purification flow rate (1-250 ml/min). A dilution factor is assigned to the dynamic splitter based upon sample concentration, sample load and column size.



- Save time: eliminate post run analysis and only collect target masses
- Save hood space with bench top installation
- Real time TIC display of collected tubes to confirm purity
- Purification flow rates from 1 - 250 ml/min
- FIA to confirm ionization and then “click” to add as an XIC
- TLC plate analysis
- Compatible with reverse phase and normal phase
- Electrospray or APCI ion source options
- Access the source and capillary without breaking vacuum
- Low N2 consumption: 4 L/min, 4 bar/60 PSI
- Small footprint: 19 x 22 x 31" MS + Dynamic Splitter
- Acquisition speed: 10,000 m/z units sec<sup>-1</sup>
- Resolution: 0.5 - 0.7 m/z units (FWHM) at 1,000 m/z units sec<sup>-1</sup>
- Accuracy: +/- 0.1 m/z units over entire acquisition range
- Scan sensitivity: 100 pg Reserpine (FIA 5µl at 100µl/min) 100:1 S/N RMS
- XIC sensitivity: 10 pg Reserpine (FIA 5µl at 100µl/min) 100:1 S/N RMS



Part No.	PuriFlash MS1200	PuriFlash MS2000
Mass Range m/z	10 - 1200	10 - 2000
Part Number	1H5460	1G6770

### Automated Sample Injection

All puriFlash instruments are compatible with the puriFlash Autosampler and higher throughput is managed with a second fraction collector. The Autosampler is suitable for sample volumes up to 25ml. Larger sample volumes are achieved with multiple injection cycles.

- Optimum recovery, ease of use, high throughput
- Multiple rack options; tubes, well plates, vials, etc.
- Queue samples during a run
- Small footprint
- Compatible with all puriFlash instruments

Part No.	Description	Dimensions
PF-ALS-1	Single Tray	14 x 15 x 18"
PF-ALS-2	Double Tray	14 x 21 x 18"
PF-ALS-3	Triple Tray	19 x 21 x 18"



### 10 Column Carousel

The puriFlash CarouXel is a column switching device which eliminates the flash purification bottleneck. Load up to 10 columns with multiple samples and achieve high throughput purification with column sizes from 4g to 450g.

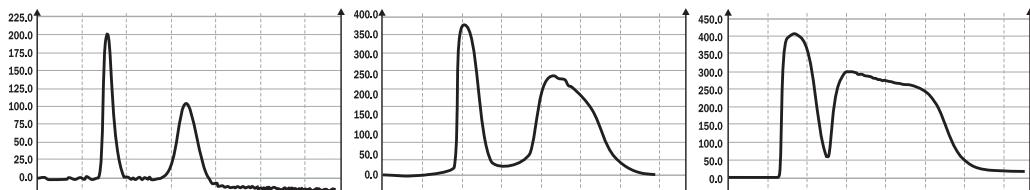
- Liquid sample loading with the puriFlash autosampler
- Dry load samples with a second CarouXel
- Normal phase, reverse phase and chiral purification
- One waste line per column plus one general waste
- Integrate with any flash system

Part No. PF-C10



### High Volume Sample Loading

High volume sample loading can be automated on any puriFlash instrument using thru-pump sample injection. The low dead volume quaternary gradient pump allows you to mix up to four solvents simultaneously and is suitable for high volume sample loading. The sample is loaded onto the column using one of the four gradient lines. This technique supports multiple runs on the same column for high throughput automation. Examples below show sequential injections up to 300 ml.



**2.0 grams**

**5.0 grams**

**6.0 grams**

Instrument: PuriFlash 450

Column: Chiraldak OD 20μ, 300 x 30.0 mm

Mobile Phase: 80:20 Hexane : Ethanol

Flow Rate: 200 ml/min

Sample: Guaiifenesin, 20g/L

Sample Volume: 2g / 100 ml, 5g / 250 ml, 6g / 300 ml

Automated sample injection was achieved by introducing the sample using the quaternary gradient pump.

Pump Lines

A: Hexane

B: Ethanol

C: Sample

PuriFlash software was designed with the chemist in mind. Intersoft provides complete control of all parameters in a single screen without having to drill down multiple menus.

A single screen provides control of all necessary parameters to quickly create and start a run. Real time programming allows for complete control of gradient slope, flow rate, collection and detection. Addition of a third or fourth solvent to improve solubility can be done anytime during a run. The touch screen can also be controlled using a mouse and full size solvent resistant keyboard. Post-run reports are saved locally as a PDF or on a network drive.

The screenshot displays the Intersoft 5.0 software interface, featuring a top navigation bar with icons for file operations, a search function, and user settings. Below the bar are several control buttons:

- Advance Collection Tube**: Icon of a test tube with a red arrow pointing up.
- Collect All**: Icon of a graph with a red line and a green shaded area.
- Pause Gradient**: Icon of a red zigzag line.
- 5.0 mAU**: A digital display for absorbance.
- Change Threshold**: A button to change the threshold settings.
- Change Tube Volume**: Icon of a graduated cylinder with a red number '5'.
- Collect by Threshold**: Icon of a graph with a red line and a green shaded area.
- Resume Gradient**: Icon of a green circular arrow.
- 30.0 mL/min**: A digital display for flow rate.
- Change Flow Rate**: A button to change the flow rate settings.

**Increase Resolution With AGO**

AGO (Automatic Gradient Optimization) automatically creates a step gradient to maximize resolution with any number of peaks. When AGO is enabled, each time threshold is exceeded the gradient is paused for a user-defined time constant.

**Chromatogram 1 (Top):** Shows a chromatogram with peaks labeled 1.1 through 1.8 and 3.0. The x-axis represents time from 00:00 to 14:00, and the y-axis represents mAU from -200.0 to 2000.0. A green line indicates the gradient profile.

**Control Panel (Middle):** Displays operational parameters: 15.29 bar, 17.1 bar, -0.4 mAU, -0.1 mAU, 30.0 mL/min, Load 1, and a pump status of 324 mL/min. It also shows a schematic of the purification system with tanks labeled 3832, 2474, and 869, and a waste monitoring section for Rack Set #1.

**Mobile phase and waste monitoring with alarms.**

**Chromatogram 2 (Bottom):** Shows a chromatogram with peaks labeled 1.1 through 1.8 and 3.0. The x-axis represents time from 00:00 to 10:00, and the y-axis represents mAU from -200.0 to 2000.0. A green line indicates the gradient profile. A cursor is positioned over the gradient line at approximately 10:00.

**Click and drag gradient modification**

## PuriFlash Instrument Specifications & Options

Instrument Model	PF430	PF215	PF800	PF4250	PF4100	PF450
Part Number	PF430-18	L05660	PF800-4	PF4250-250-S	PF4100-250	PF450-18
Column Compatibility	UPFP Flash 4 - 1250g	Flash 4 - 1250g	Flash 4 - 3000g	UPFP Flash: 4-1250g HPLC: 10-75mm ID	UPFP Flash: 4-1250g HPLC: 10-75mm ID	UPFP Flash: 4-1250g HPLC: 10-75mm ID

### Pump

HPLC: Dual Reciprocating Heads	✓	✓	✓	✓	✓	✓
Flow Rate	1 - 200 ml/min	1 - 200 ml/min	5 - 800 ml/min	1 - 250 ml/min	1 - 250 ml/min	1 - 250 ml/min
Flow Rate Accuracy	±1% 1-200ml/min	±1% 1-200ml/min	±1% 5-800ml/min	±1% 1-250ml/min	±1% 1-250ml/min	±1% 1-250ml/min
Pressure Limit	435 PSI / 30 bar	220 PSI / 15 bar	145 PSI / 10 bar	3625 PSI / 250 bar	1450 PSI / 100 bar	725 PSI / 50 bar
iQuat Gradient	✓	J00400	✓	✓	✓	✓
Binary Gradient	✓	✓	PF800-2	✓	✓	✓
Gradient Accuracy	±1% 1-200ml/min	±1% 1-200ml/min	±1% 5-800ml/min	±1% 1-250ml/min	±1% 1-250ml/min	±1% 1-250ml/min
Air Purge	FV2980	1F9560	NA	✓	✓	✓
Leak Detection	✓	✓	✓	✓	✓	✓
Mobile Phase Tray	✓	FV2950	✓	✓	✓	✓

### Detector

UV DAD 200-600nm	✓	✓	✓	✓	✓	✓
UV Spectra Scanning	✓	✓	✓	✓	✓	✓
UV Vis: 190 - 840nm	G09630	G09630	J05140	G09630	G09630	G09630
Integrated ELSD	1A3640	1A3640	1A3640	1A3640	1A3640	1A3640
Mass Spec 10 - 1200 m/z	1H5460	1H5460	1H5460	1H5460	1H5460	1H5460
Mass Spec 10 - 2000 m/z	1G6770	1G6770	1G6770	1G6770	1G6770	1G6770
Refractive Index	FSQ600	FSQ600	FSQ600	FSQ600	FSQ600	FSQ600
Conductivity	PF-CD1	PF-CD1	PF-CD1	PF-CD1	PF-CD1	PF-CD1

### Collector

Collection Accuracy	±1% 1-200ml/min	±1% 1-200ml/min	±1% 5-800ml/min	±1% 1-250ml/min	±1% 1-250ml/min	±1% 1-250ml/min
Second Collector	JV0950	JV0950	FK6140	JV0950	JV0950	JV0950
18 x 150mm 25ml Tube, 4 Racks	✓	✓	✓	✓	✓	✓
13 x 100mm 9ml Tube Rack, Each	RAA471	RAA471	RAA471	RAA471	RAA471	RAA471
16 x 150mm 22ml Tube Rack, Each	PF4381	PF4381	PF4381	PF4381	PF4381	PF4381
21 x 150mm 35ml Tube Rack, Each	PF4411	PF4411	PF4411	PF4411	PF4411	PF4411
25 x 150mm 60ml Tube Rack, Each	PF4422	PF4422	PF4422	PF4422	PF4422	PF4422
28 x 150mm 75ml Tube Rack, Each	PF4431	PF4431	PF4431	PF4431	PF4431	PF4431
29.5 x 200mm 110ml Tube Rack, Each	PF4441	PF4441	PF4441	PF4441	PF4441	PF4441
250 ml, 3 Bottles 65mm Square, Each	HV7081	HV7081	HV7081	HV7081	HV7081	HV7081
500 ml, 3 Bottles 60mm Dia, Each	JV2821	JV2821	JV2821	JV2821	JV2821	JV2821
Funnel Rack, 4 Position, Each	FJ4331	FJ4331	FJ4331	FJ4331	FJ4331	FJ4331
Rack Tray Drain Port	DZ7790	DZ7790	DZ7790	DZ7790	DZ7790	DZ7790
Rack Tray Drain Port (iELSD)	1J2680	1J2680	1J2680	1J2680	1J2680	1J2680

# PuriFlash Instrument Specifications & Options

45

Instrument Model	PF430	PF215	PF800	PF4250	PF4100	PF450
Part Number	PF430-18	L05660	PF800-4	PF4250-250-S	PF4100-250	PF450-18
Column Compatibility	UPFP Flash 4 - 1250g	Flash 4 - 1250g	Flash 4 - 3000g	UPFP Flash: 4-1250g HPLC: 10-75mm ID	UPFP Flash: 4-1250g HPLC: 10-75mm ID	UPFP Flash: 4-1250g HPLC: 10-75mm ID

## Column Holder

Tall Column Holder	✓	FV2960	✓	✓	✓	✓
Short Column Holder	G09640	G09640	G09640	✓	✓	✓
Stand Alone Flash Column Holder	PF4530	PF4530	1G8070	PF4530	PF4530	PF4530
Stand Alone Prep HPLC Column	NA	NA	NA	LV8210	LV8210	LV8210
Prep HPLC Fitting Kit	NA	NA	NA	✓	✓	✓

## Valves

Loop Injection / Dry Load Electric	FV2970	FV2970	FV2970	✓	✓	✓
Loop Injection / Dry Load Manual	PF4330	PF4330	PF4330	NA	NA	NA
Column Switching, Electric	L06640	L06640	NA	✓	1I7860	L06600
Backflush, Electric	L06650	L06650	NA	1I5140	L04290	L06610
Purge, Flash	1F6610	1F6610	1F9160	1F6670	1F6620	1F6620
Purge, Prep HPLC	NA	NA	NA	✓	1F6650	1F6640

## Safety

Collector Fume Enclosure	PF4350	PF4350	PF4350	PF4350	PF4350	PF4350
Collector Fume Enclosure (iELSD)	1E2630	1E2630	1E2630	1E2630	1E2630	1E2630
Solvent Level Monitoring	✓	✓	✓	✓	✓	✓
Solvent Level Sensors	FSP730	FSP730	FSP730	FSP730	FSP730	FSP730

## User Interface

HD Touch Screen 10.5"	✓	✓	✓	NA	NA	✓
HD Touch Screen 15"	1I2510	1I2510	1I2510	✓	✓	1I2510
Bar Code Reader	G02380	G02380	G02380	G02380	G02380	G02380
Keyboard, Solvent Resistant	✓	✓	✓	✓	✓	✓
Software, Intersoft 5.0	✓	✓	✓	✓	✓	✓
Data ports: 3x USB, RG45	✓	✓	✓	✓	✓	✓
Dimensions (WxDxH)	19 x 17.5 x 26.5"	19 x 17.5 x 26.5"	19 x 17.5 x 26.5"	19 x 17.5 x 33.5"	19 x 17.5 x 30.5"	19 x 17.5 x 30.5"
Power 100/240 VAC, 6.3/3.15 A	✓	✓	✓	✓	✓	✓



30, 50 &amp; 80mm



100 &amp; 150mm

DAC (dynamic axial compression) combines the preparative column and packing system in a single, simple to operate device. The packed bed is compressed with a dynamic piston which compensates for shrinking and swelling. The dynamic piston automatically eliminates any void should it develop, thus maintaining good peak shape.

For columns from 30mm to 150mm i.d., column efficiency can reach up to 40,000 theoretical plates per meter with 10 $\mu$  media. The flow dispersion plates are designed to provide optimum sample distribution to maximize column loading.

Maximum working pressure: 100 bar / 1450 PSI

<b>Model</b>	<b>Description</b>	<b>Part No.</b>
DAC50	DAC 50mm ID x 500mm length Start-up kit for DAC 50mm column	KV7350 KV7360
DAC80	DAC 80mm ID x 650mm length Start-up kit for DAC 80mm column	KV7370 KV7380
DAC100	DAC 100mm ID x 650mm length Start-up kit for DAC 100mm column	KV7390 KV7400
DAC150	DAC 150mm ID x 650mm length Start-up kit for DAC 150mm column	KV7410 KV7420

## Normal Phase, Isomeric Separation

### 1 GRAM LOAD ON A 40G 15 $\mu$ SI HC PURIFLASH® COLUMN

Due to the complex nature of the crude mixture a dry load column was used to introduce the sample on the puriFlash 450.

**Part Number: PF-15SIHC/40G**

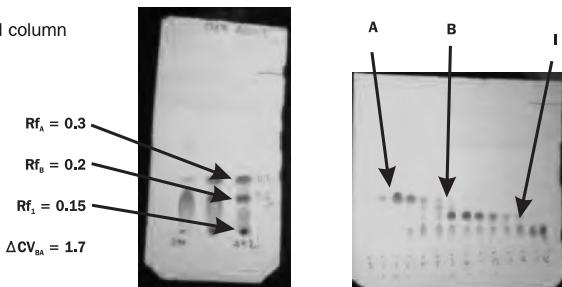
15 $\mu$  SI HC puriFlash column, 40g

**Part Number: PF-DLE/4G**

puriFlash Dry-Load column, 4g

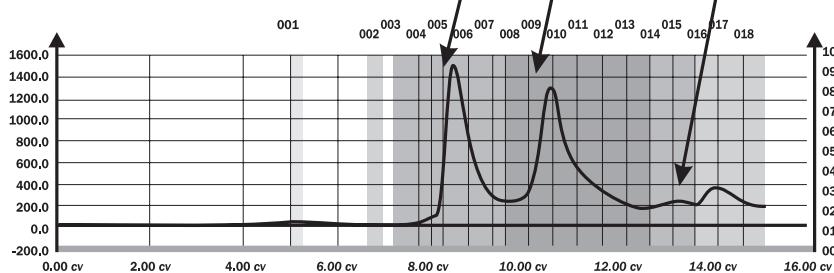
**Solvent:**

A: Hexane, B: Ethyl acetate,  
Flow Rate 30 ml/min, UV 254nm



**Gradient:**

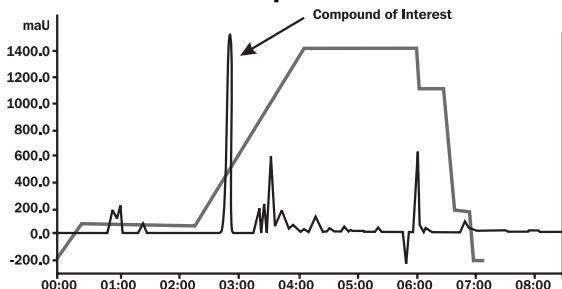
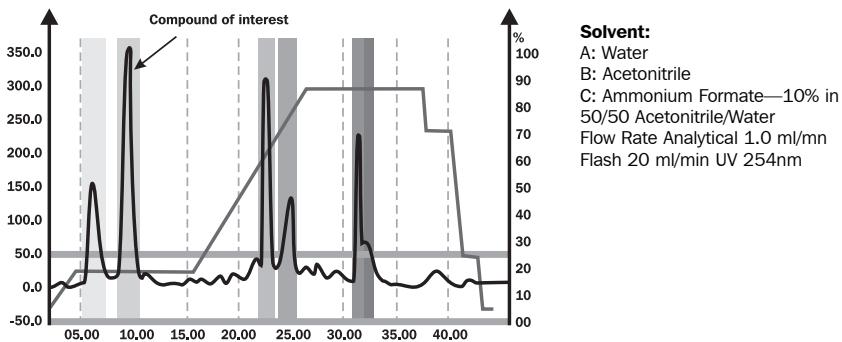
CV	%A	%B
0	100	0
5	80	20
10	70	30
14.25	40	60
15	5	95



## Reverse Phase, Scale-up from Analytical to Flash

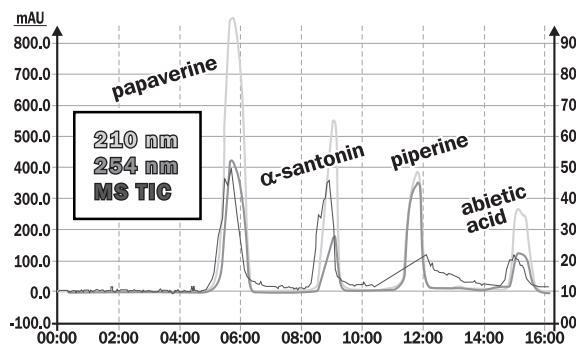
### 150MG CRUDE ON A 35G 15 $\mu$ C18

puriFlash 15 $\mu$  C18HP 35g, Part number: PF-15C18HP/35G



Wolfender Laboratory, EPGL, University of Geneva

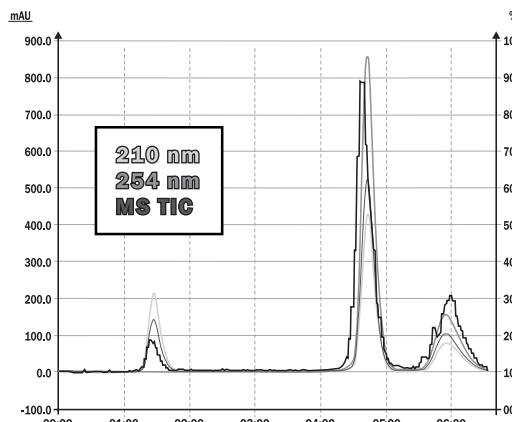
**43.75 mg loaded on the column**



- Flow: 16 ml/min
 

Time	%A	%B
0.00	80	20
11.00	00	100
18.00	00	100
- Gradient Method:
 

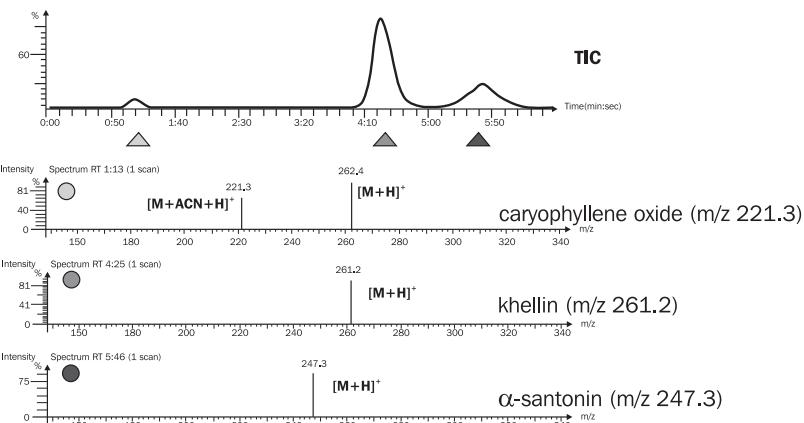
Time	%A	%B
0.00	80	20
11.00	00	100
18.00	00	100
- MS Make up Flow: 500 μl/min MeOH + 0.1% Formic acid



- Flow: 20 ml/min
 

A: Hexane	B: Isopropanol
-----------	----------------
- Column: Puriflash SiHP Column 15 μm 25 g
- Natural Product Mixture concentration: 45 mg/ml
- Inj. Volume: 500 μl
- Make-up flow: 375 μl/min
- Eluent make-up solvent: ACN+0.1%F.A.
- MS scan time: 1500 ms
- MS scan range: m/z 200 - m/z 800
- Gradient Method:
 

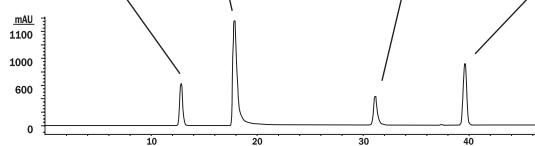
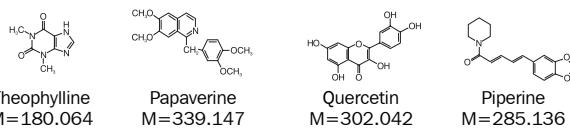
Time	%A	%B
0.00	75	25
1.50	75	25
2.50	05	95
6.30	05	95



# HPLC to Flash Natural Products Isolation

Wolfender Laboratory, EPGL, University of Geneva

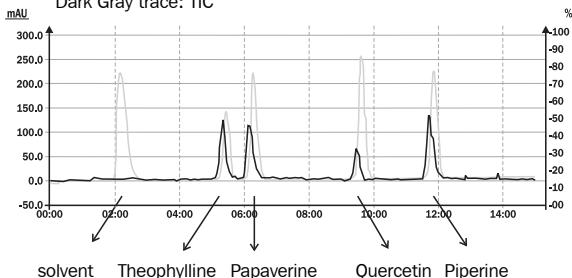
## HPLC analysis of a Natural Products mixture



- Flow: 1 ml/min
- A: Water +0.1% F.Acid
- B: MeOH +0.1% F.Acid
- Column: Interchim 4.6mmx250mm C18HQ 15 $\mu$ m
- Sample conc.: 2 mg/ml for each standard (Theophylline, Papaverine, Quercetin, Piperine)
- Inj. Volume: 3  $\mu$ l (6  $\mu$ g loaded on column)

## Analytical HPLC to Flash Scale-Up

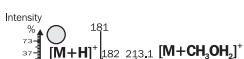
Light Gray trace: UV (SCAN 200-600 nm)  
Dark Gray trace: TIC



- Flow: 20 ml/min
- A: Water +0.1% F.A. B: MeOH +0.1% F.A.
- Column: PuriFlash Column C18HQ 15 $\mu$ m 35g
- Sample conc.: 3 mg/ml for each standard (Theophylline, Papaverine, Quercetin, Piperine)
- Inj. Volume: 500  $\mu$ l (6.0 mg loaded on column)
- Make-up flow: 500 $\mu$ l/min
- Eluent make-up flow: MeOH + 0.1% F.A.
- MS Ionization Method: APCI
- MS scan time: 1000 ms
- MS Scan Range: m/z 125-m/z 700

## Purity Profile for Collected Fractions

### m/z Overview



Buck-Koehntop Laboratory, The University of Utah

**Protein Specifications:**

134 amino acid zinc finger protein  
isolated from E. coli  
MW: 16.4 kDa  
PI: 9.45  
GRAVY hydrophobicity index: -0.7

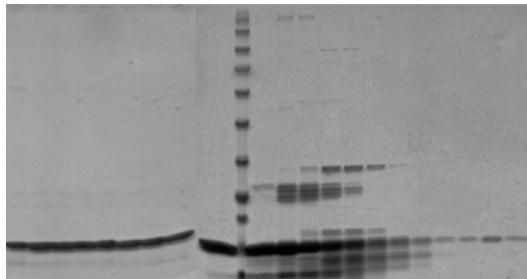
**Column Specifications:**

Type: PuriFlash PP-15C18T  
Column Size: 120g  
Particle size: 15 $\mu$ m

**Example Data:**

Protein was lysed under denaturing conditions and initially purified by ion exchange chromatography. Eluted fractions containing the protein were identified by SDS-PAGE (Figure 1).

**Ion Exchange Fractions**



**Figure 1.** SDS-PAGE analysis of eluted ion exchange fractions to be further purified by Reverse Phase Flash Chromatography

**Sample Load Method**

	Flow ml/min	A	B	C	D
0:00:00	30	0	0	0	100
2:00:00	30	0	0	0	100

The column was then washed until the absorbance returned to baseline utilizing the following method:

**Column Wash Method**

	Flow ml/min	A	B	C	D
0:00:00	30	90	10	0	0
1:30:00	30	90	10	0	0

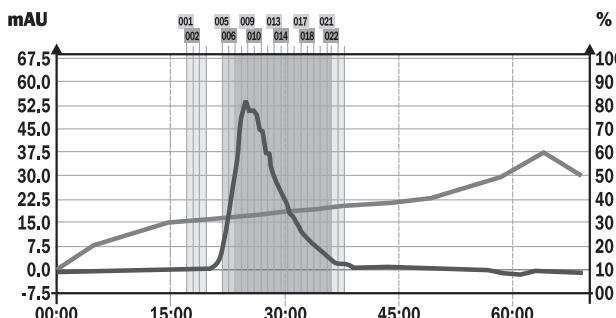
The protein was eluted using a binary gradient:

**Protein Elution Method**

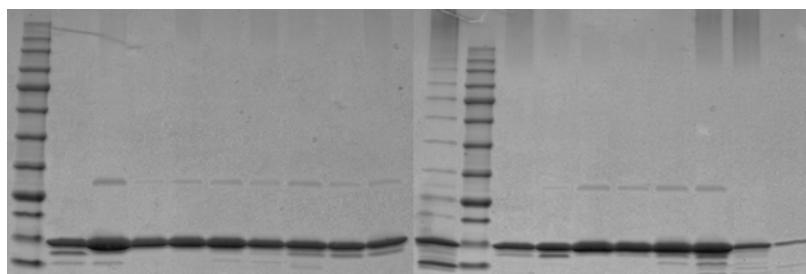
	Flow ml/min	A	B	C	D
0:00:00	30	90	10	0	0
0:00:05	40	90	10	0	0
0:05:00	40	80	20	0	0
0:15:00	40	70	30	0	0
0:49:00	40	60	40	0	0
0:59:00	40	50	50	0	0
1:04:00	40	40	60	0	0
1:09:00	40	50	50	0	0
1:09:10	0	50	50	0	0

35 ml fractions were collected with the automated fraction collector. The elution profile is shown in Figure 2.

The reverse phase fractions were lyophilized for 5 days, after which final purity of fractions containing the protein were determined by SDS-PAGE (Figure 3).



**Figure 2.** Reverse Phase Gradient Elution

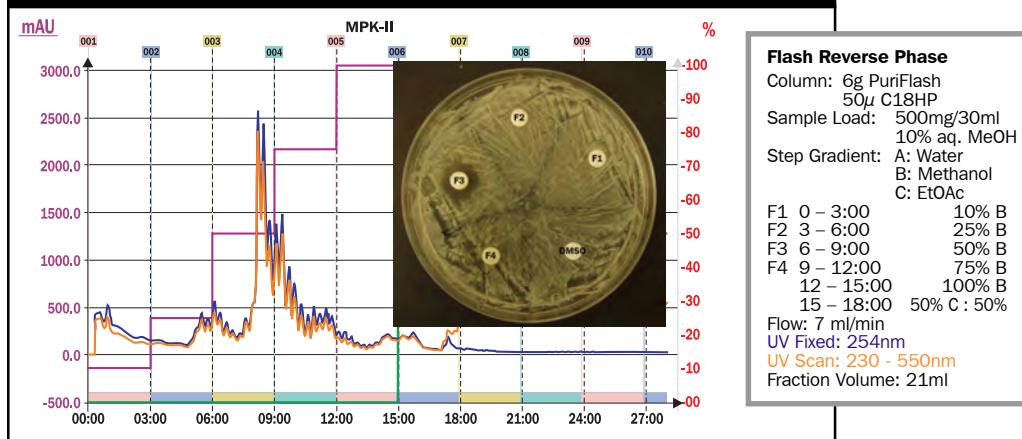


**Figure 3.** SDS-PAGE gel analysis of purified RP-HPLC fractions.

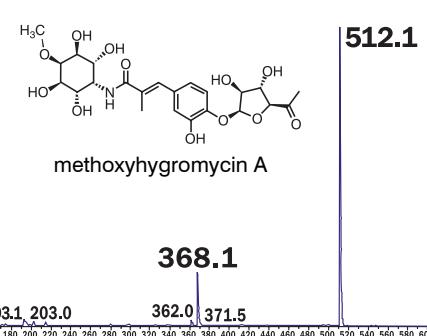
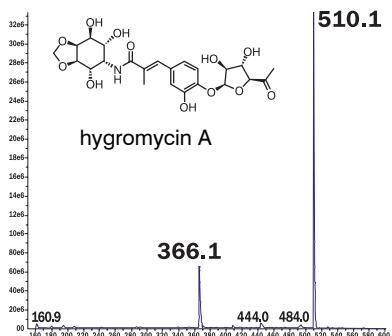
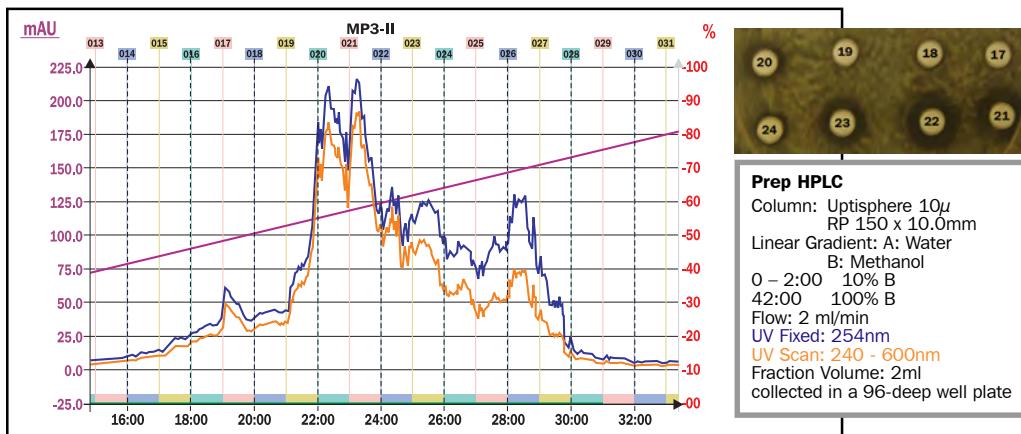
# Rapid Dereplication of Natural Products Using Reverse Phase Flash and Semi-Prep HPLC

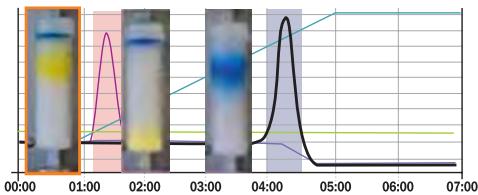
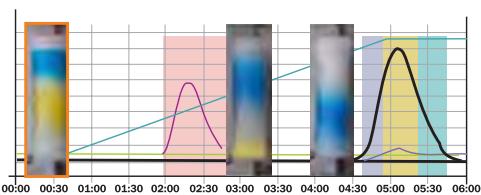
Philmus Lab, Oregon State University

## **Soil Streptomyces isolated from Mary's Peak, Corvallis, Oregon**



Biological activity was identified in Flash fraction 3. This fraction was dried in a MiQuattro Speedvac and dissolved in 2ml 25% aqueous methanol and 0.5 ml was loaded on the HPLC column. Biological activity was identified in Semi-Prep HPLC fractions 20-23. LCMS confirmed fractions 20-23 contained hygromycin A and methoxyhygromycin A. Testing was done against S. aureus ATCC 12600 on LB plates grown overnight at 30° C



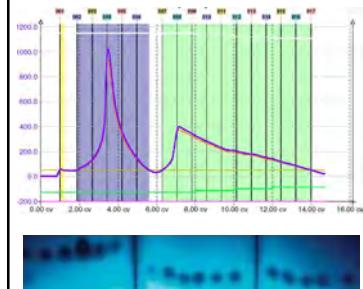
**Higher Loading****Reduced Solvent Consumption****Reduced Collection Volume****UPFP: ULTRA-PERFORMANCE FLASH PURIFICATION**Spherical 15 $\mu$  Silica, 12 gram column**CONVENTIONAL FLASH PURIFICATION**Irregular 40-60 $\mu$  Silica, 12 gram column

UPFP reduces the purification time and cost per sample with increased throughput and confidence. The small particle spherical silica provides significant benefits when compared to conventional flash grade silica. UPFP columns greatly improve separation efficiency and resolution which allows for higher loading, faster throughput and reduced solvent consumption.

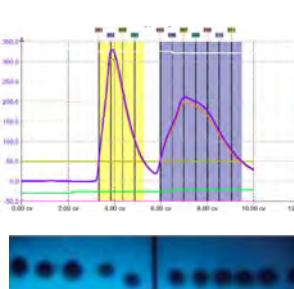
In the example above, the narrow bands on the UPFP column suggest that much higher loading could be achieved while still maintaining purity. **Below, a 25 gram UPFP column outperforms the leading 40 gram conventional flash column which resulted in 500% higher loading, 70% less solvent and 300% less collection volume.**

**25 gram UPFP Column**

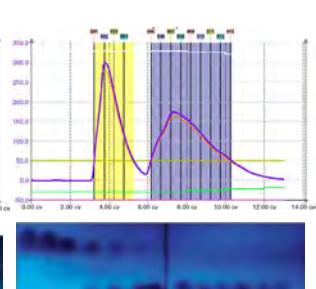
3.0 gram sample, pure fractions

**40 gram Conventional Flash Column**

1.0gm sample, pure fractions



1.25gm sample, mixed fractions



- 500% **higher Loading**
- 70% **less solvent**
- 300% **less collection volume**

**100% Purity**

Column	Sample Load	Tubes	Collected Volume	Solvent Consumed
25g PuriFlash HC15	3.0g	17	367ml	460ml
40g Conventional	1.0g	11	263ml	480ml

Solvent savings and higher loading based on purifying the equivalent amount of sample on a conventional flash column.

% Loading: Sample / silica (w/w)

**Partial Purity / Overload Condition**

Column	Sample Load	Tubes	Collected Volume	Solvent Consumed
40g Conventional	1.25g	13	298ml	540ml

**Test Conditions:**

Sample: 500mg/ml dibutyl and diethyl Phthalate

Flow rate: 20 ml/min

Solvents: A: Heptane B: EtOAc

Gradient: 0 - 7 CV 5% B, 7-13 CV 5-8% B

UV: 254 nm

Tube volume: 25ml