

SMART Digest and SMART Digest ImmunoAffinity (IA) kits

Facilitating perfect digestion

The Thermo Scientific™ SMART Digest™ and the SMART Digest™ ImmunoAffinity (IA) kits are designed for biomarker and bio-therapeutic characterization and quantitation. The kits deliver sample preparation of proteins that are:

- Fast
- Simple
- Highly reproducible
- Sensitive
- Compatible with automation



SMART Digest kits

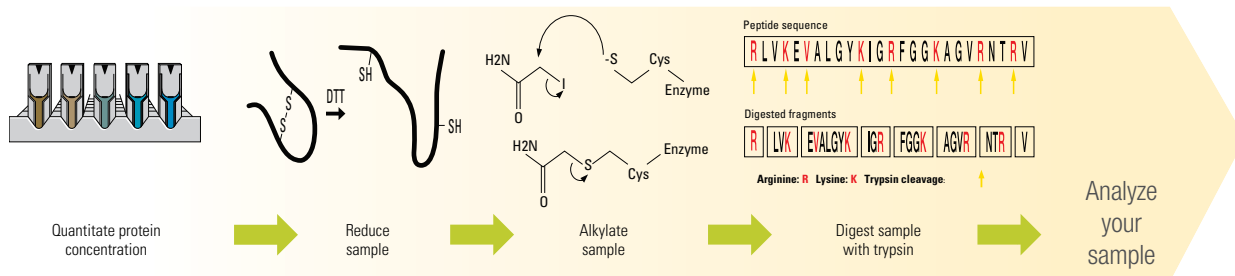
The SMART Digest kits improve workflows by quickly and efficiently digesting proteins for characterization and quantitation applications, achieved due to the heat-stable immobilized trypsin design.

Simplicity of use with SMART Digest kits

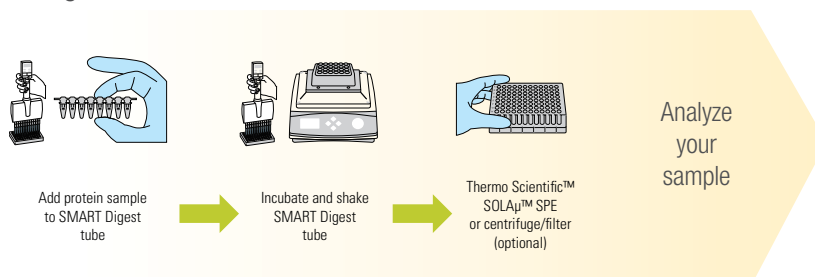
Current sample preparation protocols for the digestion of proteins are multifaceted and laborious. Without a single source solution, errors are far more likely to occur. Therefore, the overall protocol is subject to irreproducibility and significant sample processing time.

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

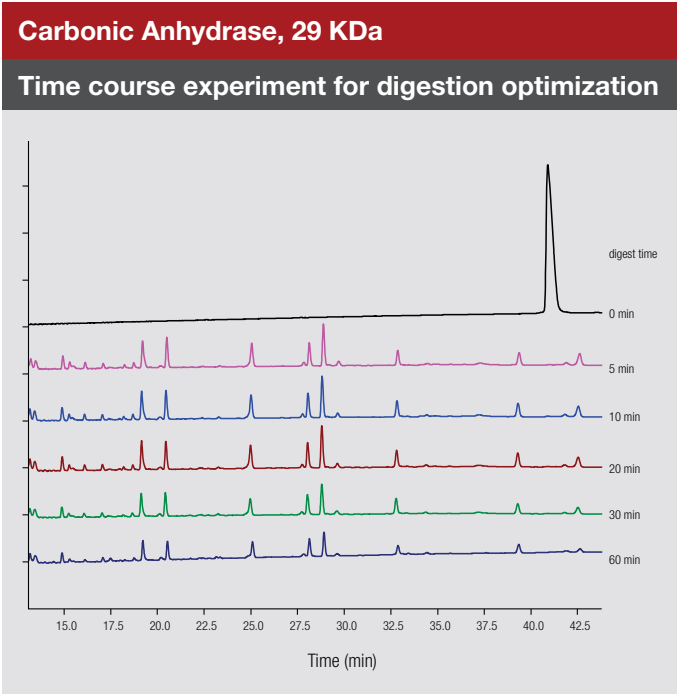


SMART Digest



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 with full digestion achieved in 60 minutes.

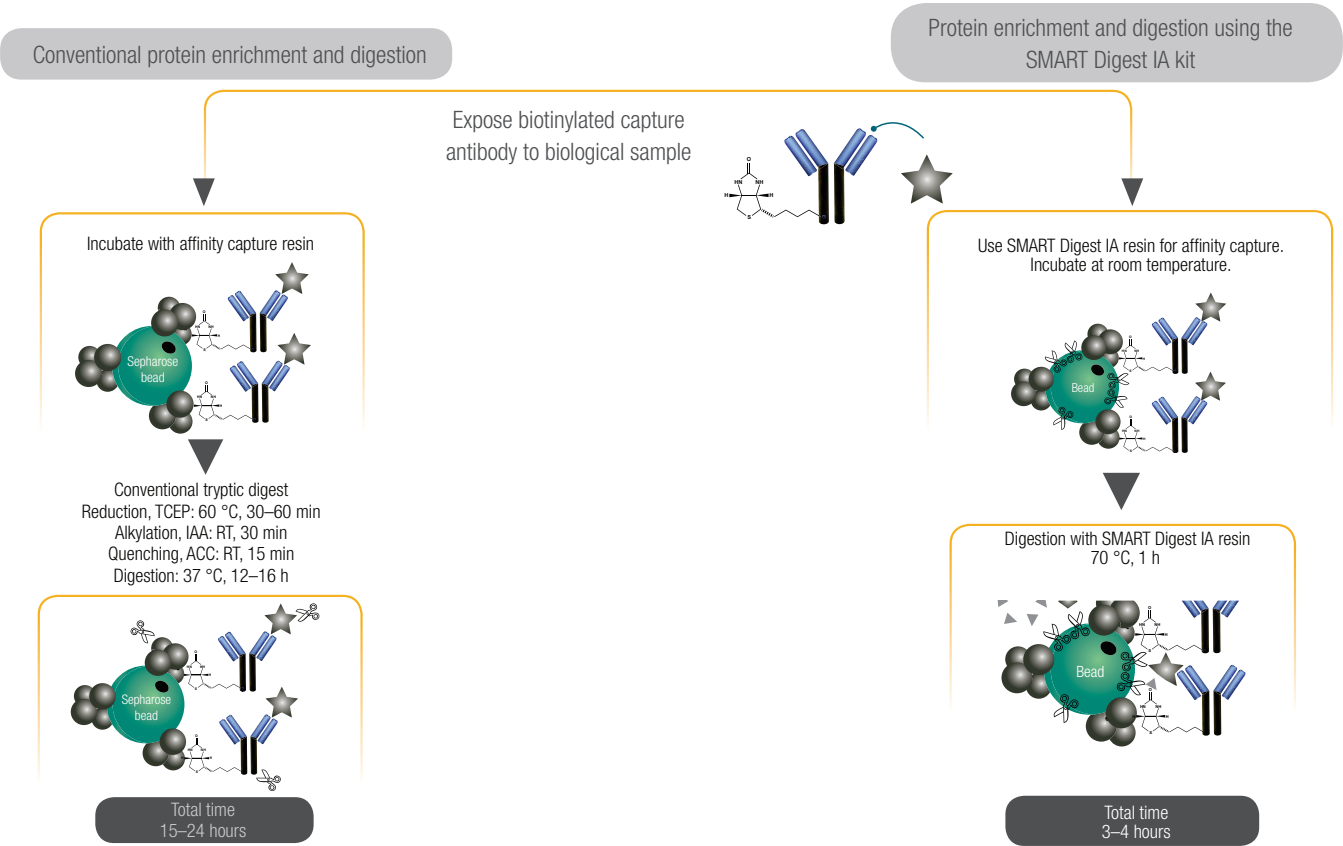


Typical Digestion Times

| 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 solution (100 μ g/mL) at 70 °C
 *IgG in plasma (17.5 mg/mL total protein) at 70 °C

How does the SMART Digest IA kit work?



SMART Digest IA kits

| Part Number | Description |
|-------------|--|
| 60110-101 | SMART Digest IA Kit, Streptavidin (Av) non-magnetic |
| 60110-102 | SMART Digest IA Kit, Av non-magnetic with SOLA μ SPE and collection plate |
| 60110-103 | SMART Digest IA Kit, Av magnetic with SOLA μ SPE and collection plate |
| 60110-104 | SMART Digest IA Kit, Av magnetic |
| 60111-101 | SMART Digest IA Kit, Protein A non-magnetic |
| 60111-102 | SMART Digest IA Kit, Protein A non-magnetic with SOLA μ SPE and collection plate |
| 60111-103 | SMART Digest IA Kit, Protein A magnetic with SOLA μ SPE and collection plate |
| 60111-104 | SMART Digest IA Kit, Protein A magnetic |
| 60112-101 | SMART Digest IA Kit, Protein G non-magnetic |
| 60112-102 | SMART Digest IA Kit, Protein G non-magnetic with SOLA μ SPE and collection plate |
| 60112-103 | SMART Digest IA Kit, Protein G magnetic with SOLA μ SPE and collection plate |
| 60112-104 | SMART Digest IA Kit, Protein G magnetic |

Automation

Due their simple workflow, SMART Digest and SMART Digest IA kits are easy to automate with platforms such as the Thermo Scientific™ KingFisher™ DUO Prime purification system



A step change in protein affinity capture and digestion

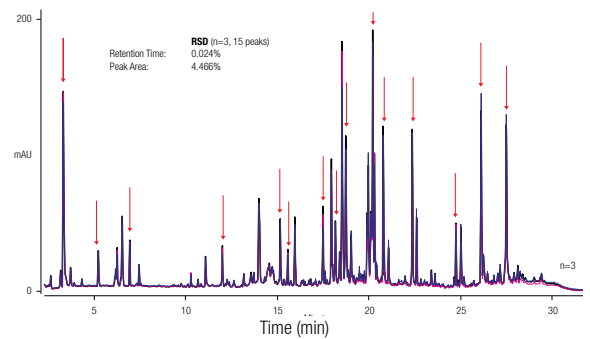
SMART Digest and SMART Digest IA kits provide a significant change in protein sample preparation, by delivering workflows that are:

- Significantly faster
- Easier to use
- Highly reproducible
- Sensitive
- Compatible with automation

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.

This allows for reproducible results user-to-user, day-to-day and lab-to-lab. The UV chromatogram on the right shows overlay from three separate SMART digestions from the same mAb, conducted by three individual operators, with retention time RSD's of 0.024%.



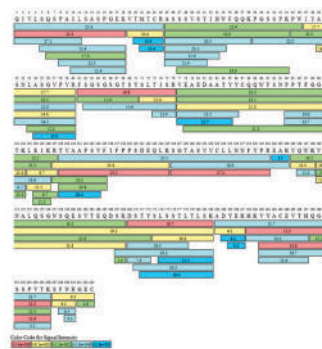
Characterization

The SMART Digest kit, in combination with the High Resolution Accurate Mass (HRAM) capabilities of the Thermo Scientific™ Q Exactive™ mass spectrometers, and high resolution chromatographic separation with the Thermo Scientific™ Vanquish™ UHPLC family provides us with high-quality data sets that can be more effectively interrogated with Thermo Scientific™ BioPharma Finder™ Software.

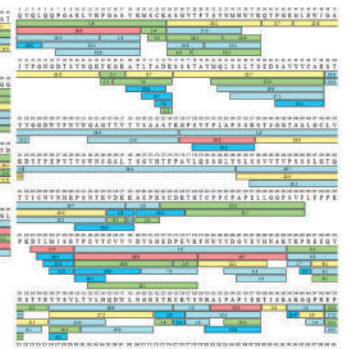
Quantitation

The SMART Digest kit allows confident detection of biomarkers with high sensitivity within a wide dynamic range, as can be seen below with the example of Thyroglobulin. Greater sensitivity is achieved in 3.5 hours compared to an in-solution digest protocol taking 20 hours to complete.

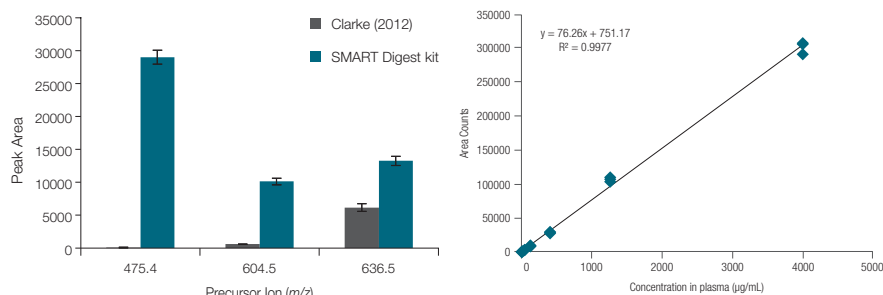
Rituximab light chain



Rituximab heavy chain



Sequence coverage ~100%



Measurement of serum Thyroglobulin after tryptic digestion of serum samples.

- SMART Digest kit: 25% plasma, 3.5 h digestion
 - In-solution digest: 20% plasma, R/A, 4 + 16 h digestion
- Clarke et al. (2012), J. Investigative Medicine, 60(8)

Calibration curve for thyroglobulin signature peptide in murine plasma (4–4000 µg/mL).

SMART Digest Kits

| Description | Cat. No. |
|---|-----------|
| SMART Digest Kit Trypsin and collection plate | 60109-101 |
| SMART Digest Kit Trypsin, filter/collection plate | 60109-102 |
| SMART Digest Kit Trypsin, SOLAµ/collection plate | 60109-103 |

SMART Digest ImmunoAffinity (IA) kits

The SMART Digest IA kits have all the advantages previously outlined for fast, easy and reproducible protein digestion for quantitation and characterization applications with the added advantage of combining an immunocapture and digestion process into a single well.

This has significant benefits for quantitation studies where immunoaffinity capture is typically employed to increase sensitivity by purifying low-level proteins from complex biological matrices. This step is then followed by protein digestion.

The SMART Digest IA kits achieve this due to their unique design where the immunoaffinity reagents (either streptavidin, protein A or protein G) and heat activated thermally stable trypsin are co-immobilized onto a single bead. Following the binding of a capture reagent to the bead, and enrichment of the target, the enzyme is activated at elevated temperatures for accelerated digestion under protein denaturing conditions. The resulting workflow is as easy as enrich, wash and digest. Magnetic and non-magnetic versions of the beads are available.

Ordering information

| Part Number | Description |
|--------------------------|---|
| SMART Digest Kits | |
| 60109-101 | SMART Digest Kit Trypsin and collection plate |
| 60109-101-B | SMART Digest Kit Trypsin, bulk resin option |
| 60109-101-MB | SMART Digest Kit Trypsin, magnetic bulk resin option |
| 60109-102 | SMART Digest Kit Trypsin, filter/collection plate |
| 60109-102-B | SMART Digest Kit Trypsin, bulk resin option with filter/collection plate |
| 60109-102-MB | SMART Digest Kit Trypsin, magnetic bulk resin option with filter/collection plate |
| 60109-103 | SMART Digest Kit Trypsin, SOLAµ/collection plate |
| 60109-103-B | SMART Digest Kit Trypsin, bulk resin option with SOLAµ/collection plate |
| 60109-103-MB | SMART Digest Kit Trypsin, magnetic bulk resin option with SOLAµ/collection plate |
| 60113-101 | SMART Digest Kit Soluble Trypsin and collection plate |
| 60109-104 | SMART Digest Kit Chymotrypsin and collection plate |
| 60109-104-B | SMART Digest Kit Chymotrypsin, bulk resin option |
| 60109-104-MB | SMART Digest Kit Chymotrypsin, magnetic bulk resin option |
| 60109-105 | SMART Digest Kit Chymotrypsin, filter/collection plate |
| 60109-105-B | SMART Digest Kit Chymotrypsin, bulk resin option with filter/collection plate |

Ordering information (continued)

| Part Number | Description |
|--------------------------|---|
| SMART Digest Kits | |
| 60109-105-MB | SMART Digest Kit Chymotrypsin, magnetic bulk resin option with filter/collection plate |
| 60109-106 | SMART Digest Kit Chymotrypsin, SOLA μ /collection plate |
| 60109-106-B | SMART Digest Kit Chymotrypsin, bulk resin option with SOLA μ /collection plate |
| 60109-106-MB | SMART Digest Kit Chymotrypsin, magnetic bulk resin option with SOLA μ /collection plate |
| 60109-107 | SMART Digest Kit Proteinase K and collection plate |
| 60109-107-B | SMART Digest Kit Proteinase K, bulk resin option |
| 60109-107-MB | SMART Digest Kit Proteinase K, magnetic bulk resin option |
| 60109-108 | SMART Digest Kit Proteinase K, filter/collection plate |
| 60109-108-B | SMART Digest Kit Proteinase K, bulk resin option with filter/collection plate |
| 60109-108-MB | SMART Digest Kit Proteinase K, magnetic bulk resin option with filter/collection plate |
| 60109-109 | SMART Digest Kit Proteinase K, SOLA μ /collection plate |
| 60109-109-B | SMART Digest Kit Proteinase K, bulk resin option with SOLA μ /collection plate |
| 60109-109-MB | SMART Digest Kit Proteinase K, magnetic bulk resin option with SOLA μ /collection plate |

| Part Number | Description |
|-----------------------------|--|
| SMART Digest IA Kits | |
| 60110-101 | SMART Digest IA Kit, Streptavidin (Av) non-magnetic |
| 60110-102 | SMART Digest IA Kit, Av non-magnetic with SOLA μ SPE and collection plate |
| 60110-103 | SMART Digest IA Kit, Av magnetic with SOLA μ SPE and collection plate |
| 60110-104 | SMART Digest IA Kit, Av magnetic |
| 60111-101 | SMART Digest IA Kit, Protein A non-magnetic |
| 60111-102 | SMART Digest IA Kit, Protein A non-magnetic with SOLA μ SPE and collection plate |
| 60111-103 | SMART Digest IA Kit, Protein A magnetic with SOLA μ SPE and collection plate |
| 60111-104 | SMART Digest IA Kit, Protein A magnetic |
| 60112-101 | SMART Digest IA Kit, Protein G non-magnetic |
| 60112-102 | SMART Digest IA Kit, Protein G non-magnetic with SOLA μ SPE and collection plate |
| 60112-103 | SMART Digest IA Kit, Protein G magnetic with SOLA μ SPE and collection plate |
| 60112-104 | SMART Digest IA Kit, Protein G magnetic |

Complementary products

| Part Number | Description |
|-------------|--|
| 60103-351 | HyperSep Vacuum Manifolds, for HyperSep 96-Well Plates |
| 60104-243 | HyperSep Glass Block Vacuum Manifold Pumps (NA) |
| 60104-241 | HyperSep Glass Block Vacuum Manifold Pumps (EU) |
| 60209-001 | SOLA μ HRP SPE Plate |
| 60109-102-F | SMART Digest Filter Plate |
| 5400110 | KingFisher Duo Prime Purification System |
| 5400630 | KingFisher Flex Purification System |

Learn more at [thermofisher.com/smartdigest](https://www.thermofisher.com/smartdigest)

SOLA SPE products

Consistent excellence for bioanalysis

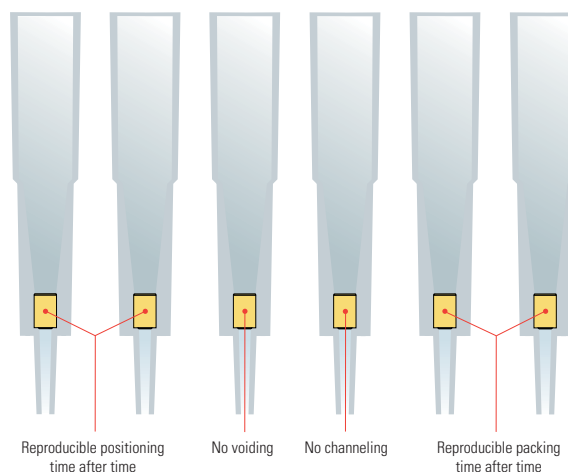


Thermo Scientific™ SOLA™ products are designed for bioanalytical and clinical research analysts who are tasked with providing high quality analytical results from complex biological samples in a high throughput environment, while complying with strict legislation. These demands are compounded by the 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.

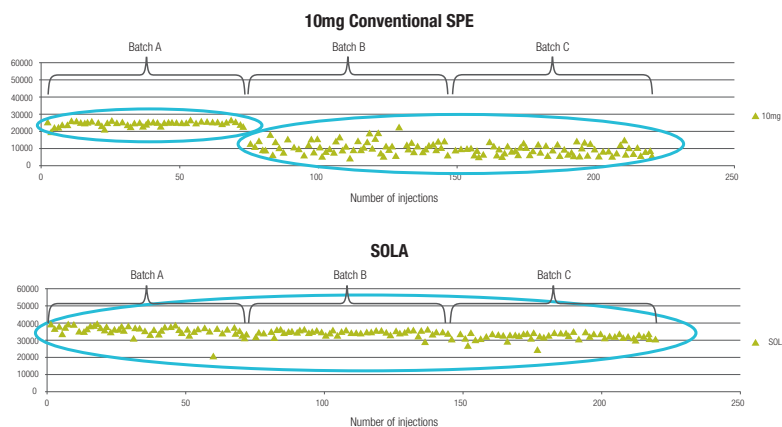


SOLAμ SPE fritless design – limiting issues associated with conventional SPE formats

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 Thermo Scientific™ SOLAμ™ 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

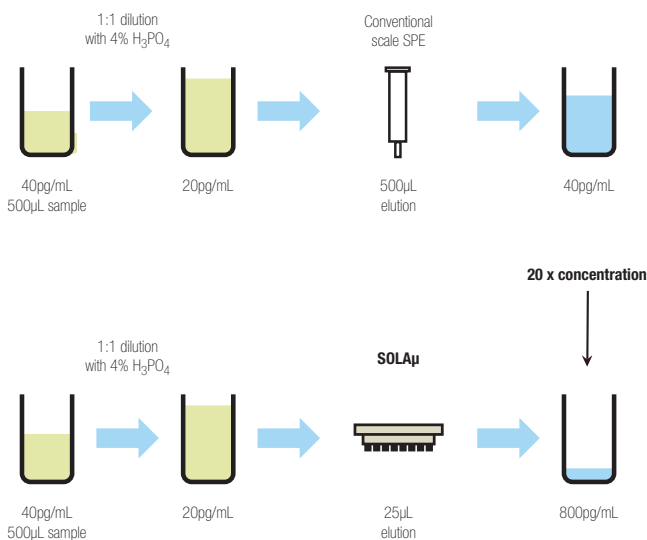


Batch to batch reproducibility of SOLA compared to a conventional SPE product

Increase your MS sensitivity

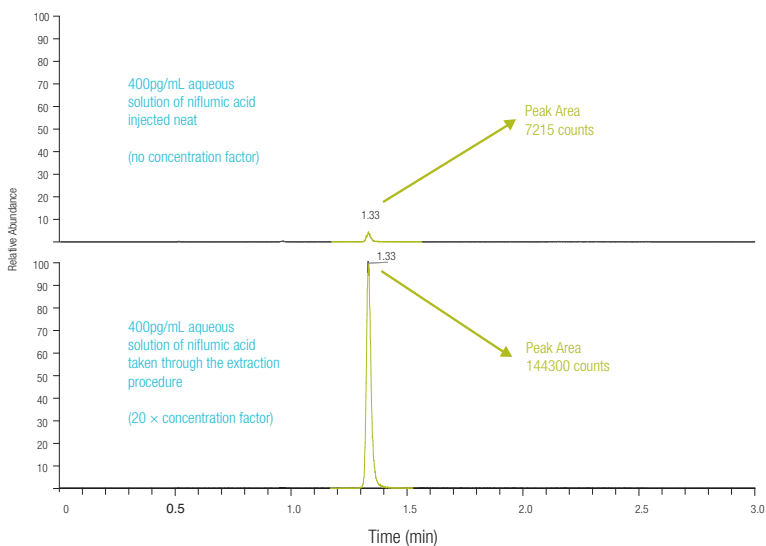
Up to 20 times increase in sensitivity can be achieved by loading a large volume of sample and eluting in a low volume.

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



The problem:
Improvement in
assay sensitivity
required

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

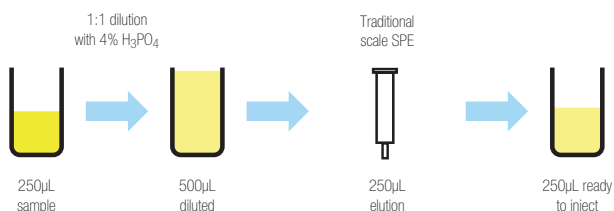


| | Precision Data for Niflumic Acid Peak Area Ratio (%RSD) n = 18 | Recovery of Niflumic Acid (%) | Matrix Effects (%) |
|----------------------|--|-------------------------------------|--------------------------|
| QC Low (0.4ng/mL) | 1.31 | 89.9 | 8.63 |
| QC High (30ng/mL) | 1.06 | 94.0 | 3.21 |

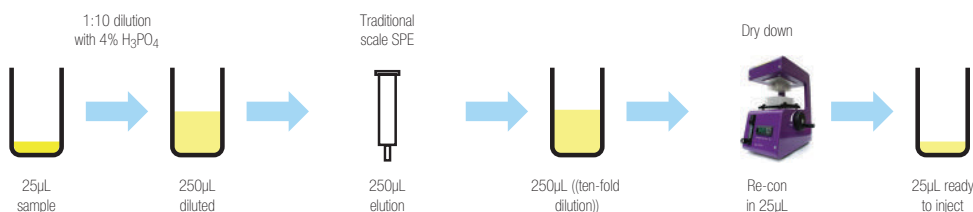
Sample limited assays

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.

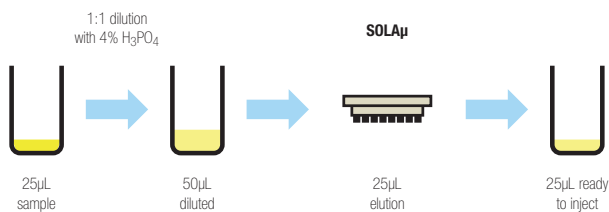
The following example shows that by loading 25 μ L of niflumic acid sample onto the SOLA μ plate and eluting in a total volume of 25 μ L, a ten-fold decrease in sample volume was achieved when compared to a traditional scale higher bed weight product. Equivalent method performance and high levels of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



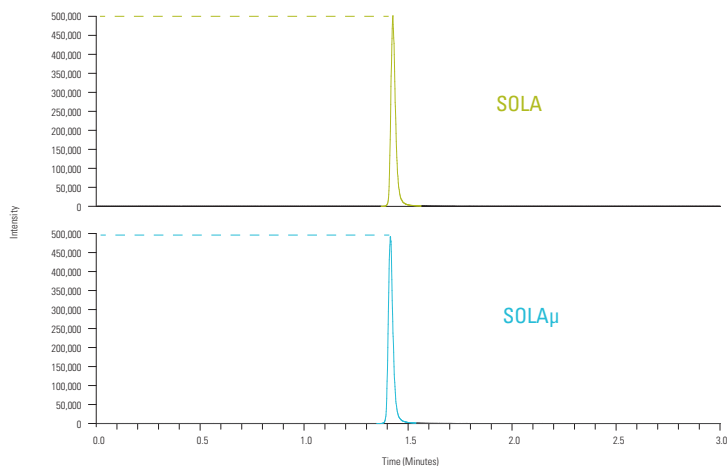
Problem:
Large sample volume requires reduction



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 10x11 SOLA SPE device

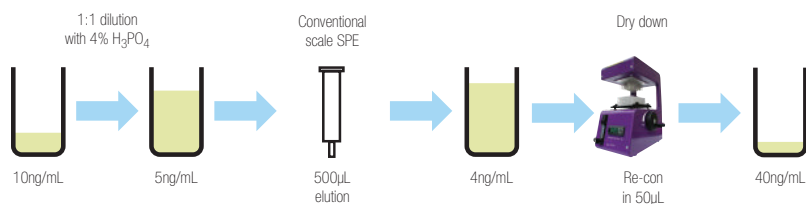
| Precision Data for Niflumic Acid | | |
|----------------------------------|--------------------------|------------------------|
| | Analyte Peak Area (%RSD) | Peak Area Ratio (%RSD) |
| Low QC | 7.32 | 0.356 |
| High QC | 5.33 | 0.195 |

Increased workflow efficiency

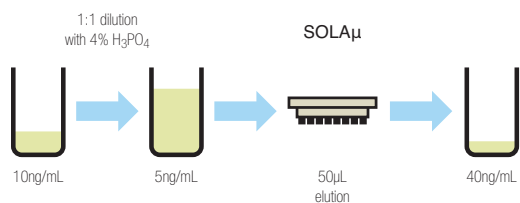
With traditional SPE the eluted sample is typically dried down to increase the concentration of the sample and thus improve the sensitivity. This causes an issue for certain compound types which can be lost during this step, resulting in reduced sensitivity.

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.

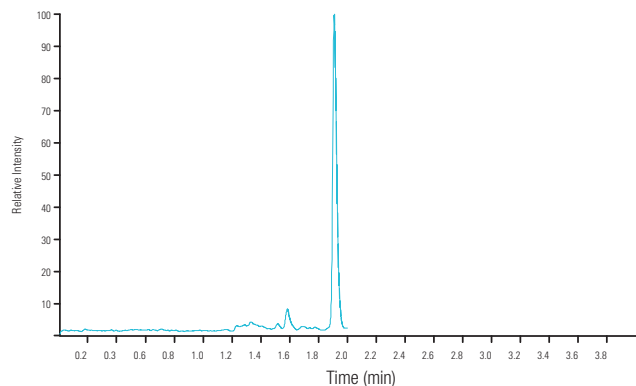
In the case of extraction of ibuprofen a four-fold pre-concentration was achieved without the need for dry down by loading 200 μ L of sample onto the SOLA μ plate and eluting in a total of 50 μ L. The results demonstrate that even with this low elution volume, excellent reproducibility was achieved.



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

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 |

Learn more at [thermofisher.com/solaspe](https://www.thermofisher.com/solaspe)

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 |

Learn more at [thermofisher.com/hypersep](https://www.thermofisher.com/hypersep)



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 1-008.

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 1-008.

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 1-008.

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™ and 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 |

Learn more at thermofisher.com/hypersep

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 |

Applications:

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

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 |

Applications:

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

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 |

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 |

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 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 |

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 |

Learn more at [thermofisher.com/hypersep](https://www.thermofisher.com/hypersep)

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 |

Applications:

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

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 |

Applications:

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

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 |

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 |



Learn more at thermofisher.com/spemanifolds

HyperSep universal vacuum manifold

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



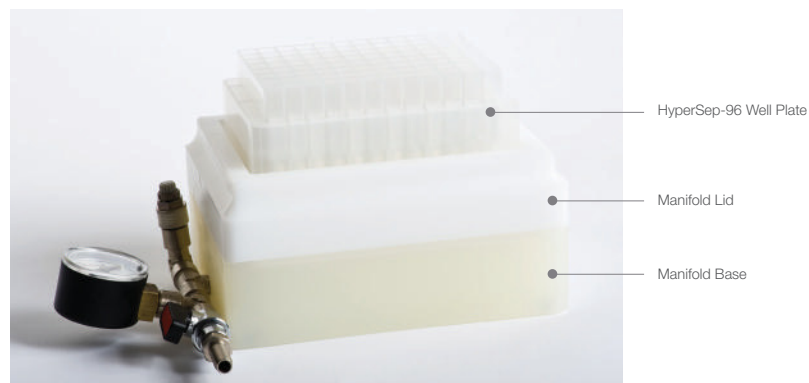
HyperSep universal vacuum manifold

| 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 |

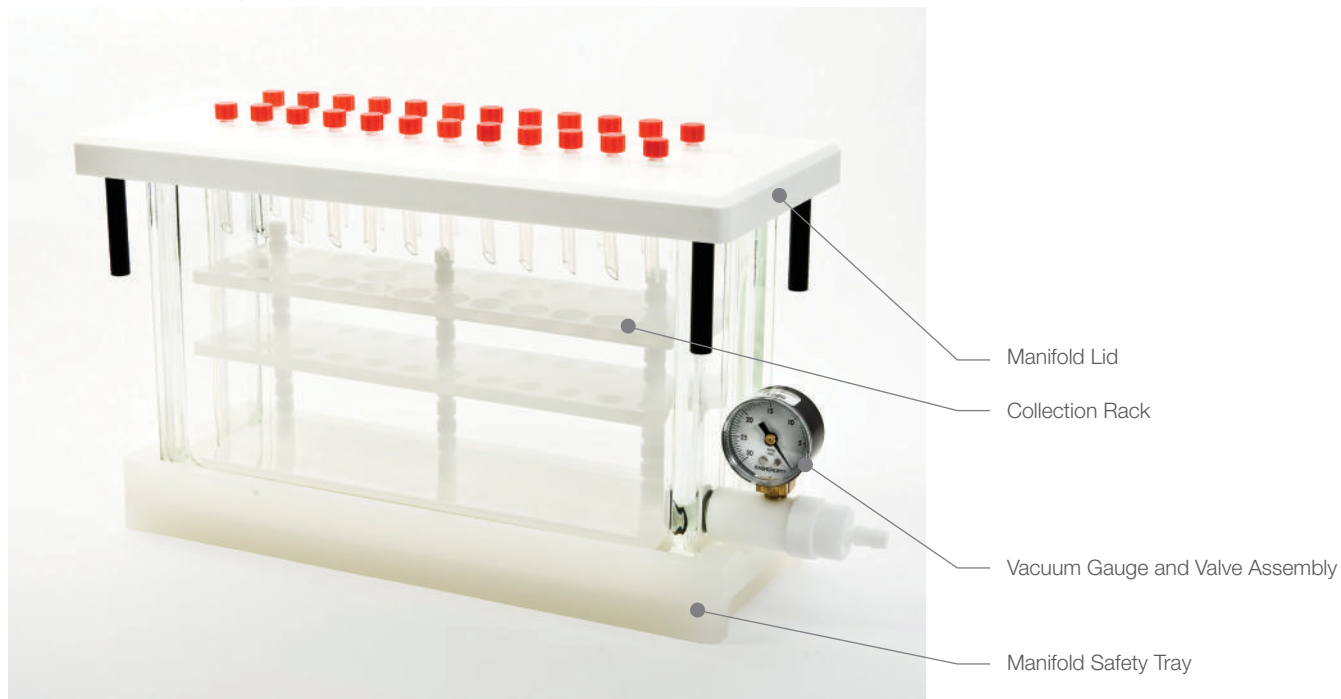
HyperSep glass block manifolds

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)



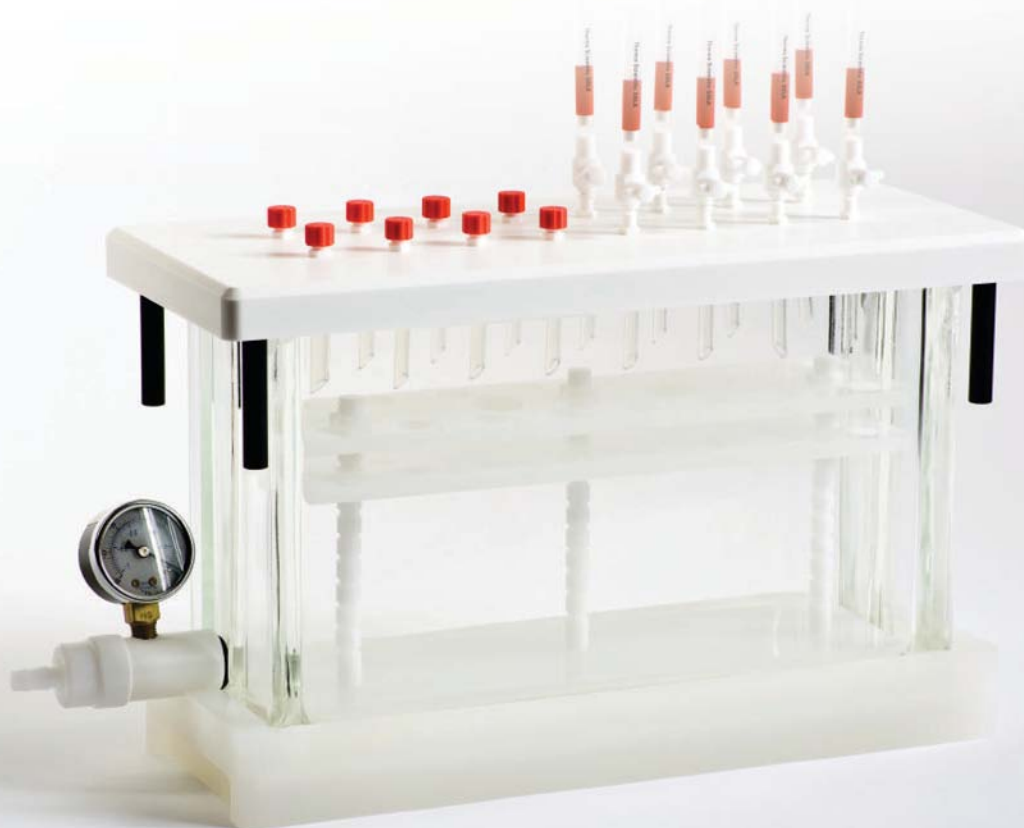
Tips
(Cat. No. 60104-245)



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 |

Learn more at [thermofisher.com/spemanifolds](https://www.thermofisher.com/spemanifolds)

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 thermofisher.com/quechers



HyperSep Dispersive SPE

Considerations in method development

- 1) 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
- 2) 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 | – |
| 900mg anhydrous magnesium sulfate, 300mg PSA, 150mg GCB | 50 | 60105-237 | – |
| 1200mg anhydrous magnesium sulfate, 200mg PSA | 50 | 60105-351 | – |

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 |
| 5000mg anhydrous magnesium sulfate | 60105-366 | 50 Pack |
| 500mg C18 sulfate | 60105-367 | 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 |
| 150mg anhydrous magnesium sulfate, 50mg PSA, 50mg GCB | 60105-354 | 50 Pack |
| 900mg anhydrous magnesium sulfate, 300mg PSA, 150mg C18 | 60105-355 | 50 Pack |
| 900mg anhydrous magnesium sulfate, 900mg PSA, 150mg C18 | 60105-358 | 50 Pack |
| 6000mg anhydrous magnesium sulfate, 1000mg sodium chloride | 60105-359 | 50 Pack |

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

Empty centrifugation tubes

| Description | Cat. No. | Quantity |
|------------------------------|-----------|----------|
| Empty 50ml centrifugue tubes | 60106-418 | 250 Pack |

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 | 50105-350 | 60105-350 |
| 150mg anhydrous magnesium sulfate, 50mg PSA, 50mg ChloroFiltr, 50mg C18 | 2 | 60105-353 | - |

| 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

Bulk media

| Description | Cat. No. | Quantity |
|---|-----------|----------|
| Anhydrous Magnesium Sulfate | 80020-415 | 1kg |
| C18 (endcapped) | 80020-413 | 1kg |
| PSA | 80020-416 | 1kg |
| Graphitized Carbon Black | 80020-417 | 1kg |
| Sodium Acetate | 80020-424 | 1kg |
| Description:Disodium hydrogen citrate sesquihydrate | 80020-427 | 1kg |
| Tri-Sodium Citrate Dihydrate | 80020-428 | 1kg |

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 filters

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



For more information visit thermofisher.com/syningefilters

Titan3 syringe filters

High performance HPLC 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 reusable rigid transparent color coded containers

Thermo Scientific™ Titan3™ nylon syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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) | Pre-Filter | 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) | Pre-Filter | 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 | 444525-NPL | 100 Pack |

Titan3 PVDF syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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:

- HPLC and organic solvent sample preparation and clean up
- Dissolution sample analysis
- General sample preparation prior to analytical analysis
- Mixed sample matrix of aqueous or organic dissolved analytes

Applications:

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

Note: PTFE hydrophobic membranes require pre-treatment with alcohol before being suitable for aqueous or high aqueous/organic samples. Do not use directly with aqueous solutions.

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) | Pre-Filter | 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) | Pre-Filter | 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) | Pre-Filter | 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) | Pre-Filter | 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) | Pre-Filter | 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



Titan2 syringe filters

HPLC performe 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



Thermo Scientific™ Target2™ nylon syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 | |

Applications:

- General laboratory filtration
- Filtration for most HPLC samples

Target 2 PTFE (hydrophobic) syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 |
| | 0.45 | Yes | F2502-3 | 100 Pack |
| | | No | F2500-13 | 100 Pack |

Applications:

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

Note: PTFE hydrophobic membranes require pre-treatment with alcohol before being suitable for aqueous or high aqueous/organic samples. Do not use directly with aqueous solutions

Target2 PVDF syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 biological filtration
- Filtration of samples where high protein recovery is desired

Target2 regenerated cellulose syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 |

Applications:

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

Target2 PES (polyethersulfone) syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 |

Applications:

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

Target2 GMF (glass microfiber) syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 |

Applications:

- Dissolution testing
- General filtration

Target2 polypropylene syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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 |

Applications:

- Filtration of biological samples
- Filtration of aggressive organic solutions

Target2 cellulose acetate syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | 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:

- Tissue culture media filtration, sensitive biological samples

Choice nylon syringe filters

| Diameter (mm) | Pore Size (µm) | Pre-Filter | Cat. No. | Quantity |
|---------------|----------------|------------|-----------|----------|
| 13 | 0.2 | No | CH2213-NN | 100 Pack |
| | 0.45 | No | CH2225-NN | 100 Pack |
| 17 | 0.2 | No | CH4513-NN | 100 Pack |
| | 0.45 | No | CH4525-NN | 100 Pack |

Applications:

- HPLC and organic solvent sample preparation and clean up
- Dissolution sample analysis
 - General sample preparation prior to analytical analysis
 - Mixed sample matrix of aqueous or organic dissolved analytes

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 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 |

For more information visit [thermofisher.com/syringefilters](https://www.thermofisher.com/syringefilters)