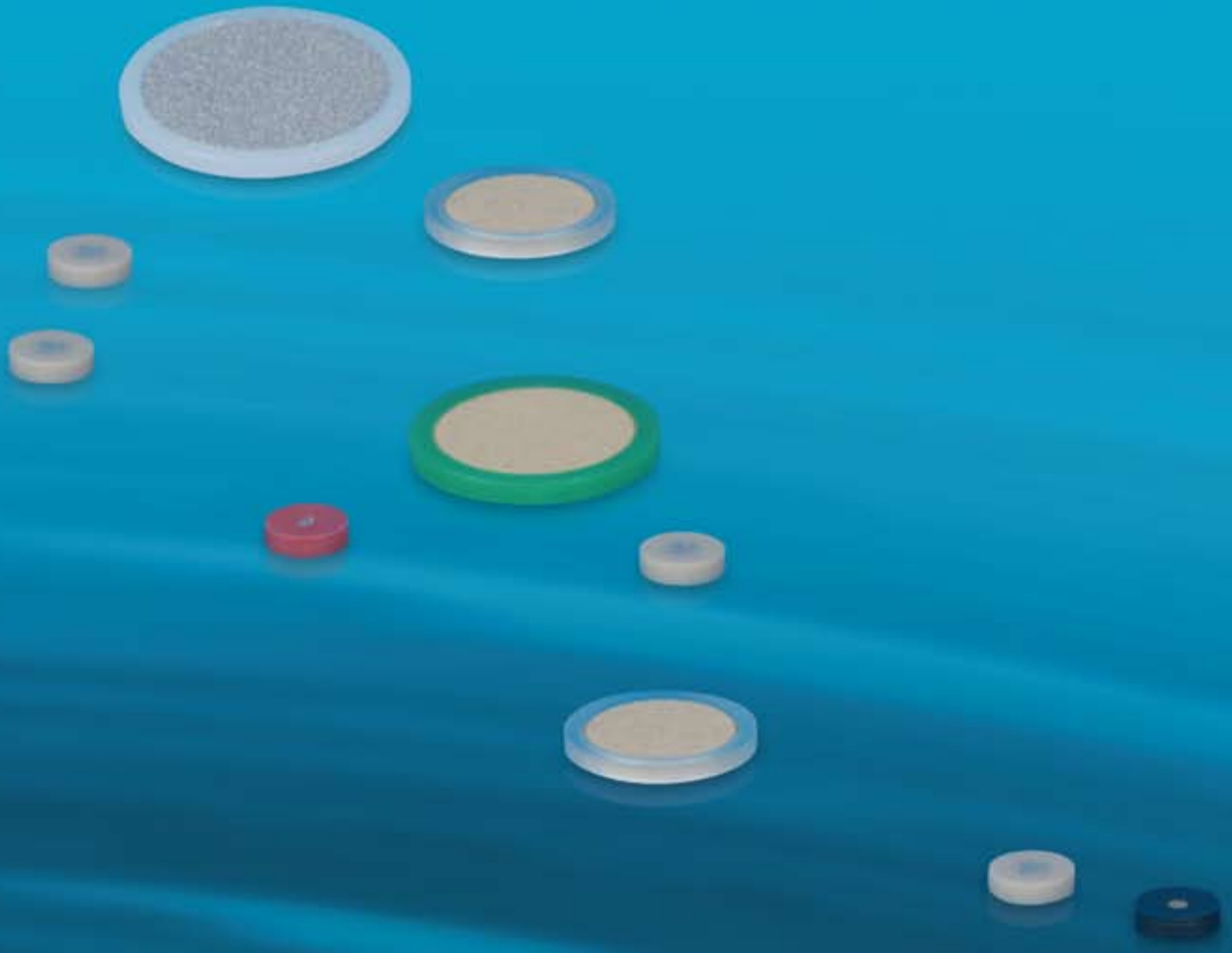


Frits

PEEK
Titanium
Stainless Steel



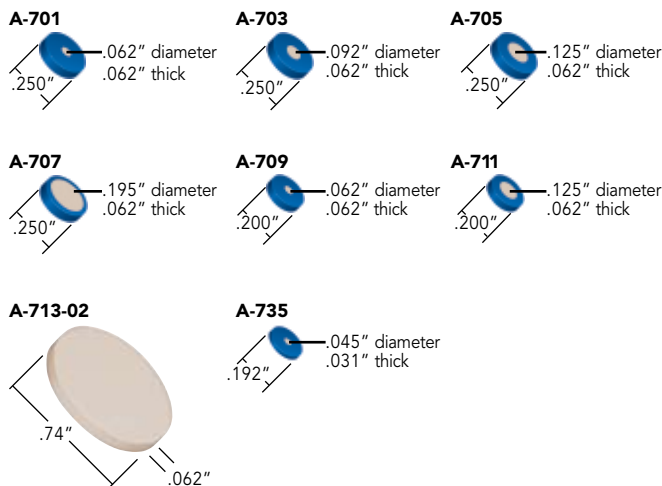
PEEK Frits

- ▶ Inert, Biocompatible and Metal-Free
- ▶ Uniform Porosity, Longer Filtration Life

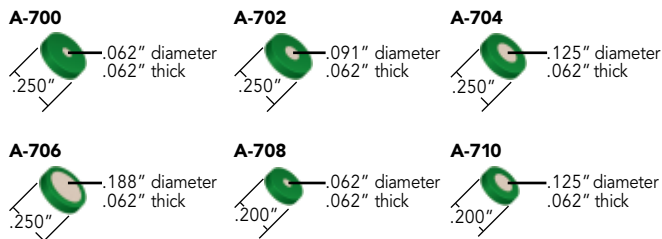
Patented Upchurch Scientific® PEEK Frits offer exceptionally uniform porosity. This property ensures longer filtration life and consistent frit-to-frit swept volumes. The PEEK polymer frit discs are biocompatible and inert to most solvents, making them well-suited for bioanalytical applications. PEEK's robust properties make these products suitable for low and high pressure applications.

Disc rings, available on most PEEK frits, are made of Kel-F® (PTFE) and are slightly thicker than the frit disc, providing enhanced sealing and excellent chemical resistance. Kel-F surrounded PEEK frits can be used up to 80°C, and PEEK frits alone are a good choice for applications up to 100°C.

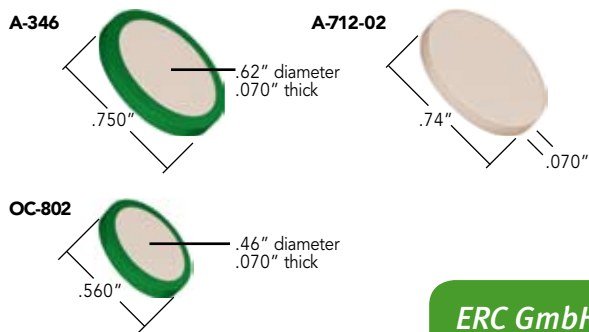
0.5 µm PEEK Frits



2 µm PEEK Frits



2 µm Semi-Prep PEEK Frits

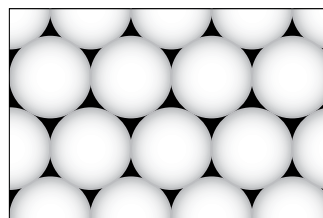


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APPLICATION NOTE

Frit Volume

The term "frit volume" refers to the volume of the various fluid pathways that comprise the matrix of a frit. A standard frit is a mass of small particles fused together through a controlled process of compression and heat. Because of their shape, there are gaps between the fused particles. Fluid makes its way through these gaps, creating a pathway from one side of the frit to the other. (See the diagram, below, where the white circles represent frit particles, and the black area represents the void between the particles.)



Generally, when the frit particles increase in size, the frit's porosity increases as well. The larger the particles, the larger the gaps between particles. Cumulatively, these gaps comprise what is known as "frit volume". Using gravimetric determination, it has been experimentally shown that the total volume of any given frit may range from 18%–30%, depending upon the porosity of the frit.

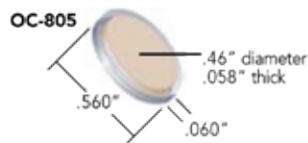
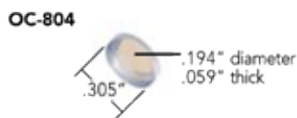
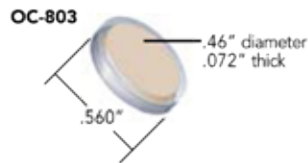
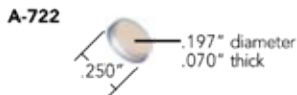
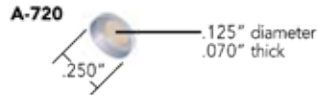
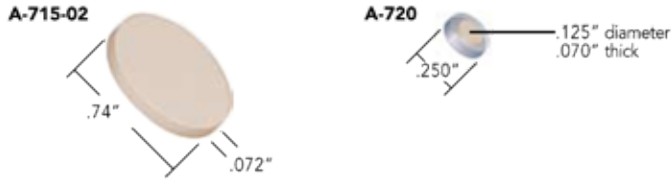
Frit volume is calculated by determining what the mass of the frit would be if it were a solid block of material of equal size. Then the solid mass of the frit is multiplied by the percentage assigned to the porosity to determine the theoretical frit volume.

From a chromatographic perspective, it's important to know the volume of the frit used in your system. It is possible for a frit to negatively impact your chromatography if the total frit volume is too large and if it is placed in an area through which the sample will pass. To avoid frit-related problems like band broadening and loss of resolution, most inline filters placed after the sample introduction point (e.g., between the injection valve and the column) are smaller in size and porosity than inline filters that are placed in areas before the sample is introduced into the flow path (e.g., between the pump and the injection valve).

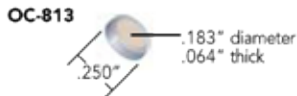


PEEK Frits (cont.)

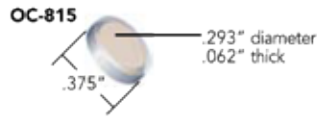
5 µm and 10 µm PEEK Frits



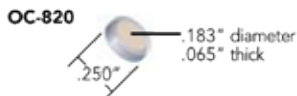
New!



New!



New!



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Try our Frit-In-A-Ferrule™ products, found on page 131!

PAT FRITS AND PEEK FRIT EQUIVALENTS

As you may have noticed, PAT (PEEK alloyed with PTFE) frits are no longer available for purchase. PEEK frits are an excellent alternative to PAT frits. The table below shows the PEEK frit equivalents for the now obsolete PAT frit line. Still unsure of what size to order? Please contact us for more information.

Obsolete PAT Frits 5 µm	PEEK Frit Equivalent 5 µm	PEEK Frit Equivalent 10 µm
9000-0432	OC-813	A-720 A-722
9000-0435	OC-813	A-720 A-722
9000-0451	OC-815	N/A
6145-3500	N/A	OC-803

Note

► The thickness dimension in the part drawings and the pricing tables represents the thickness of the frit disc not the frit ring. Frit rings are often slightly thicker to ensure a proper seal. When tightened into a filter holder the ring compresses to the thickness of the frit disc.

► The volume listed for each frit and frit disc is the item's theoretical* hold-up volume—the volume of fluid required to fill the pores of the frit. These numbers are obtained by calculating the solid volume of the frit disc and then multiplying by the following factors:

- 18% for 0.2 µm frits
- 20% for 0.5 µm frits
- 24% for 2 µm frits
- 26% for 5 µm frits
- 28% for 10 µm frits
- 30% for 20 µm frits

► Any .247" to .254" diameter frit (including polymer ring) can be used with the filters on pages 132 and 133.

*Actual volume may vary slightly



TOP SELLER
see starred products
in price block.

0.5 µm PEEK FRITS

	Disc Diameter	Disc Thickness	Ring OD ¹	Frit Volume	Qty.
★ A-701	.062"	.062"	.250"	0.6 µL	ea.
A-703	.092"	.062"	.250"	1.4 µL	ea.
★ A-705	.125"	.062"	.250"	2.4 µL	ea.
★ A-707	.195"	.062"	.250"	6.1 µL	ea.
A-709	.062"	.062"	.200"	0.6 µL	ea.
A-711	.125"	.062"	.200"	2.5 µL	ea.
A-713-02	.74"	.062"	(no ring)	87.4 µL	ea.
A-735	.045"	.031"	.192"	0.2 µL	ea.

2 µm PEEK FRITS

	Disc Diameter	Disc Thickness	Ring OD ¹	Frit Volume	Qty.
★ A-700	.062"	.062"	.250"	0.7 µL	ea.
A-702	.091"	.062"	.250"	1.7 µL	ea.
A-704	.125"	.062"	.250"	3.0 µL	ea.
A-706	.188"	.062"	.250"	7.1 µL	ea.
A-708	.062"	.062"	.200"	0.7 µL	ea.
A-710	.125"	.062"	.200"	3.0 µL	ea.

2 µm SEMI-PREP PEEK FRITS

	Disc Diameter	Disc Thickness	Ring OD ¹	Frit Volume	Qty.
A-346	.62"	.070"	.750"	85.5 µL	ea.
A-712-02	.74"	.070"	(no ring)	115.2 µL	ea.
OC-802	.46"	.070"	.560"	46.4 µL	ea.

5 µm AND 10 µm PEEK FRITS

	Disc Diameter	Disc Thickness	Ring OD ¹	Porosity	Frit Volume	Qty.
A-715-02	.74"	.072"	(no ring)	10 µm	142.1 µL	ea.
★ A-720	.125"	.070"	.250"	10 µm	4.2 µL	ea.
★ A-722	.197"	.070"	.250"	10 µm	9.9 µL	ea.
OC-803	.46"	.072"	.560"	10 µm	57.2 µL	ea.
OC-804	.194"	.059"	.305"	10 µm	8.4 µL	ea.
OC-805	.46"	.058"	.560"	5 µm	41.1 µL	ea.
New! OC-813	.183"	.064"	.250"	5 µm	7.2 µL	ea.
New! OC-815	.293"	.062"	.375"	5 µm	17.8 µL	ea.
New! OC-820	.183"	.065"	.250"	10 µm	7.8 µL	ea.

The manufacturing process may cause some slight color variance in our PEEK frits. This does not affect their quality or performance. Frit dimensions are approximate. Actual batch-to-batch frit dimensions may vary slightly.

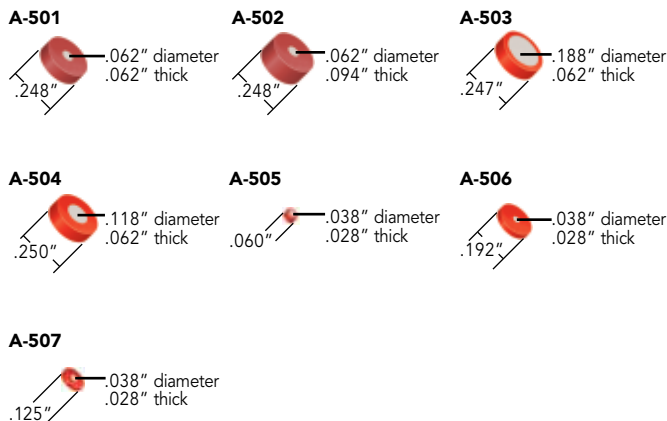
¹ Ring manufactured from PCTFE polymer.

Titanium Frits

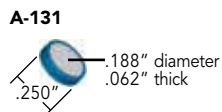
► Excellent Alternative to Stainless Steel

Titanium is a biocompatible alternative to stainless steel. Our 0.2 µm, 0.5 µm and 2 µm porosity titanium frits are surrounded by PEEK™ or Kel-F® (PCTFE) polymer rings for enhanced sealing. The dimensions of most of these frits make them suitable replacement frits for Upchurch Scientific® filters and guard columns.

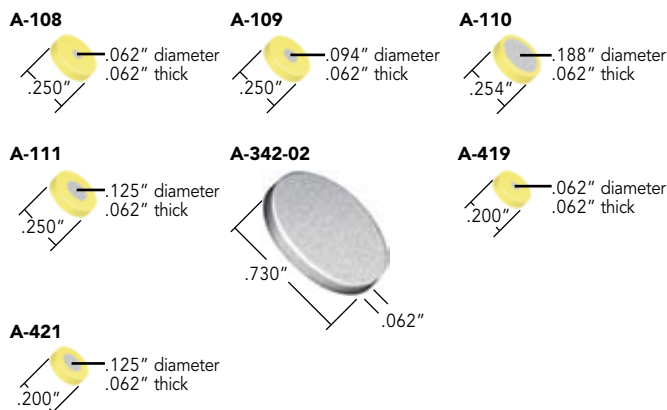
0.2 µm Titanium Frits



0.5 µm Titanium Frit



2 µm Titanium Frits



Note

- While all of the frits listed in this chapter are capable of withstanding high pressures (>5,000 psi or 345 bar), the actual pressure holding capability of each frit is dependent on the filter body in which it is placed.
- For convenient inline filtering without additional connections, try our Frit-In-A-Ferrule™ products on page 131.



0.2 µm TITANIUM FRITS

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
A-501	.062"	.062"	.248" ¹	0.6 µL	ea.
A-502	.062"	.094"	.248" ¹	0.8 µL	ea.
A-503	.188"	.062"	.247" ²	5.1 µL	ea.
A-504	.118"	.062"	.250" ²	2.0 µL	ea.
A-505	.038"	.028"	.060" ²	0.1 µL	ea.
A-506	.038"	.028"	.192" ²	0.1 µL	ea.
A-507	.038"	.028"	.125" ²	0.1 µL	ea.

0.5 µm TITANIUM FRIT

	Disc Diameter	Disc Thickness	Ring OD ²	Frit Volume	Qty.
A-131	.188"	.062"	.250"	5.6 µL	ea.

2 µm TITANIUM FRITS

	Disc Diameter	Disc Thickness	Ring OD ²	Frit Volume	Qty.
A-108x	.062"	.062"	.250"	0.7 µL	10-pk
A-109x	.094"	.062"	.250"	1.6 µL	10-pk
A-110x	.188"	.062"	.254"	7.1 µL	10-pk
A-111	.125"	.062"	.250"	2.7 µL	ea.
A-342-02	.730"	.062"	(no ring)	93.6 µL	ea.
A-419	.062"	.062"	.200"	0.7 µL	ea.
A-421	.125"	.062"	.200"	2.7 µL	ea.

Frit dimensions are approximate. Actual batch-to-batch frit dimensions may vary slightly.

¹ Ring manufactured from PEEK polymer.

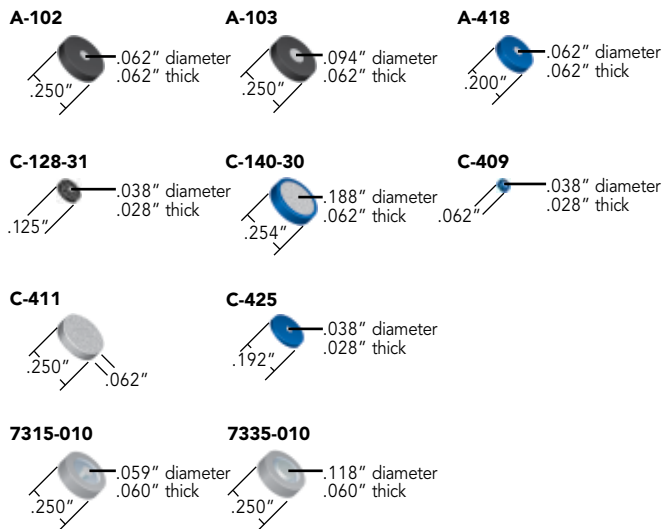
² Ring manufactured from PCTFE polymer.

Stainless Steel Frits

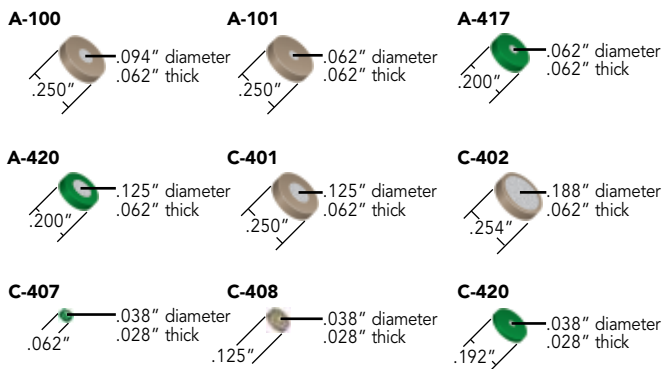
Upchurch Scientific® 316 Stainless Steel Frits are available in 0.5 µm or 2 µm porosity—the most common HPLC filtration ratings. Each frit includes a Kel-F® (PCTFE) or PEEK™ polymer sealing ring. Many of the frits shown have the common .250" and .254" ODs, which allow them to be used in the precolumn and inline filters found on pages 132 and 133. Choose the larger diameter faces and/or larger porosity frits for faster flow rates. Choose frits with a smaller diameter face and/or smaller porosity for applications sensitive to extra flow path volume.

Two 0.5 µm porosity Rheodyne® 316 Stainless Steel Frits are also available. Part numbers 7315-010 and 7335-010 are replacement frits for Rheodyne Column Inlet Filters 7315 and 7335, respectively.

0.5 µm Stainless Steel Frits



2 µm Stainless Steel Frits



Application Note

To Clean Or Not To Clean?

It is rarely worth the time and effort to clean frits, given the relatively low cost of replacements. Furthermore, cleaning may leave some debris embedded in the frit pores. If the washed frit is accidentally returned to your instrument in a reverse orientation, any remaining debris could be flushed out and deposited further down the fluid path. If this frit is being used as a column head frit, the debris may be washed directly onto the column bed.

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0.5 µm STAINLESS STEEL FRITS

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
★ A-102x	.062"	.062"	.250" ¹	0.6 µL	10-pk
★ A-103x	.094"	.062"	.250" ¹	1.4 µL	10-pk
A-418	.062"	.062"	.200"	0.6 µL	ea.
C-128-31	.038"	.028"	.125" ¹	0.1 µL	ea.
C-140-30x	.188"	.062"	.254" ²	6.5 µL	10-pk
C-409x	.038"	.028"	.062" ²	0.1 µL	10-pk
C-411	.250"	.062"	(no ring)	10.0 µL	ea.
C-425x	.038"	.028"	.192" ²	0.1 µL	10-pk
7315-010	.059"	.060"	.250" ³	0.5 µL	5-pk
7335-010	.118"	.060"	.250" ³	2.2 µL	5-pk

2 µm STAINLESS STEEL FRITS

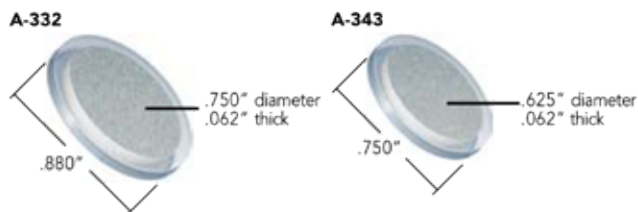
	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
★ A-100x	.094"	.062"	.250" ¹	1.7 µL	10-pk
★ A-101x	.062"	.062"	.250" ¹	0.7 µL	10-pk
A-417	.062"	.062"	.200"	0.7 µL	ea.
A-420	.125"	.062"	.200" ²	3.0 µL	ea.
C-401x	.125"	.062"	.250" ¹	3.0 µL	10-pk
C-402x	.188"	.062"	.254" ¹	7.8 µL	10-pk
C-407x	.038"	.028"	.062" ²	0.1 µL	10-pk
C-408x	.038"	.028"	.125" ¹	0.1 µL	10-pk
C-420x	.038"	.028"	.192" ²	0.1 µL	10-pk

Frit dimensions are approximate. Actual batch-to-batch frit dimensions may vary slightly.
¹ Ring manufactured from PEEK polymer.
² Ring manufactured from PCTFE polymer.
³ Inner ring manufactured from PCTFE polymer. Outer ring manufactured from stainless steel.

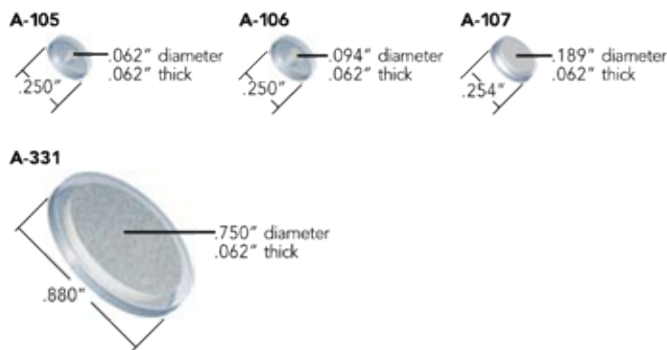
Stainless Steel Semi-Prep Frits

Upchurch Scientific® offers a full line of 316 Stainless Steel Frits for semi-prep applications. Many of these frits come complete with a Kel-F® (PCTFE), Tefzel® (ETFE) or PTFE resin sealing ring. Choose from 2 µm, 5 µm, 10 µm and 20 µm filtration porosities and a range of diameters to match your intended flow rate and filtration requirements.

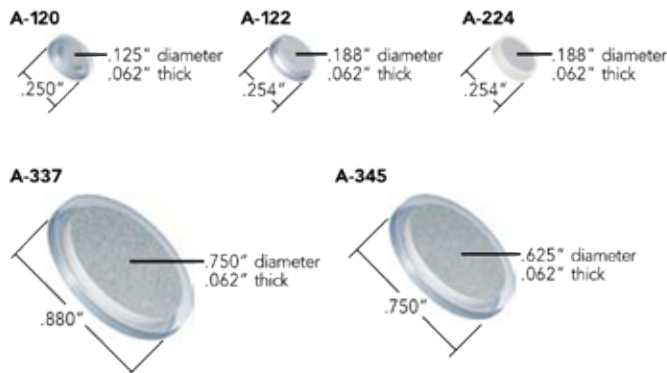
2 µm Semi-Prep Stainless Steel Frits



10 µm Semi-Prep Stainless Steel Frits



20 µm Semi-Prep Stainless Steel Frits

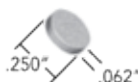


Stainless Steel Frit Discs

A-337-02



C-413



C-414



C-415



TOP SELLER
see starred products
in price block.

2 µm SEMI-PREP STAINLESS STEEL FRITS

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
★ A-332x	.750"	.062"	.880" ¹	141.9 µL	10-pk
A-343	.625"	.062"	.750" ²	112.6 µL	ea.

10 µm SEMI-PREP STAINLESS STEEL FRITS

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
A-105x	.062"	.062"	.250" ²	0.9 µL	10-pk
A-106x	.094"	.062"	.250" ²	2.0 µL	10-pk
A-107x	.189"	.062"	.254" ²	9.1 µL	10-pk
★ A-331x	.750"	.062"	.880" ¹	141.9 µL	10-pk

20 µm SEMI-PREP STAINLESS STEEL FRITS

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
A-120x	.125"	.062"	.250" ²	3.7 µL	10-pk
A-122x	.188"	.062"	.254" ²	9.7 µL	10-pk
A-224	.188"	.062"	.254" ³	9.7 µL	ea.
A-337x	.750"	.062"	.880" ¹	152.0 µL	10-pk
A-345	.625"	.062"	.750" ²	93.5 µL	ea.

STAINLESS STEEL FRIT DISCS (No Polymer Rings)

	Disc Diameter	Disc Thickness	Ring OD	Frit Volume	Qty.
A-335-02	.750"	.062"	2 µm	107.7 µL	ea.
A-336-02	.750"	.062"	10 µm	125.7 µL	ea.
A-337-02	.750"	.062"	20 µm	134.7 µL	ea.
C-400x	.250"	.062"	2 µm	12.0 µL	10-pk
C-412	.250"	.062"	5 µm	13.0 µL	ea.
C-413	.250"	.062"	10 µm	14.0 µL	ea.
C-414	.375"	.062"	2 µm	26.9 µL	ea.
C-415	.500"	.062"	2 µm	47.9 µL	ea.

Frit dimensions are approximate. Actual batch-to-batch frit dimensions may vary slightly.

¹ Ring manufactured from ETFE polymer.

² Ring manufactured from PCTFE polymer.

³ Ring manufactured from PTFE polymer.

Distributor: