

Thermo Scientific
Chromatography Columns
and Consumables 2016-2017

Connected chromatography
solutions

Sample Preparation Products

Your sample is precious and you cannot afford failures. We have a comprehensive range of products delivering clean and consistent extractions using innovative sample preparation technologies for your analytical needs.

Featured Products



SMART Digest Kits

Designed for biopharmaceutical and proteomic applications that require highly reproducible, sensitive and fast analyses of proteins often in high throughput workflows.

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SOLA Products

This first fritless SPE product range which has been specifically designed for bioanalysis provides greater reproducibility with cleaner, more consistent extracts. Thermo Scientific™ SOLA™ products provide unparalleled performance characteristics compared to conventional SPE, phospholipid removal and protein precipitation products.

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QuEChERS

A quick and easy sample preparation approach for pesticide analysis. Convenient extraction and clean-up of pesticides in food and other complex matrices.

PAGE 1-030



Syringe Filters

Providing cleaner sample extracts by removing interfering materials and fine particles. Delivering high quality, robust solutions for a wide range of samples and applications.

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Sample Preparation

Technical Resources



visit www.thermoscientific.com/chromexpert
to access the following information:

- SPE Phase Selection
- SPE Phase Selection by Manufacturer
- SPE Procedure - Six Steps for a Clean Extract
- Method Development Optimization in SPE



SMART Digest Kits

Facilitating perfect digestion

Thermo Scientific™ SMART Digest™ kits are designed for biopharmaceutical and proteomic applications that require:

- High analytical reproducibility
- High sensitivity
- Fast analysis
- High throughput workflows

They achieve this due to the optimized heat stable immobilized trypsin design. It offers significant benefits over existing conventional in-solution digestion protocols:

- Simple process
- Significantly faster than in-solution digestion
- More reproducible than in-solution digestion
- Higher sensitivity
- Higher throughput
- Ability to automate

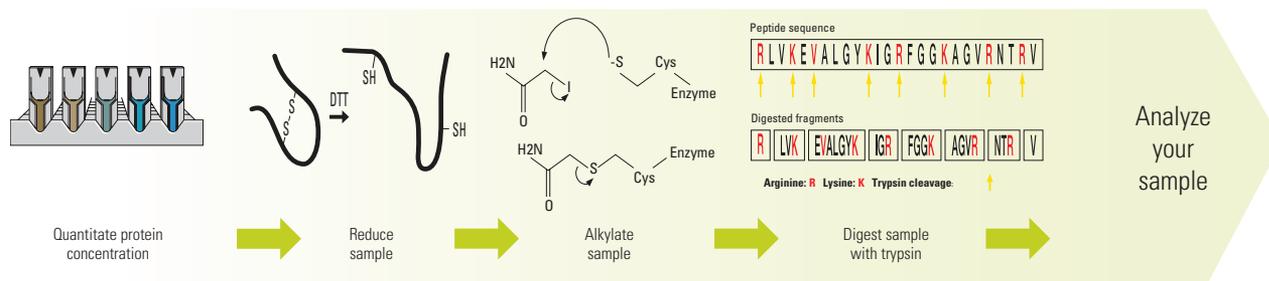


Simplicity of use with SMART Digest Kits

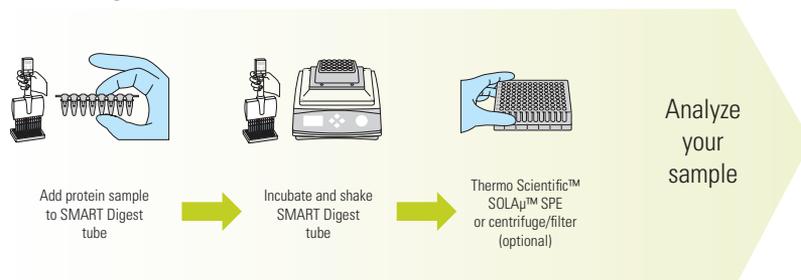
Current sample preparation protocols for the digestion of proteins are multifaceted and laborious. Without a single source solution, errors are far more likely to occur. Therefore, the overall protocol is subject to irreproducibility and significant sample processing time.

The SMART Digest kit overcomes these barriers by providing a simple to implement, integrated process (see the diagram below), which provides high data confidence and significantly increased reproducibility. The entire protocol can be easily automated for high throughput processing.

Standard Digest



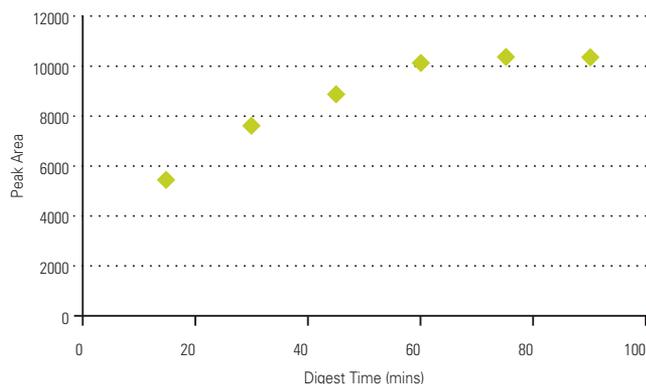
SMART Digest



Fast digestion with SMART Digest Kits

The SMART Digest process is not only simple, but significantly reduces the time from sample preparation to analysis. Typically it takes less than 60 minutes, dependent on sample complexity; to achieve full digestion as can be seen in the IgG example below, full digestion is achieved in 60 minutes.

IgG Assay m/z- 937



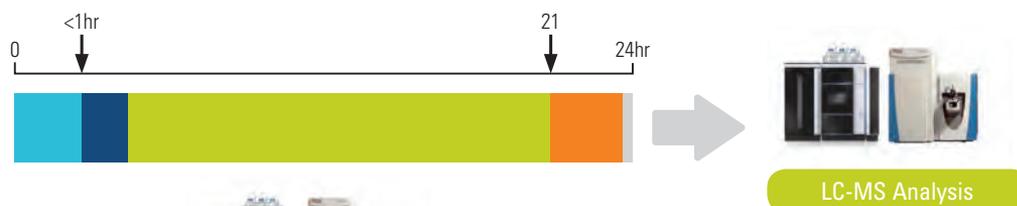
Recommended digestion starting conditions for known proteins*

Protein	Digest Time (min)
Insulin	4
BSA	< 5
Carbonic anhydrase	< 5
Lysozyme	< 5
Apo-B	30
IgG	45
IgG in 50 μ L plasma	75
Ribonuclease A	150
Thyroglobulin	240
C-reactive protein	240

*200 μ L protein solutions were used for all samples. A concentration of 100 μ g/mL was used for all samples, except IgG in plasma which used 17.5mg/mL

SMART Digest vs. conventional in-solution digest protocol

In-solution digest



SMART Digest

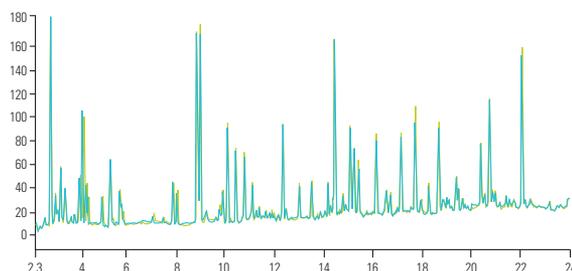


- Sample preparation
- Digestion
- Spin down
- SPE + dry/reconstitute

Reproducibility of digestion with the SMART Digest Kits

The SMART Digest kit provides significant improvements in reproducibility over existing protocols, which results in fewer sample failures, higher throughput and the ability to more easily interrogate data.

The chromatogram to the right shows two overlaid traces of BSA digests produced by two separate users who had never performed a digestion protocol before.

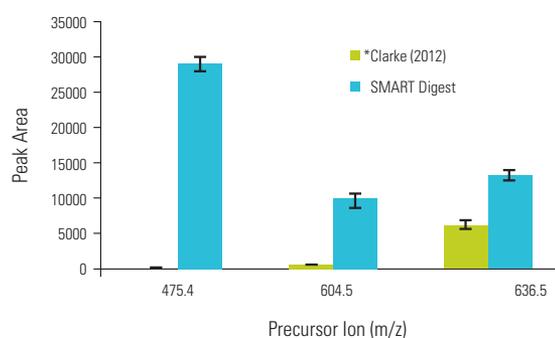


Higher sensitivity with the SMART Digest Kits

The SMART Digest kit can provide higher sequence coverage due to more efficient digestion and the reduced number of chemicals used, resulting in less ion suppression during LC-MS analysis. The reduced use of chemicals also decreases the number of chemically-induced post-translational modifications.

The mass spectrometry (MS) peak area response comparison on the right shows how Thyroglobulin, digested using the SMART Digest kit, provides higher levels of sensitivity compared to a standard in-solution digest. In addition to this the SMART Digest protocol took two hours compared to twenty hours for the in-solution protocol.

Comparison to Historical Method



*Clarke, N. J., et al.; *J. Inv. Med.* **2012**, *60*, 1157-1163

SMART Digest Kits

Description	Cat No.
Smart Digest kit	60109-101
Smart Digest kit with 96 well filter plate	60109-102
Smart Digest kit with SOLAµ HRP SPE plate	60109-103

Find out more about how SMART Digest Kits can benefit your workflow at:
www.thermoscientific.com/SMARTdigest

SOLA SPE Products

Consistent excellence for bioanalysis

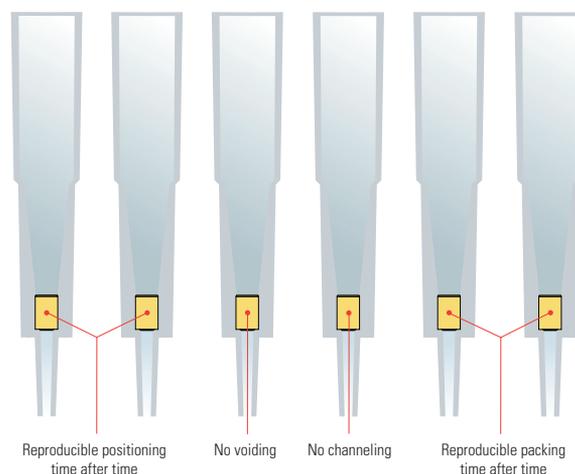
Thermo Scientific SOLA products are designed for bioanalytical and clinical research analysts who are tasked with providing high quality analytical results from complex biological samples in a high throughput environment, while complying with strict legislation. These demands are compounded by the continued push to higher efficacy drugs and long acting formulations which continue to drive sensitivity requirements to lower levels to enable accurate quantification.



In order to meet these demands, bioanalytical methods must provide:

- Robustness – low analytical failure rates
- Ability to process low sample volumes
- High sensitivity
- High reproducibility
- Ease of use
- High throughput processing
- Efficient and fast processes

The SOLA SPE range meets these demands due to the unique and innovative frit-less SPE technology which eliminates the issues with traditional loose-packed SPE formats (see figure to the right). Combining the support material and active media components into a solid, uniform sorbent bed provides stable and controllable flow through characteristics and has an added advantage when dealing with viscous biological samples, as it prevents blocking and enables high throughput processing.

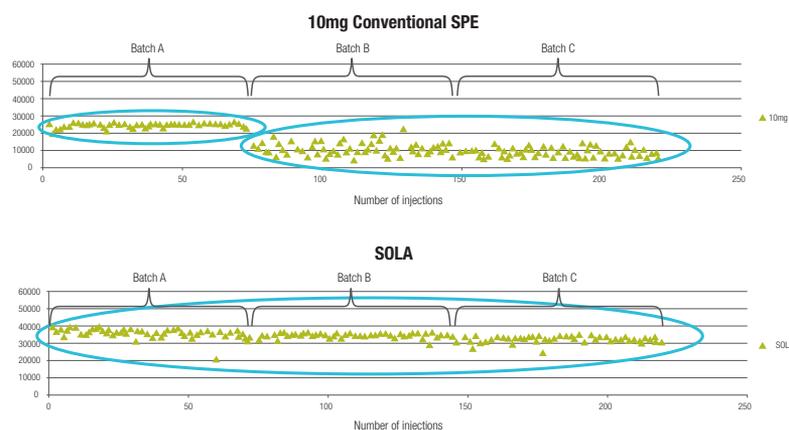


SOLA μ SPE design – limiting issues associated with conventional SPE formats

The manufacturing process also allows for high levels of reproducibility, not only from cartridge to cartridge or well to well but also batch to batch (see figure to the right).

The SOLA μ SPE range has the added benefit of being able to provide:

- Up to a 20 fold increase in sensitivity
- Ability to process samples restricted in volume
- Increased workflow efficiency and sample integrity

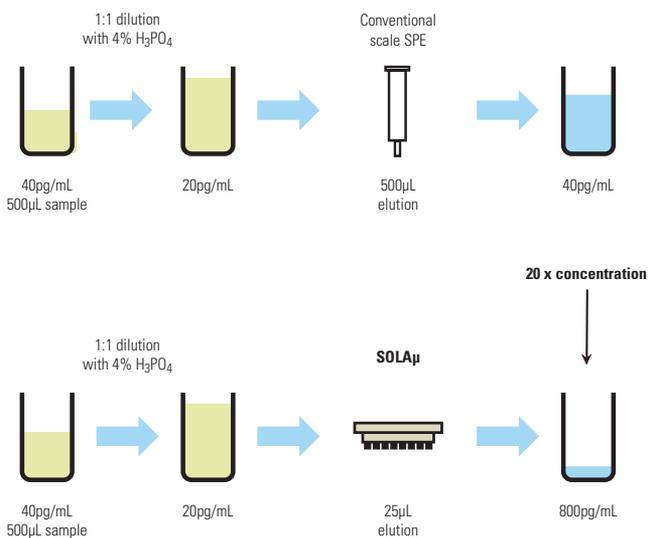


Batch to batch reproducibility of SOLA compared to a conventional SPE product

Increase your MS sensitivity

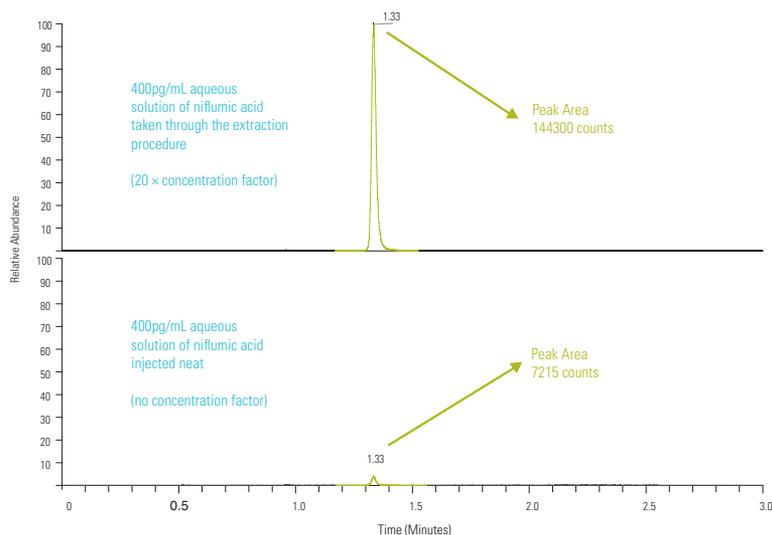
Up to 20 times increase in sensitivity can be achieved by loading a large volume of sample and eluting in a low volume.

In the following example 500µL of human plasma was loaded onto the SOLAµ plate for the analysis of niflumic acid. The compound was eluted in 25µL, providing a 20 times increase in concentration whilst maintaining excellent precision.



The problem:
improvement in assay sensitivity required

SOLAµ solution:
SOLAµ for up to 20 times increase in concentration of sample without changes to workflow

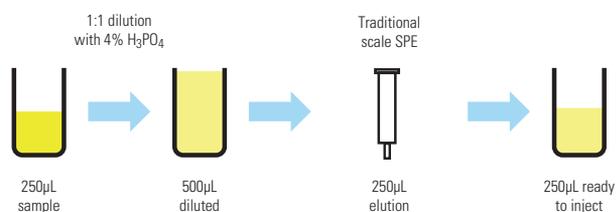


	Precision Data for Niflumic Acid Peak Area Ratio (%RSD) n = 18	Recovery of Niflumic Acid (%)	Matrix Effects (%)
QC Low (0.4ng/mL)	1.31	89.9	8.63
QC High (30ng/mL)	1.06	94.0	3.21

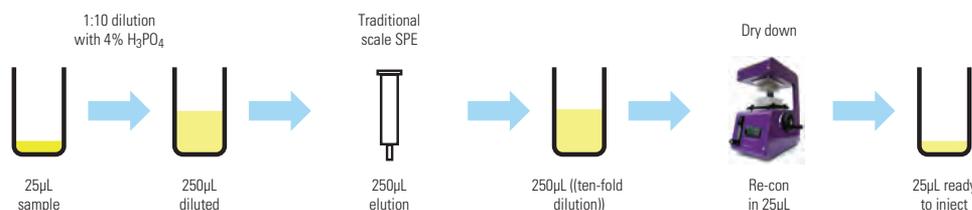
Sample limited assays

SOLA μ allows you to directly scale down the volumes used in analytical methods, allowing for a reduction in sample usage and eliminating issues caused by evaporation, without compromising the sensitivity of your assay. This is also an important consideration when sample volumes are limited.

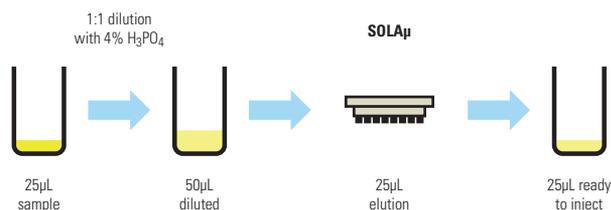
The following example shows that by loading 25 μ L of niflumic acid sample onto the SOLA μ plate and eluting in a total volume of 25 μ L, a ten-fold decrease in sample volume was achieved when compared to a traditional scale higher bed weight product. Equivalent method performance and high levels of reproducibility provided by SOLA technology were still maintained.



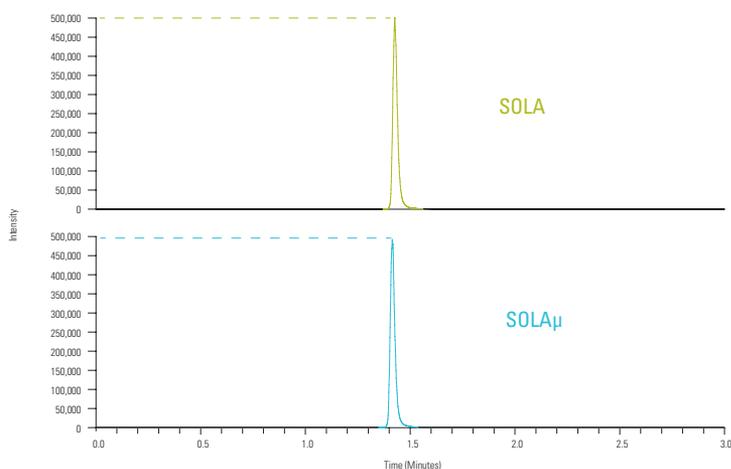
Problem:
large sample volume
requires reduction



Option 1:
introduce additional
steps with
associated issues



Option 2:
scale volumes
directly with no other
method changes



Equivalent peak response achieved for Niflumic Acid with SOLA μ using 25 μ L of sample compared with 250 μ L of sample with a 10mg SOLA SPE device

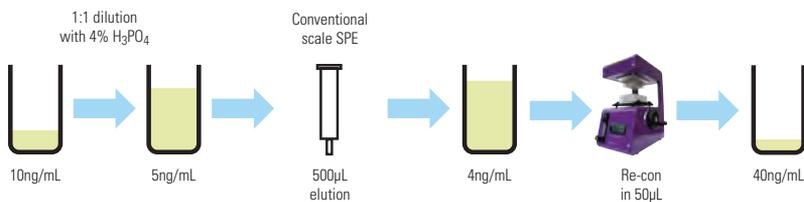
Precision Data for Niflumic Acid		
	Analyte Peak Area (%RSD)	Peak Area Ratio (%RSD)
Low QC	7.32	0.356
High QC	5.33	0.195

Increased workflow efficiency

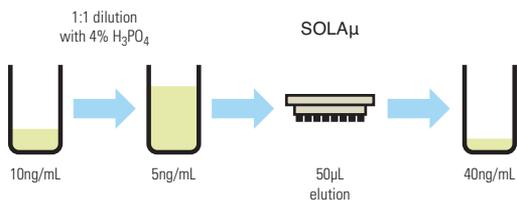
With traditional SPE the eluted sample is typically dried down to increase the concentration of the sample and thus improve the sensitivity. This causes an issue for certain compound types which can be lost during this step, resulting in reduced sensitivity.

SOLA μ allows the sample to be extracted without the need for dry down and reconstitution. Not only does this maximize recovery of the analytes it also improves workflow efficiency and increases productivity.

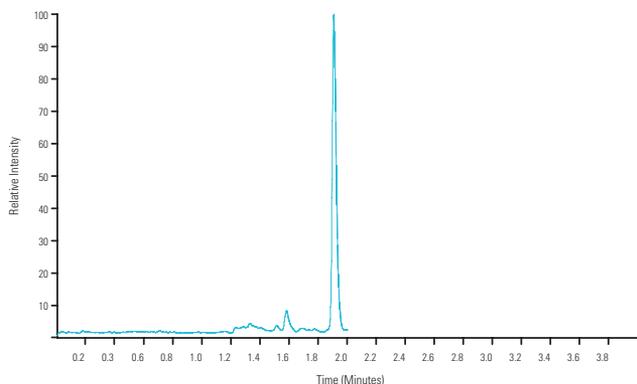
In the case of extraction of ibuprofen a four-fold pre-concentration was achieved without the need for dry down by loading 200 μ L of sample onto the SOLA μ plate and eluting in a total of 50 μ L. The results demonstrate that even with this low elution volume, excellent reproducibility was achieved.



The problem:
workflow requires dry down to achieve sensitivity



SOLA μ solution:
low elution volume allows removal of dry down



Peak response for ibuprofen

	Ibuprofen (%RSD) n=18	Ibuprofen recovery (%)
Low QC (25ng/mL)	4.00	90
High QC (750ng/mL)	1.70	95

SOLA and SOLA μ meet bioanalytical needs by providing:

- A robust low sample volume preparation platform
- Reproducibility at low sample and solvent levels
- Increased workflow efficiency and throughput
- Sample enrichment (20 times)
- Mitigation against solvation and non-specific binding issues

SOLA μ 96 Well Plates

Description	Bed Weight (mg)	Column Volume (mL)	Cat No.	Quantity
SOLA μ HRP	2	1	60209-001	1 Each
SOLA μ SCX	2	1	60209-002	1 Each
SOLA μ SAX	2	1	60209-003	1 Each
SOLA μ WCX	2	1	60209-004	1 Each
SOLA μ WAX	2	1	60209-005	1 Each

SOLA SPE Cartridges

Description	Bed Weight (mg)	Column Volume (mL)	Cat No.	Quantity
SOLA HRP	10	1	60109-001	100 Pack
SOLA SCX	10	1	60109-002	100 Pack
SOLA SAX	10	1	60109-003	100 Pack
SOLA WCX	10	1	60109-004	100 Pack
SOLA WAX	10	1	60109-005	100 Pack

SOLA 96 Well Plates

Description	Bed Weight (mg)	Well Volume (mL)	Cat No.	Quantity
SOLA HRP	10	2	60309-001	1 Each
SOLA SCX	10	2	60309-002	1 Each
SOLA SAX	10	2	60309-003	1 Each
SOLA WCX	10	2	60309-004	1 Each
SOLA WAX	10	2	60309-005	1 Each

HyperSep SLE Cartridges and Plates

Solid supported liquid/liquid extraction (SLE) is a fast and effective sample preparation technique that provides considerable benefits over liquid-liquid extraction (LLE) protocols for removal of phospholipids from biological samples.

SLE offers the following advantages:

- Greater reproducibility and recoveries compared to LLE techniques
- Prevents emulsification often associated with LLE
- Reduced solvent requirements compared to LLE
- Can be completely automated unlike LLE
- Improved cleanliness of sample extract compared to protein precipitation techniques
- Improved sensitivity compared to protein precipitation techniques



Thermo Scientific™ HyperSep™ SLE is available in cartridge and 96 well plate formats and in acidified or basified formats to help simplify the protocol when acidic or basic mobile phases are used.

HyperSep SLE Cartridges

Special treated diatomite SLE	Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
pH=7	200	3	60109-200-3-7	50 Pack
	500	3	60109-500-3-7	50 Pack
	500	6	60109-500-6-7	30 Pack
	1,000	6	60109-1000-6-7	30 Pack
	2,000	12	60109-2000-12-7	20 Pack
	4,000	25	60109-4000-25-7	15 Pack
	20,000	60	60109-20000-60-7	10 Pack
pH=9	200	3	60109-200-3-9	50 Pack
	500	3	60109-500-3-9	50 Pack
	500	6	60109-500-6-9	30 Pack
	1,000	6	60109-1000-6-9	30 Pack
	2,000	12	60109-2000-12-9	20 Pack
	4,000	25	60109-4000-25-9	15 Pack
	20,000	60	60109-20000-60-9	10 Pack

HyperSep SLE 96 Well Plates

Special treated diatomite SLE	Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
pH=7	200	2	60109-200-2-7W	1 Each
	300	2	60109-300-2-7W	1 Each
	400	2	60109-400-2-7W	1 Each
	500	2	60109-500-2-7W	1 Each
pH=9	200	2	60109-200-2-9W	1 Each
	300	2	60109-300-2-9W	1 Each
	400	2	60109-400-2-9W	1 Each
	500	2	60109-500-2-9W	1 Each

HyperSep Protein Precipitation Plate

Provides a quick and effective approach for removal of proteins from biological compounds using the protein crash technique. In combination with SPE and SLE, the Protein Precipitation Plate offers a comprehensive range of options for sample preparation of biological based compounds. The 96 well plate format provides a high throughput functionality which lends itself to full automation.

- Dual frit design
- Hydrophobic/oleophobic frits to enable only precipitation of proteins
- Pore size optimized for ideal flow rate
- Specially selected polypropylene for low extractables



HyperSep Protein Precipitation Plate

Description	Cat. No.	Quantity
Protein Precipitation Plate	60304-201	1 Each



Microscale SPE Plates and Tips

HyperSep Lab Plates

For the purification and sample preparation of proteins, DNA, RNA and other biomolecules

- Sample concentration of small-scale samples
- Available in a range of chromatographic materials
- 96 well plate format with media embedded at the bottom of the plate
- Can be processed manually or using a liquid-handling robot
- Not suitable for use with a vacuum

Applications:

- Tissue culture and separation of products
- Sample concentration
- Sample clean-up
- Collection of sample after chromatography

HyperSep Lab Plates

Description	Cat. No. (Polystyrene)	Cat. No. (Polypropylene)	Quantity
C18	60110-201	60110-301	5 Pack
C8	60110-202	60110-302	5 Pack
C4	60110-203	60110-303	5 Pack
Hypercarb	60110-204	60110-304	5 Pack
Hypercarb and C18 (Mixed Mode)	60110-205	60110-305	5 Pack
Zirconium Dioxide	60110-206	60110-306	5 Pack
Titanium Dioxide	60110-207	60110-307	5 Pack
SCX	60110-208	60110-308	5 Pack
SAX	60110-209	60110-309	5 Pack

HyperSep Filter Plates

For effective clean-up of small-scale samples

- 96 well plate for the purification and separation of proteins, peptides, DNA, RNA and other biomolecules
- Clean up of microgram-level samples
- Available in a range of chromatographic materials
- Can be used under vacuum

HyperSep Filter Plates

Description	Cat. No. (5-7 μ L Bed Volume)	Cat. No. (40 μ L Bed Volume)	Quantity
C18	60110-401	60110-501	1 Each
C8	60110-402	60110-502	1 Each
C4	60110-403	60110-503	1 Each
Hypercarb	60110-404	60110-504	1 Each
Hypercarb and C18 (Mix Mode)	60110-405	60110-505	1 Each
Zirconium Dioxide	60110-406	60110-506	1 Each
Titanium Dioxide	60110-407	60110-507	1 Each
SCX	60110-408	60110-508	1 Each
SAX	60110-409	60110-509	1 Each

HyperSep Microscale Solid Phase Extraction Tips

Revolutionary micropipette tip for sample preparation

- Faster sample preparation with minimal sample loss
- Patented micropipette tip in which the chromatographic material is directly attached to its inner surface
- No contamination from the supporting matrix
- Separation in volumes as low as 100nL
- Applications include mass spectrometry, desalting, protein purification and electrophoresis



HyperSep Tip Microscale Solid Phase Extraction Tips

Description	Cat. No. (1-10 μ L Capacity)	Cat. No. (10-200 μ L Capacity)	Quantity
Thermo Scientific™ BioBasic™ 18	60109-201	60109-209	96 Pack
BioBasic 8	60109-202	60109-210	96 Pack
BioBasic 4	60109-203	60109-211	96 Pack
Hypercarb	60109-204	60109-212	96 Pack
Hypercarb and C18 (mix mode)	60109-205	60109-213	96 Pack
HILIC	60109-206	60109-214	96 Pack
Trypsin	60109-207	60109-215	96 Pack
Titanium Dioxide	60109-208	60109-216	96 Pack
Zirconium Dioxide	60109-217	60109-218	96 Pack

HyperSep SpinTip Microscale Solid Phase Extraction Tips

Revolutionary micropipette tip for sample preparation

- Pipette tips with a 1 to 2 μ m wide slit at the bottom that permits the liquid to pass through but retains the chromatographic material (20 to 30 μ m)
- Faster sample preparation with minimal sample loss
- No contamination from the supporting matrix
- Separation in volumes as low as 100nL



HyperSep SpinTip Microscale Solid Phase Extraction Tips

Description	Cat. No. (1-10 μ L Capacity)	Cat. No. (10-200 μ L Capacity)	Quantity
C18	60109-401	60109-412	96 Pack
C8	60109-402	60109-413	96 Pack
C4	60109-403	60109-414	96 Pack
Hypercarb	60109-404	60109-415	96 Pack
Hypercarb and C18 (mix mode)	60109-405	60109-416	96 Pack
HILIC	60109-406	60109-417	96 Pack
Trypsin	60109-407	60109-418	96 Pack
POROS Weak Anion Exchanger	60109-408	60109-419	96 Pack
POROS Strong Anion Exchanger	60109-409	60109-420	96 Pack
POROS Strong Cation Exchanger	60109-410	60109-421	96 Pack
Titanium Dioxide	60109-411	60109-422	96 Pack
Zirconium Dioxide	60109-424	60109-425	96 Pack

HyperSep SPE Cartridges and Plates

HyperSep Retain SPE Cartridges and Plates

Versatile polymeric materials for retention of polar, non-polar, basic and acidic drugs

- Exceptional recoveries for polar and non-polar analytes
- High and consistent recoveries
- High capacity, high purity, highly porous polystyrene DVB material modified with functional groups
 - PEP - urea for polar and non-polar analytes
 - CX - Sulfonic acid for basic analytes
 - AX - Quaternary amine for acidic analytes
- Fast and easy sample preparation and method development
- pH stable 0 to 14



HyperSep Retain PEP/CX/AX SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Retain PEP Cat No.	Retain CX Cat No.	Retain AX Cat No.	Quantity
30	1	60107-201	60107-301	60107-401	100 Pack
30	3	60107-202	60107-302	60107-402	50 Pack
60	3	60107-203	60107-303	60107-403	50 Pack
60	6	60107-208	60107-308	60107-408	30 Pack
100	3	60107-217	60107-317	60107-417	50 Pack
100	6	60107-207	60107-307	60107-407	30 Pack
150	3	60107-209	60107-309	60107-413	30 Pack
150	6	60107-211	60107-311	60107-411	30 Pack
200	3	60107-204	60107-304	60107-404	50 Pack
200	6	60107-212	60107-314	60107-412	30 Pack
500	3	60107-205	60107-305	60107-405	50 Pack
500	6	60107-206	60107-306	60107-406	30 Pack
500	15	60107-219	60107-319	60107-419	20 Pack
1,000	25	60107-215	60107-315	60107-415	20 Pack
1,000	6	60107-218	60107-318	60107-418	30 Pack
2,000	25	60107-214	60107-312	60107-414	20 Pack

Note: For bed weights less than 30mg please refer to SOLA SPE products on page 1-011.

HyperSep Retain PEP/CX/AX 96 Fixed Well Plates

Bed Weight (mg)	Well Volume (mL)	Retain PEP Cat No.	Retain CX Cat No.	Retain AX Cat No.	Quantity
30	1	60306-207	60306-303	60306-403	1 Each
60	1	60306-208	60306-304	60306-404	1 Each

Note: For bed weights less than 30mg please refer to SOLA SPE products on page 1-011.

HyperSep Retain PEP/CX/AX 96 Removable Well Plate

Bed Weight (mg)	Volume (mL)	Retain PEP Cat No.	Retain CX Cat No.	Retain AX Cat No.	Quantity
30	1	60303-207	60303-307	60303-407	1 Each
60	1	60303-208	60303-308	60303-408	1 Each

Note: For bed weights less than 30mg please refer to SOLA SPE products on page 1-011.

Retain PEP Applications

- Drugs and metabolites in biological fluids
- Peptides in serum, plasma or biological fluids
- Environmental samples

Retain CX Applications

- Analysis of a wide range of drugs of abuse including basic and neutral drugs

Retain AX Applications

- Analysis of THC and its metabolites

HyperSep Hypercarb SPE Cartridges and Plates

Unique material for retention of highly polar compounds

- Thermo Scientific™ HyperSep™ Hypercarb™ SPE contains flat, 100% porous graphitic carbon (PGC) with selectivity for structurally similar compounds, offering separation of compounds with simple solvents
- pH stable 0 to 14
- High batch-to-batch reproducibility
- Strong retention properties allow use of low bed weights for concentrated extracts
- Interaction mechanism with polar molecules



HyperSep Hypercarb SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
25	1	60106-304	50 Pack
50	1	60106-303	50 Pack
100	1	60106-302	30 Pack
200	3	60106-301	30 Pack
500	6	60106-402	20 Pack
1,000	6	60106-403	10 Pack
2,000	15	60106-404	10 Pack

HyperSep Hypercarb 96 Fixed Well Plates

Bed Weight (mg)	Well Volume (mL)	Cat. No.	Quantity
10	1	60306-501	1 Each
25	1	60306-502	1 Each
50	1	60306-503	1 Each

HyperSep Hypercarb 96 Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Cat. No.	Quantity
10	1	60302-606	1 Each
25	1	60302-607	1 Each
50	1	60302-608	1 Each

HyperSep C18 SPE Cartridges and Plates

Feature a highly retentive alkyl-bonded phase for extraction of non-polar to moderately polar compounds

HyperSep C18 SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
25	1	60108-376	100 Pack
50	1	60108-390	100 Pack
100	1	60108-302	100 Pack
100	3	60108-765	50 Pack
200	3	60108-303	50 Pack
500	3	60108-304	50 Pack
500	6	60108-305	30 Pack
500	10	60108-786	50 Pack
1,000	6	60108-301	30 Pack
1,000	15	60108-776	20 Pack
2,000	15	60108-701	20 Pack
2000	25	60108-780	20 Pack
5,000	25	60108-702	20 Pack
10,000	75	60108-703	10 Pack

HyperSep C18 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-201	60300-425	1 Each
25	1	60307-202	60300-426	1 Each
50	1	60307-203	60300-427	1 Each
100	1	60307-204	60300-428	1 Each

HyperSep C8 SPE Cartridges and Plates

Less retentive alternative to C18 for polar and non-polar compounds

HyperSep C8 SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-391	100 Pack
100	1	60108-392	100 Pack
200	3	60108-393	50 Pack
500	3	60108-309	50 Pack
500	6	60108-394	30 Pack
1,000	6	60108-427	30 Pack
2,000	15	60108-704	20 Pack
5,000	25	60108-705	20 Pack
10,000	75	60108-706	10 Pack

HyperSep C8 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-211	60300-445	1 Each
25	1	60307-212	60300-446	1 Each
50	1	60307-213	60300-447	1 Each
100	1	60307-214	60300-448	1 Each

Applications:

- Retentive for non-polar compounds
- Retains most organic analytes from aqueous matrices

Applications:

- Drugs and their metabolites in biological samples
- Peptides in biological samples

HyperSep Silica SPE Cartridges and Plates

A polar sorbent primarily used to retain analytes in non-polar matrices

HyperSep Silica SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-409	100 Pack
100	1	60108-317	100 Pack
200	3	60108-410	50 Pack
500	3	60108-315	50 Pack
500	6	60108-411	30 Pack
500	10	60108-793	50 Pack
1,000	6	60108-426	30 Pack
2,000	15	60108-710	20 Pack
5,000	25	60108-711	20 Pack
10,000	25	60108-853	20 Pack
10,000	75	60108-712	10 Pack
50,000	150	60108-850	10 Pack
20,000	75	60108-851	10 Pack
70,000	150	60108-852	10 Pack

HyperSep Silica 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-231	60300-485	1 Each
25	1	60307-232	60300-486	1 Each
50	1	60307-233	60300-487	1 Each
100	1	60307-234	60300-488	1 Each

Applications:

- Extraction of polar compounds including aldehydes, amines, drugs, pesticides and herbicides
- Extraction of carotenoids, fat-soluble vitamins, aflatoxins in food matrices
- Extraction of fatty acids and phospholipids

HyperSep Acid Wash Silica SPE Cartridges and Plates

HyperSep Acid Wash Silica SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-901	100 Pack
100	1	60108-902	100 Pack
100	10	60108-903	50 Pack
200	3	60108-904	50 Pack
200	10	60108-905	50 Pack
500	3	60108-906	50 Pack
500	6	60108-907	30 Pack
500	10	60108-908	50 Pack
1,000	6	60108-909	30 Pack
2,000	15	60108-910	20 Pack
5,000	25	60108-911	20 Pack
10,000	75	60108-912	10 Pack

Applications:

- Extraction of polar compounds from ground, waste and drinking water
- Extraction of polar compounds from food and beverages

HyperSep Acid Wash Silica 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-321	60300-831	1 Each
25	1	60307-322	60300-832	1 Each
50	1	60307-323	60300-833	1 Each
100	1	60307-324	60300-834	1 Each

HyperSep Phenyl SPE Cartridges and Plates

Offer alternative selectivity for retention of basic compounds

HyperSep Phenyl SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-516	100 Pack
100	1	60108-386	100 Pack
200	3	60108-387	50 Pack
500	3	60108-388	50 Pack
500	6	60108-389	30 Pack
1,000	6	60108-517	30 Pack
2,000	15	60108-707	20 Pack
5,000	25	60108-708	20 Pack
10,000	75	60108-709	10 Pack

Applications:

- Extraction of aromatic compounds
- Extraction of basic analytes

HyperSep Phenyl 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-221	60300-685	1 Each
25	1	60307-222	60300-686	1 Each
50	1	60307-223	60300-687	1 Each
100	1	60307-224	60300-688	1 Each

HyperSep Diol SPE Cartridges and Plates

Ideal for the extraction of polar compounds

HyperSep Diol SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-571	100 Pack
100	1	60108-572	100 Pack
200	3	60108-573	50 Pack
500	3	60108-574	50 Pack
500	6	60108-575	30 Pack
1,000	6	60108-576	30 Pack
2,000	15	60108-755	20 Pack
5,000	25	60108-756	20 Pack
10,000	75	60108-757	10 Pack

Applications:

- Normal phase extraction of polar compounds
- Purification of polar compounds

HyperSep Diol 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-311	60300-630	1 Each
25	1	60307-312	60300-631	1 Each
50	1	60307-313	60300-632	1 Each
100	1	60307-314	60300-633	1 Each

HyperSep Verify CX SPE Cartridges and Plates

Features non-polar and ionic characteristics for improved analysis of drugs of abuse

HyperSep Verify CX SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-741	100 Pack
130	1	60108-719	100 Pack
130	10	60108-769	50 Pack
200	3	60108-777	50 Pack
200	6	60108-722	50 Pack
200	10	60108-742	50 Pack
300	3	60108-720	50 Pack
500	3	60108-721	50 Pack
500	6	60108-723	30 Pack
1,000	6	60108-724	30 Pack

Applications:

- Analysis of a wide range of drugs of abuse from biological matrices, including basic and neutral drugs

HyperSep Verify CX 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-261	60300-805	1 Each
25	1	60307-262	60300-806	1 Each
50	1	60307-263	60300-807	1 Each
100	1	60307-264	60300-808	1 Each

HyperSep Verify AX SPE Cartridges and Plates

Features non-polar and ionic characteristics for improved analysis of acidic drugs and metabolites

HyperSep Verify AX SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
130	1	60108-727	100 Pack
130	10	60108-767	50 Pack
200	3	60108-768	30 Pack
200	6	60108-730	50 Pack
200	10	60108-764	50 Pack
300	3	60108-728	50 Pack
500	3	60108-729	50 Pack
500	6	60108-731	30 Pack
1,000	6	60108-732	30 Pack

Applications:

- Analysis of THC and its metabolites

HyperSep Verify AX 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-271	60300-813	1 Each
25	1	60307-272	60300-814	1 Each
50	1	60307-273	60300-815	1 Each
100	1	60307-274	60300-816	1 Each

HyperSep Strong Cation Exchanger (SCX) SPE Cartridges and Plates

A strong cation exchange sorbent for extraction of charged basic compounds

HyperSep Strong Cation Exchanger (SCX) SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-420	100 Pack
100	1	60108-421	100 Pack
200	3	60108-422	50 Pack
500	3	60108-423	50 Pack
500	6	60108-520	30 Pack
1,000	6	60108-433	30 Pack
2,000	15	60108-716	20 Pack
5,000	25	60108-717	20 Pack
10,000	75	60108-718	10 Pack
20,000	75	60108-857	10 Pack
50,000	150	60108-858	10 Pack

Applications:

- Isolation of cationic compounds from complex samples
- Removal of basic drugs
- Organic bases
- Nucleic acid bases, nucleotides and surfactants

HyperSep Strong Cation Exchanger (SCX) 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-251	60300-585	1 Each
25	1	60307-252	60300-586	1 Each
50	1	60307-253	60300-587	1 Each
100	1	60307-254	60300-588	1 Each

HyperSep Strong Anion Exchanger (SAX) SPE Cartridges and Plates

Strong anion exchange sorbent for extraction of weak acids

HyperSep Strong Anion Exchanger (SAX) SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-417	100 Pack
100	1	60108-418	100 Pack
200	3	60108-419	50 Pack
500	3	60108-521	50 Pack
500	6	60108-360	30 Pack
1,000	6	60108-434	30 Pack
2,000	15	60108-713	20 Pack
5,000	25	60108-714	20 Pack
10,000	75	60108-715	10 Pack

Applications:

- Isolation of anionic compounds from complex samples
- Removal of acidic food pigments
- Isolation of phenolic compounds
- Nucleic acids, nucleotides and surfactants

HyperSep Strong Anion Exchanger (SAX) 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-241	60300-565	1 Each
25	1	60307-242	60300-566	1 Each
50	1	60307-243	60300-567	1 Each
100	1	60307-244	60300-568	1 Each

HyperSep Carboxylic Acid (WCX) SPE Cartridges and Plates

Weak cation exchange sorbent for extraction of strong bases

HyperSep Carboxylic Acid (WCX) SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-201	100 Pack
100	1	60108-202	100 Pack
200	3	60108-203	50 Pack
200	10	60108-207	50 Pack
500	3	60108-204	50 Pack
500	6	60108-205	30 Pack
1,000	6	60108-206	30 Pack
2,000	15	60108-208	20 Pack
5,000	25	60108-209	20 Pack

Applications:

- Drugs and metabolites in biological fluids
- Peptides in serum, plasma or biological fluids
- Pesticides in water, food and beverages
- Nucleic acids, nucleotides and surfactants

HyperSep Carboxylic Acid (WCX) 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-331	60300-841	1 Each
25	1	60307-332	60300-842	1 Each
50	1	60307-333	60300-843	1 Each
100	1	60307-334	60300-844	1 Each

HyperSep Aminopropyl (WAX) SPE Cartridges and Plates

Weak anion exchange sorbent for extraction of strong acids

HyperSep Aminopropyl (WAX) SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-424	100 Pack
50	3	60108-429	50 Pack
100	1	60108-364	100 Pack
200	3	60108-425	50 Pack
500	3	60108-518	50 Pack
500	6	60108-519	30 Pack
1,000	6	60108-432	30 Pack
2,000	15	60108-738	20 Pack
5,000	25	60108-739	20 Pack
10,000	75	60108-740	10 Pack

Applications:

- Separation of structural isomers
- Drugs and metabolites in biological fluids
- Separation of saccharides, phenols and petroleum products

HyperSep Aminopropyl (WAX) 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-291	60300-505	1 Each
25	1	60307-292	60300-506	1 Each
50	1	60307-293	60300-507	1 Each
100	1	60307-294	60300-508	1 Each

HyperSep Florisil SPE Cartridges and Plates

Ideal for the isolation of polar compounds from non-polar matrices

HyperSep Florisil SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-402	100 Pack
100	1	60108-403	100 Pack
200	3	60108-404	50 Pack
500	3	60108-405	50 Pack
500	6	60108-500	30 Pack
1,000	6	60108-431	30 Pack
2,000	6	60108-758	30 Pack
2,000	15	60108-735	20 Pack
5,000	25	60108-736	20 Pack
10,000	75	60108-737	10 Pack

HyperSep Florisil 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-281	60300-725	1 Each
25	1	60307-282	60300-726	1 Each
50	1	60307-283	60300-727	1 Each
100	1	60307-284	60300-728	1 Each

HyperSep Cyano SPE Cartridges and Plates

Optimized for the retention of moderately polar compounds from non-polar matrices

HyperSep Cyano SPE Cartridges

Bed Weight (mg)	Column Volume (mL)	Cat. No.	Quantity
50	1	60108-746	100 Pack
100	1	60108-745	100 Pack
200	3	60108-747	50 Pack
500	3	60108-748	50 Pack
500	6	60108-749	30 Pack
1,000	6	60108-750	30 Pack
2,000	15	60108-751	20 Pack
5,000	25	60108-752	20 Pack
10,000	75	60108-753	10 Pack

HyperSep Cyano 96 Fixed/Removable Well Plates

Bed Weight (mg)	Well Volume (mL)	Fixed Cat. No.	Removable Cat. No.	Quantity
10	1	60307-301	60300-821	1 Each
25	1	60307-302	60300-822	1 Each
50	1	60307-303	60300-823	1 Each
100	1	60307-304	60300-824	1 Each



Applications:

- Extraction of pesticides using official methods
- Polychlorinated biphenyls in transformer oil
- Alcohol, aldehydes, amines and drugs

Applications:

- Retaining polar compounds from hexane and oils
- Reversed phase extraction of moderately polar compounds

SPE Manifolds and Accessories

A comprehensive range of accessories to improve your sample preparation workflow

HyperSep Positive Pressure Manifold

HyperSep Positive Pressure Manifold

Description	Cat. No.	Quantity
Positive Pressure Manifold with 13mm Collection Rack	60104-236	1 Each
Positive Pressure Manifold with 16mm Collection Rack	60104-274	1 Each
Adaptor Plate for 1mL Cartridges for PP Manifold	60104-265	1 Each
Adaptor Plate for 3mL Cartridges for PP Manifold	60104-266	1 Each
Adaptor Plate for 6mL Cartridges for PP Manifold	60104-267	1 Each
Adaptor Plate for 10mL/15mL Cartridges for PP Manifold	60104-271	1 Each
Collection Rack for 13mm Tubes	60104-268	1 Each
Collection Rack for 16mm Tubes	60104-269	1 Each
Pre-Drilled Waste Container	60104-270	1 Each
Installation Kit	60104-272	1 Each
In Line Air Filter	60104-273	1 Each



HyperSep Universal Vacuum Manifold

- Accommodates both SPE cartridges and 96 well plates
- System supplied with: Manifold, base/gauge, flask and stopper, tubing and spigots



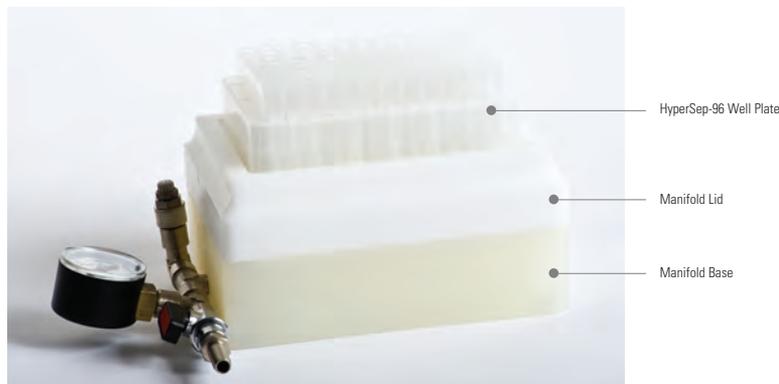
HyperSep Universal Vacuum Manifold

Description	Cat. No.	Quantity
Universal Vacuum Manifold	60104-230	1 Each
Vacuum Pump, European Version	60104-241	1 Each
Vacuum Pump, North American Version	60104-243	1 Each
24 Well Extraction Plate	60104-284	1 Each
48 Well Extraction Plate	60104-289	1 Each
Plugs for 24-position Extraction Plate	60104-234	24 Pack
Plugs for 48-position Extraction Plate	60104-235	48 Pack

HyperSep-96 Well Plate Vacuum Manifold

Included with system:

- Base
- Lid
- Waste collection tray



HyperSep-96 well plate is not included and needs to be purchased separately.

HyperSep-96 Well Plate Manifolds

Description	Cat. No.	Quantity
HyperSep-96 Vacuum Manifold	60103-351	1 Each
Vacuum Pump, European Version	60104-241	1 Each
Vacuum Pump, North American Version	60104-243	1 Each

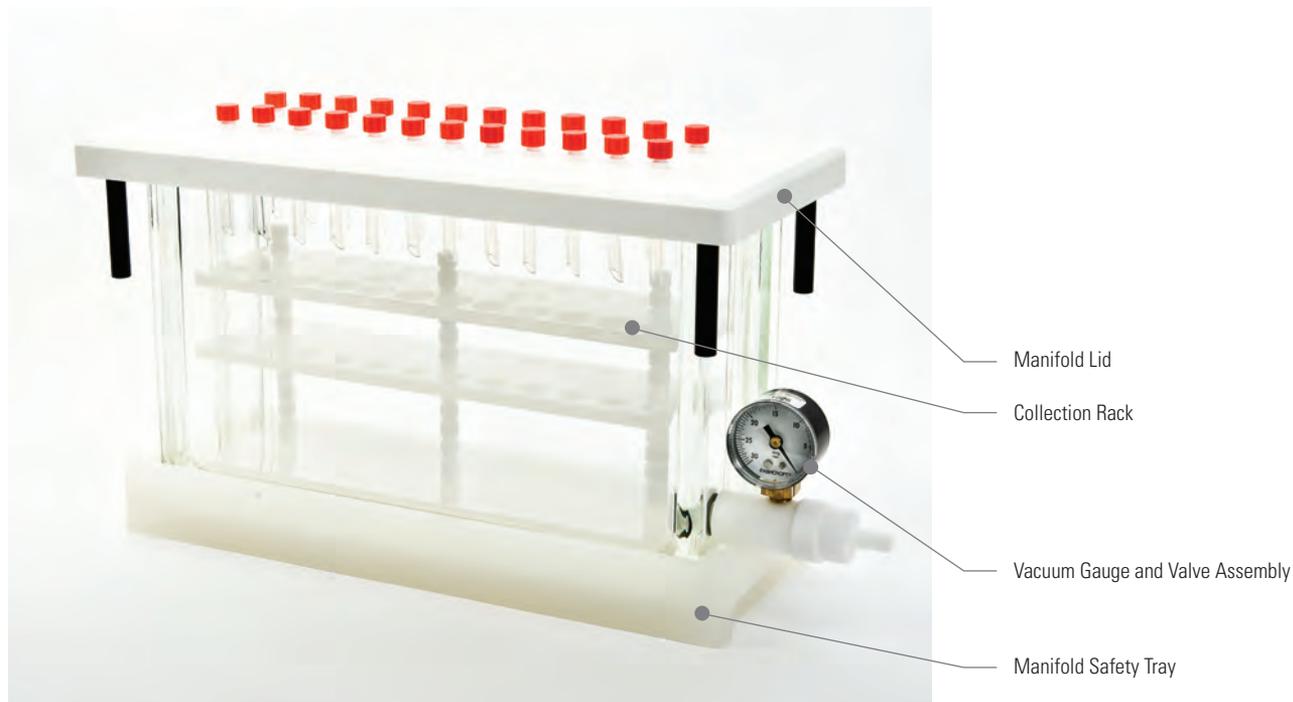
HyperSep Glass Block Manifolds

16-Port Vacuum Manifold:

- Glass Block, Corian Manifold Lid, Cover Gasket, Vacuum Gauge and Valve Assembly, 16 Tips, Adjustable Collection Rack, Bulkhead Luer Fittings, 16 Plugs and Manifold Safety Tray

24-Port Vacuum Manifold:

- Glass Block, Corian Manifold Lid, Cover Gasket, Vacuum Gauge and Valve Assembly, 24 Tips, Adjustable Collection Rack, Bulkhead Luer Fittings, 24 Plugs and Manifold Safety Tray



Luer Lock Plugs
(Cat. No. 60104-258)



Retaining Clips for Collection Rack
(Cat. No. 60104-255)



Bulkhead Luer Fittings
(Cat. No. 60104-256)



Collection Rack
(Cat. No. 60104-251 (16 port),
60104-252 (24 port))



Vacuum Gauge
(Cat. No. 60104-240)



Valve Assembly
(Cat. No. 60104-261)



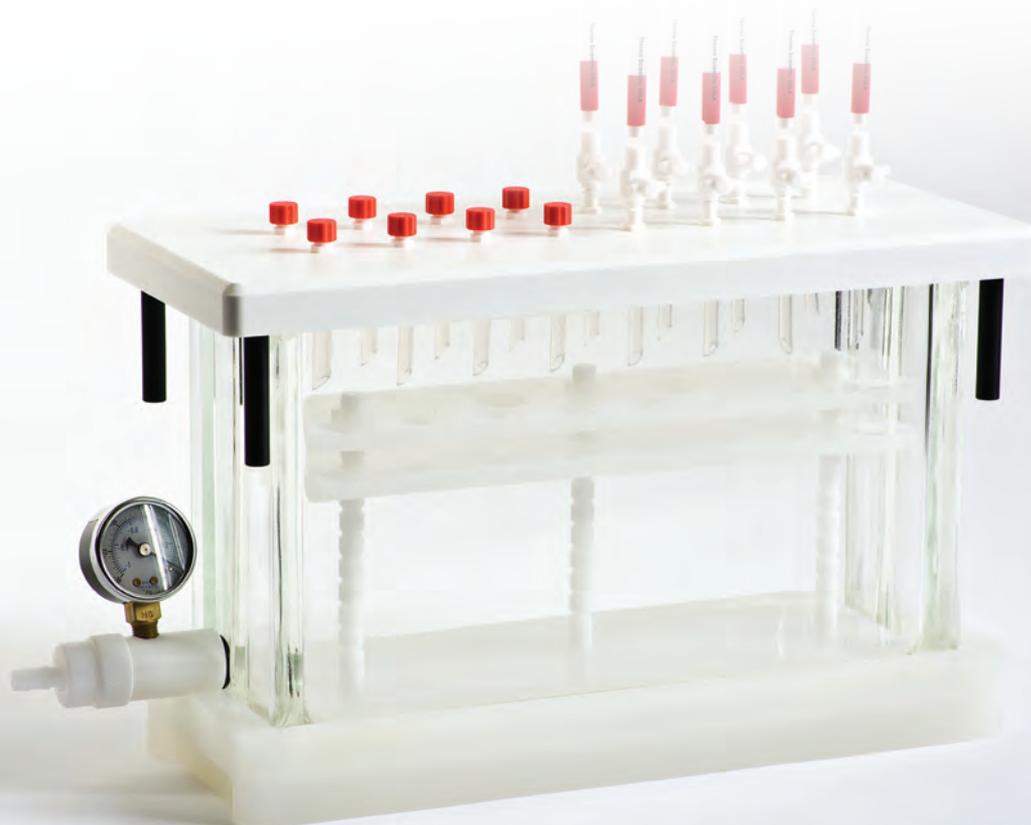
Tips
(Cat. No. 60104-245)



Manifold Lid Legs
(Cat. No. 60104-257)

HyperSep Glass Block Manifolds

Description	Cat. No.	Quantity
16-port Vacuum Manifold	60104-232	1 Each
24-port Vacuum Manifold	60104-233	1 Each
Vacuum Pump, European Version	60104-241	1 Each
Vacuum Pump, North American Version	60104-243	1 Each
Replacement Parts		
Vacuum Gauge	60104-240	1 Each
Stopcocks for 16-port Vacuum Manifold	60104-242	16 Pack
Stopcocks for 24-port Vacuum Manifold	60104-244	24 Pack
Tips for Vacuum Manifold	60104-245	12 Pack
Lid for 16-port Glass Block Manifold	60104-262	1 Each
Lid for 24-port Glass Block Manifold	60104-248	1 Each
Gasket for 16-port Manifold	60104-249	1 Each
Gasket for 24-port Manifold	60104-250	1 Each
Collection Rack for 16-port Vacuum Manifold	60104-251	1 Each
Collection Rack for 24-port Vacuum Manifold	60104-252	1 Each
Glass Block for 16-port Vacuum Manifold	60104-253	1 Each
Glass Block for 24-port Vacuum Manifold	60104-254	1 Each
Retaining Clips for Collection Rack	60104-255	12 Pack
Bulkhead Luer Fittings	60104-256	12 Pack
Manifold Lid Legs	60104-257	4 Pack
Luer Lock Plugs	60104-258	12 Pack
Column Adaptors	60104-259	15 Pack
Manifold Safety Tray	60104-260	1 Each
Vacuum Gauge and Valve Assembly	60104-261	1 Each
Collection Rack Posts	60104-264	3 Pack



HyperSep Online SPE Products

Retain specific analytes in a sample matrix when used with an appropriate HPLC column



- Effective removal of contaminants such as proteins from samples
- Compatible with conventional HPLC systems
- Fast and effective clean-up and concentration of target compounds

HyperSep Javelin Direct-Connect Online SPE Columns

ID (mm)	Length (mm)	Retain PEP	Retain CX	Retain AX	Hypercarb	Quantity
2.1	10	60310-201	60310-301	60310-401	60310-501	4 Pack
3.0	10	60310-202	60310-302	60310-402	60310-502	4 Pack

HyperSep UNIGUARD Direct-Connect Online SPE Cartridges

ID (mm)	Length (mm)	Retain PEP	Retain CX	Retain AX	Hypercarb	Quantity
2.1	10	60311-201	60311-301	60311-401	60311-501	4 Pack
3.0	10	60311-202	60311-302	60311-402	60311-502	4 Pack

HyperSep HPLC Columns for Online SPE

ID (mm)	Length (mm)	Retain PEP	Retain CX	Retain AX	Hypercarb	Quantity
2.1	20	60312-201	60312-301	60312-401	60312-501	1 Each
3.0	20	60312-202	60312-302	60312-402	60312-502	1 Each

Perform Better. Live Longer.

Discover our Accucore Solid Core LC Columns

 Visit **PAGE 4-005**





HyperSep Dispersive SPE (QuEChERS)

Fast, easy and robust sample preparation of food for pesticide analysis

QuEChERS dispersive SPE products provide a Quick, Easy, Cheap, Effective, Rugged and Safe sample preparation technique for multi-residue pesticide analysis. Products are available in a wide range of formats to meet application requirements.

QuEChERS methods overcome problems associated with time consuming, expensive and labor intensive multi-residue methods (MRM).

- **Fast and Easy Sample Preparation**
- **Robust and Reproducible Process**
- **High Recovery and Reproducibility**



Learn more about HyperSep Dispersive SPE at
www.thermoscientific.com/samplepreparation



HyperSep Dispersive SPE

Considerations in method development

- Determine the properties of the pesticides of interest:
 - Base sensitive compounds - use extraction product with sodium acetate
 - pH dependent
 - Non-base sensitive compounds - use extraction product with sodium chloride or sodium citrate
- Determine the properties of the sample matrix:
 - General
 - Fatty
 - Pigmented
 - Highly pigmented

Product Selection – Sample Cleanup

Matrix Type	Examples	Sorbent Requirements
General Matrices	Apples Cucumber Melon	Magnesium sulfate, PSA
Fatty Matrices	Milk Cereals Fish	Magnesium sulfate, PSA, C18
Pigmented Matrices	Lettuce Carrot Wine	Magnesium sulfate, PSA, C18, GCB
High Pigmented Matrices	Spinach Red Peppers	Magnesium sulfate, PSA, C18, GCB



QuEChERS Troubleshooting

Problem	Causes	Recommended Solutions
Loss of planar pesticides	Presence of GCB may result in a loss of planar compounds	Use a product with less GCB Use the Dual Phase QuEChERS product
Loss of acidic compounds e.g. 2,4-D from starting matrix	Presence of PSA will extract acidic compounds from matrix	Use a product containing magnesium sulfate and C18
Loss of compounds during subsequent analysis	Some compounds are unstable and can break down during analysis	Use an analyte protectant e.g. toluene or sorbitol
Addition of sample to QuEChERS extraction tube containing sorbent causes an exothermic reaction	Exothermic reaction between water in sample and magnesium sulfate	Add the sample to the tube, then the solvents, then the sorbent materials
Poor recovery of pesticide compounds	Sample not in appropriate homogenization state	Wrong products used in method Ensure sample is hydrated to 80% or higher Verify nature of pesticides e.g. are base sensitive compounds present

HyperSep Dispersive SPE Extraction Products

HyperSep Dispersive SPE Pre-Packed Extraction Products

Description	Capacity (mL)	Cat. No. (250 Pack)	Cat. No. (25 Pack)
6000mg anhydrous magnesium sulfate, 1500mg anhydrous sodium acetate	50	60105-210	60105-310
4000mg anhydrous magnesium sulfate, 1000mg anhydrous sodium chloride	50	60105-211	60105-311
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride, 1000mg sodium citrate tribasic dihydrate, 500mg disodium citrate sesquihydrate	50	60105-216	60105-316
6000mg anhydrous magnesium sulfate, 1500mg sodium chloride, 1500mg sodium citrate tribasic dihydrate, 750mg disodium citrate sesquihydrate	50	60105-212	60105-312
1500mg magnesium sulfate, 500mg C18	50	60105-234	–

Each pack contains centrifuge tubes pre-packed with sorbents

HyperSep Dispersive SPE Multipacks

Description	Cat. No.	Quantity
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride	60105-332	50 Pack
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride, 500mg sodium citrate dibasic sesquihydrate, 1000mg sodium citrate tribasic	60105-333	50 Pack
4000mg anhydrous magnesium sulfate, 1000mg sodium acetate	60105-334	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg sodium acetate	60105-335	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg sodium chloride	60105-336	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg magnesium sulfate, 1500mg sodium citrate dihydrate, 750mg disodium citrate sesquihydrate	60105-337	50 Pack
8000mg anhydrous magnesium sulfate, 2000mg of sodium chloride	60105-338	50 Pack
8000mg anhydrous magnesium sulfate, 3500mg of sodium chloride	60105-339	50 Pack

Each pack contains centrifuge tubes and sorbents packaged in mylar pouches

HyperSep Dispersive SPE Mylar Pouches

Description	Cat. No.	Quantity
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride	60105-340	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg sodium acetate (anhydrous)	60105-341	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg sodium chloride	60105-342	50 Pack
6000mg anhydrous magnesium sulfate, 1500mg sodium chloride, 1500mg sodium citrate dihydrate, 750mg disodium citrate sesquihydrate	60105-343	50 Pack
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride, 500mg sodium citrate dibasic sesquihydrate, 1000mg sodium citrate tribasic	60105-344	50 Pack
1200mg sodium chloride	60105-345	50 Pack
4000mg sodium sulfate and 500mg anhydrous magnesium sulfate	60105-346	50 Pack
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride, 1500mg sodium citrate dibasic dihydrate	60105-347	100 Pack
4000mg anhydrous magnesium sulfate, 2000mg sodium chloride, 1500mg sodium citrate dibasic dihydrate	60105-348	100 Pack

Each pack contains sorbents packaged in mylar pouches (no centrifuge tubes provided)

HyperSep Dispersive SPE Clean-Up Products

HyperSep Dispersive SPE Clean-Up Products

Description	Capacity (mL)	Cat. No. (100 Pack)	Cat. No. (10 Pack)
150mg anhydrous magnesium sulfate, 50mg PSA, 50mg GCB	2	60105-202	60105-302
150mg anhydrous magnesium sulfate, 50mg PSA	2	60105-203	60105-303
150mg anhydrous magnesium sulfate, 50mg PSA, 50mg C18	2	60105-204	60105-304
150mg anhydrous magnesium sulfate, 25mg PSA	2	60105-219	60105-319
150mg anhydrous magnesium sulfate, 25mg PSA, 25mg C18	2	60105-220	60105-320
150mg anhydrous magnesium sulfate, 25mg PSA, 2.5mg GCB	2	60105-221	60105-321
150mg anhydrous magnesium sulfate, 25mg PSA, 7.5mg GCB	2	60105-222	60105-322
150mg anhydrous magnesium sulfate, 50mg PSA, 50mg C18, 50mg GCB	2	60105-223	60105-323
150mg anhydrous magnesium sulfate, 50mg PSA, 50mg chlorofiltr™	2	60105-232	-
150mg anhydrous magnesium sulfate, 150mg PSA	2	-	60105-350

Description	Capacity (mL)	Cat. No. (100 Pack)	Cat. No. (10 Pack)
900mg anhydrous magnesium sulfate, 300mg PSA, 150mg GCB	15	60105-205	60105-305
900mg anhydrous magnesium sulfate, 300mg PSA, 150mg C18	15	60105-206	60105-306
750mg anhydrous magnesium sulfate, 250mg PSA, 250mg C18, 250mg GCB	15	60105-213	60105-313
900mg anhydrous magnesium sulfate, 300mg PSA	15	60105-214	60105-314
900mg anhydrous magnesium sulfate, 150mg PSA	15	60105-215	60105-315
900mg anhydrous magnesium sulfate, 150mg PSA, 45mg GCB	15	60105-217	60105-317
900mg anhydrous magnesium sulfate, 150mg PSA, 15mg GCB	15	60105-218	60105-318
1200mg anhydrous magnesium sulfate, 400mg PSA	15	60105-224	60105-324
1200mg anhydrous magnesium sulfate, 400mg PSA, 400mg C18	15	60105-225	60105-325
1200mg anhydrous magnesium sulfate, 400mg PSA, 400mg C18, 400mg GCB	15	60105-226	60105-326
900mg anhydrous magnesium sulfate, 150mg PSA, 150mg C18	15	60105-227	60105-327
150mg anhydrous magnesium sulfate, 50mg PSA, 50mg GCB	15	60105-230	60105-330
150mg anhydrous magnesium sulfate, 300mg PSA, 150mg chlorofiltr	15	60105-231	60105-331
1200mg anhydrous magnesium sulfate, 900mg PSA	15	60105-235	-
4000mg anhydrous magnesium sulfate, 1000mg sodium chloride, 1000mg sodium citrate tribasic dihydrate, 500mg sodium citrate dibasic sesquihydrate	15	60105-236	-
150mg anhydrous magnesium sulfate, 150mg PSA, 50mg C18	15	60105-238	-

Each pack contains centrifuge tubes pre-packed with sorbents

Homogenizers

Description	Cat. No.	Quantity
Homogenizers for 15mL QuEChERS tubes	60106-421	50 Pack
Homogenizers for 50mL QuEChERS tubes	60106-422	50 Pack

HyperSep Dispersive SPE Clean-Up Products for Schenck Method

Description	Capacity (mL)	Cat. No.	Quantity
400mg PSA on bottom, 200mg GCB on top, separated by a frit	6	60105-207	30 Pack
500mg PSA on bottom, 250mg GCB on top, separated by a frit	6	60105-208	30 Pack
500mg PSA on bottom, 500mg GCB on top, separated by a frit	6	60105-209	30 Pack



Syringes and Filtration

Providing high quality filtration solutions for a variety of samples and applications

Choose from a variety of syringe filter sizes, membranes and housings for a wide range of laboratory applications.

- **High Quality Filtration**
Low extractable membranes and solvent-resistant housing
- **Titan3 Color Coded Ring**
For easy selection of correct membrane and pore size
- **High Burst Pressures**
For enhanced robustness in sample processing



The syringe filter web page contains the latest news, applications and downloads for the range.
Visit www.thermoscientific.com/syringefilters

Titan3 Syringe Filters

- Low extractable membranes and housing
- HPLC performance tested
- Color coding for easy selection of the correct membrane and pore size
- Enhanced Luer Lock inlet which prevents leakage
- Most 30mm devices are provided with a 1mm boro-silicate glass pre-filter
This is of benefit for high solids samples with larger size particulates
- Integral ring provides greater strength to the housing preventing leakage and bursting
- 30mm products pressure rated to 120psi
- Packed in re-usable rigid transparent color coded containers



Titan3 Nylon Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	42204-NN	100 Pack
	0.45	No	44504-NN	100 Pack
17	0.2	No	42213-NN	200 Pack
	0.45	No	44513-NN	200 Pack
30	0.2	Yes	42225-NN	100 Pack
	0.45	Yes	44525-NN	100 Pack
	0.45	No	44526-NN	100 Pack
	1.5	No	41225-NN	100 Pack
	5	No	45025-NN	100 Pack

Titan3 PTFE (Hydrophobic) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	42204-NP	100 Pack
	0.45	No	44504-NP	100 Pack
17	0.2	No	42213-NP	200 Pack
	0.45	No	44513-NP	200 Pack
30	0.2	Yes	42225-NP	100 Pack
	0.45	Yes	44525-NP	100 Pack
	1.0	No	41025-NP	100 Pack

Titan3 PTFE (Hydrophilic) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
17	0.2	No	42213-NPL	200 Pack
	0.45	No	44513-NPL	200 Pack
30	0.2	No	42225-NPL	100 Pack
	0.45	No	44525-NPL	100 Pack

Titan3 PVDF Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	42204-PV	100 Pack
	0.45	No	44504-PV	100 Pack
17	0.2	Yes	42213-PV	200 Pack
	0.45	No	44513-PV	200 Pack
30	0.2	Yes	42225-PV	100 Pack
	0.45	No	44525-PV	100 Pack

Applications:

- General laboratory filtration
- Filtration for most HPLC samples

Applications:

- Filtration of aggressive organic, highly basic or hot solutions, transducer protectors
- Filter aqueous solutions after prewetting with an alcohol

Applications:

- Filtration of aggressive organic, highly basic or hot solutions, without the need pre-wet membrane
- Filter aqueous solutions without prewetting with an alcohol

Applications:

- General biological filtration
- Filtration of samples where high protein recovery is desired

Titan3 Regenerated Cellulose Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	52204-RC	100 Pack
	0.45	No	54504-RC	100 Pack
17	0.2	Yes	52213-RC	200 Pack
	0.45	No	54513-RC	200 Pack
30	0.2	Yes	52225-RC	100 Pack
	0.45	No	54525-RC	100 Pack

Titan3 PES (Polyethersulfone) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
17	0.2	No	42213-PS	200 Pack
	0.45	No	44513-PS	200 Pack
30	0.2	Yes	42225-PS	100 Pack
	0.45	No	44525-PS	100 Pack

Titan3 GMF (Glass Microfiber) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
30	0.7	No	40725-GM	100 Pack
	1.2	No	41225-GM	100 Pack
	3.1	No	42725-GM	100 Pack

Titan3 Polypropylene Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
17	0.2	No	42213-PP	200 Pack
	0.45	No	44513-PP	200 Pack
30	0.2	No	42225-PP	100 Pack
	0.45	No	44525-PP	100 Pack

Titan3 Cellulose Acetate Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	42204-CA	100 Pack
	0.45	No	44502-CA	100 Pack
17	0.2	No	42213-CA	100 Pack
	0.45	No	44513-CA	100 Pack
30	0.2	No	42225-CA	100 Pack
	0.45	No	44525-CA	100 Pack

Applications:

- Low non-specific binding applications
- Tissue culture media filtration and general biological sample filtration

Applications:

- Ion chromatography
- Tissue culture filtration, filtration of proteins and nucleic acids
- High-temperature liquids

Applications:

- Dissolution testing
- General filtration

Applications:

- Filtration of biological samples
- Filtration of aggressive organic solutions

Applications:

- Tissue culture media filtration, sensitive biological samples



Target2 Syringe Filters

- Low extractable membranes and housing
- HPLC performance tested
- Plain polypropylene housing
- 30mm products pressure rated to 100psi
- Enhanced Luer Lock inlet which prevents leakage



Target2 Nylon Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-2	100 Pack
	0.45	No	F2504-1	100 Pack
17	0.2	No	F2513-2	100 Pack
	0.45	No	F2513-1	100 Pack
30	0.2	No	F2500-2	100 Pack
		Yes	F2502-2	100 Pack
	0.45	No	F2500-1	100 Pack
		Yes	F2502-1	100 Pack
	1.5	No	F2500-12	100 Pack
	5.0	No	F2500-50	100 Pack

Target2 PTFE Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-4	100 Pack
	0.45	No	F2504-3	100 Pack
17	0.2	No	F2513-4	100 Pack
	0.45	No	F2513-3	100 Pack
30	0.2	No	F2500-4	100 Pack
		No	F2500-3	100 Pack
	Yes	F2502-3	100 Pack	
	1.0	No	F2500-13	100 Pack

Target2 PVDF Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-6	100 Pack
	0.45	No	F2504-5	100 Pack
17	0.2	No	F2513-6	100 Pack
	0.45	No	F2513-5	100 Pack
30	0.2	No	F2500-6	100 Pack
	0.45	No	F2500-5	100 Pack

Applications:

- General laboratory filtration
- Filtration for most HPLC samples

Applications:

- Filtration of aggressive organic, highly basic or hot solutions, transducer protectors
- Filter aqueous solutions after prewetting with an alcohol

Applications:

- General biological filtration
- Filtration of samples where high protein recovery is desired

Target2 Regenerated Cellulose Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-8	100 Pack
	0.45	No	F2504-7	100 Pack
17	0.2	No	F2513-8	100 Pack
	0.45	No	F2513-7	100 Pack
30	0.2	No	F2500-8	100 Pack
	0.45	No	F2500-7	100 Pack

Target2 PES (Polyethersulfone) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
17	0.2	No	F2513-17	100 Pack
	0.45	No	F2513-14	100 Pack
30	0.2	No	F2500-17	100 Pack
	0.45	No	F2500-14	100 Pack

Target2 GMF (Glass Microfiber) Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
30	0.7	No	F2500-18	100 Pack
	1.2	No	F2500-19	100 Pack
	3.1	No	F2500-20	100 Pack

Target2 Polypropylene Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-10	100 Pack
	0.45	No	F2504-9	100 Pack
17	0.2	No	F2513-10	100 Pack
	0.45	No	F2513-9	100 Pack
30	0.2	No	F2500-10	100 Pack
	0.45	No	F2500-9	100 Pack
		Yes	F2502-9	100 Pack

Target2 Cellulose Acetate Syringe Filters

Diameter (mm)	Pore Size (µm)	PreFilter	Cat. No.	Quantity
4	0.2	No	F2504-16	100 Pack
	0.45	No	F2504-15	100 Pack
17	0.2	No	F2513-16	100 Pack
	0.45	No	F2513-15	100 Pack
30	0.2	No	F2500-16	100 Pack
	0.45	No	F2500-15	100 Pack

Applications:

- Low non-specific binding applications
- Tissue culture media filtration and general biological sample filtration

Applications:

- Ion chromatography
- Tissue culture filtration, filtration of proteins and nucleic acids
- High-temperature liquids

Applications:

- Dissolution testing
- General filtration

Applications:

- Filtration of biological samples
- Filtration of aggressive organic solutions

Applications:

- Tissue culture media filtration, sensitive biological samples

All-Plastic Disposable Syringes

Disposable syringes with polyethylene barrels and polypropylene plungers; use for all syringe filter applications

- Two-part, all-plastic construction eliminates the need for rubber or synthetic plunger gaskets
- No silicone or oil lubricant is required in the barrel
- Choose Luer-Slip or Luer Lock syringes, in capacities ranging from 1 to 50mL



All-Plastic Disposable Syringes

Capacity (mL)	Cat. No.	Quantity
Luer-Slip Syringes		
1	S7510-1	100 Pack
3	S7510-3	100 Pack
5	S7510-5	100 Pack
10	S7510-10	100 Pack
20	S7510-20	100 Pack
30	S7510-30	50 Pack
50	S7510-50	30 Pack
Luer Lock Syringes		
3	S7515-3	100 Pack
5	S7515-5	100 Pack
10	S7515-10	100 Pack
20	S7515-20	100 Pack

750µL Micro-Centrifugal Filters, Non-Sterile

Filter volumes as low as 50µL with low hold-up volume

- Filter volumes as low as 50µL up to 750µL with low hold-up volume
- Use with any laboratory microcentrifuge
- Virgin polypropylene filter housing with tapered 2mL, capped receiver tube
- 10,000xG maximum centrifugal force



750µL Micro-Centrifugal Filters, Non-Sterile

Material	Pore Size (µm)	Cat. No.	Quantity
Cellulose Acetate	0.2	F2517-1	100 Pack
Cellulose Acetate	0.45	F2517-2	100 Pack
Nylon	0.2	F2517-3	100 Pack
Nylon	0.45	F2517-4	100 Pack
PVDF	0.2	F2517-5	100 Pack
PVDF	0.45	F2517-6	100 Pack
Regenerated Cellulose	0.2	F2517-7	100 Pack
Regenerated Cellulose	0.45	F2517-8	100 Pack
PTFE	0.2	F2517-9	100 Pack
PTFE	0.45	F2517-10	100 Pack

2mL Centrifugal Filters, Non-Sterile

- Filter sample volumes up to 2mL
- Virgin polypropylene filter housing with tapered 5mL, capped receiver tube
- Use with benchtop or floor model centrifuges
- 5,000xG maximum centrifugal force



2mL Centrifugal Filters, Non-Sterile

Material	Pore Size (µm)	Cat. No.	Quantity
Cellulose Acetate	0.2	F2520-1	25 Pack
Cellulose Acetate	0.45	F2520-2	25 Pack
Nylon	0.2	F2520-3	25 Pack
Nylon	0.45	F2520-4	25 Pack
PVDF	0.2	F2520-5	25 Pack
PVDF	0.45	F2520-6	25 Pack
PTFE	0.2	F2520-7	25 Pack
PTFE	0.45	F2520-8	25 Pack

25mL Centrifugal Filters, Non-Sterile

- Filter sample volumes up to 25mL
- Virgin polypropylene filter housing with conical receiver
- Use with benchtop or floor model centrifuges
- 2,500xG maximum centrifugal force



25mL Centrifugal Filters, Non-Sterile

Material	Pore Size (µm)	Cat. No.	Quantity
Cellulose Acetate	0.2	F2519-1	50 Pack
Cellulose Acetate	0.45	F2519-2	50 Pack
Nylon	0.2	F2519-3	50 Pack
Nylon	0.45	F2519-4	50 Pack
PVDF	0.2	F2519-5	50 Pack
PVDF	0.45	F2519-6	50 Pack

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3. **TAXES AND OTHER CHARGES.** Prices for the Products exclude all sales, value added and other taxes and duties imposed with respect to the sale, delivery, or use of any Products covered hereby, all of which taxes and duties must be paid by Buyer. If Buyer claims any exemption, Buyer must provide a valid, signed certificate or letter of exemption for each respective jurisdiction.

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7. **WARRANTY.** Seller warrants that the Products will operate or perform substantially in conformance with Seller's published specifications and be free from defects in material and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for the period of time set forth in the product documentation, published specifications or package inserts. If a period of time is not specified in Seller's product documentation, published specifications or package inserts, the warranty period shall be one (1) year from the date of shipment to Buyer for equipment and ninety (90) days for all other products (the "Warranty Period"). Seller agrees during the Warranty Period, to repair or replace, at Seller's option, defective Products so as to cause the same to operate in substantial conformance with said published specifications; provided that Buyer shall (a) promptly notify Seller in writing upon the discovery of any defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; and (b) after Seller's review, Seller will provide Buyer with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions, then, if applicable, Buyer may return the defective Products to Seller with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of Seller. All replaced parts shall become the property of Seller. Shipment to Buyer of repaired or replacement Products shall be made in accordance with the Delivery provisions of the Seller's Terms and Conditions of Sale. Consumables are expressly excluded from this warranty.

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