Vessels

5mL to 50mL vessels.

100mL to 1L vessels.

1000mL, 500mL vessels

Stainless steel extractor vessels include endcaps and frits. All vessels are rated for 10,000 psi at 100°C.

Vessels rated at less than 10,000 psi are also available.

Standard sizes range from 5mL to 1L. Custom sizes are available at no extra charge.

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Extraction Vessel Parts 5mL - 50mL

The components shown are the parts of a complete, standard vessel, and are included with purchase. Order parts shown only upon loss or maintenance replacement.

Note: Male fitting and metal frit assembly is done the first time the vessel is used, and thereafter only when a part is to be replaced or cleaned.

Metal frit goes into endcap.

Male fitting goes into endcap.

Back-up ring and O-ring fit onto end cap.

Endcap goes into Closure nut.

Closure nut finger tightens onto end of vessel.

Vessel connecter attaches to male fitting in end cap on assembled vessel.

10 - 50mL Hand-Tight SCF Vessels

Caution: Do not exceed maximum vessel specifications!

Vessel Specifications:	**Low Temperature**	**High Temperature**
Maximum Operating Pressure:	10,000 Psi (690 Bar)	10,000 Psi (690 Bar)
Maximum Operating Temperature:	150ºC	240ºC
Material of Construction (ASTM):	316 Stainless Steel	316 Stainless Steel

Assembly

The vessel will come loosely assembled. Please follow all steps to ensure durability of the vessel.

1. Make sure the metal frit is in the high pressure fitting. Tighten down the male nut with a 3/8" and 5/8" wrench. Do not over tighten.
2. The back-up ring is placed on the end cap, flat side towards the fitting. The O-ring is then placed on the back-up ring.
3. Place the end cap into the vessel tube, being careful not to damage the seal.
4. Screw the closure nut onto the assembly unit until it is hand-tight.

Directions for use

1. To fill the vessel, remove one end-fitting assembly and fill with sample. Once the vessel is filled to the desired level, clean the surface (to ensure the longest possible seal life.) Reassemble the end cap assembly.
2. Ensure that all fittings are tight and place the vessel in-line.
3. The vessel can now be pressurized in the *Spe-ed* SFE oven module. Be sure to check for leaks at all pressures.

Important notes:

Vessels come complete with standard 1/16” female end-fittings for easy use with finger-tight vessel connectors. No wrenches are needed.

High pressure experiments must be conducted in a shielded area. Vessels are intended for extractions, not reactions. The pressure ratings are a guideline only. Final responsibility for safe use rests with the user.

Vessels will remain sealed after use until they cool to room temperature (20-30°C). Do not try to open the vessel when it is still hot. If the closure nut seizes, wait until the vessel cools before removing by hand.

All vessels are individually tested.

Vessel Sizes 5mL to 50mL

		Polypropylene Frits[a] (pkg of 50)	Teflon Frits[a] (pkg of 50)	Tamping Rod[a]	Vessel Supports[a]	Filling Funnels[a]	Seal Insertion Tool[a]	Metal Frit[b]	Spring Loaded Seal	O-ring
7971 5mL Vessel	**7076 5mL High Temperature Vessel**	**7956**	**7957**	**7930**	Small Vessel Support **7932**	**7944**	**7984**	**7942**	**7982[c]**	**7141[b]**
7972 10mL Vessel	**7077 10mL High Temperature Vessel**	**7956**	**7957**	**7930**	Small Vessel Support **7932**	**7944**	**7984**	**7942**	**7982[c]**	**7141[b]**
7973 24mL Vessel	**7078 24mL High Temperature Vessel**	**7956**	**7957**	**7930**	Small Vessel Support **7932**	**7944**	**7984**	**7942**	**7982[c]**	**7141[b]**
7974 32mL Vessel	**7079 32mL High Temperature Vessel**	**7956**	**7957**	**7930**	Small Vessel Support **7932**	**7944**	**7984**	**7942**	**7982[c]**	**7141[b]**
7975 50mL Vessel	**7087 50mL High Temperature Vessel**	**7956**	**7957**	**7930**	Small Vessel Support **7932**	**7944**	**7984**	**7942**	**7982[c]**	**7141[b]**

Vessels are available to go to 150°C or 240°C. The vessels that are rated to 240°C are labeled High Temperature Vessels.

Inquire about special size vessels.

a Accessories to vessel -- not included with vessel.
b These items are included with vessel at time of purchase. These numbers are for ordering replacement parts only.
c Optional Spring-loaded seal. MUST be installed using #7984 Seal Insertion Tool.
d Optional O-Ring Seal

Extraction Vessel Parts 100mL - 1000mL

Vessel Sizes 100mL - 1000mL

The components shown are the parts of a complete, standard vessel, and are included with purchase. Order parts shown only upon loss or maintenance replacement.

Frit into Cover

Frit nut screws into cover.

Cup seal fits onto cover.
100mL #7521,
300mL #7525,
500mL/1L #7318

Seal cover fits over seal.

Screws secure seal cover.

Cover screws onto vessel.

Apply PTFE Tape to adapter fitting 1/8” FNPT to 10-32 THD and attach to cover.
(Not necessary to remove every use.)

Vessel connector attaches to closure nut.

Extraction Vessel Instructions / Maintenance

Caution: Do not exceed maximum vessel specifications!

Vessel Specifications:

Maximum Operating Pressure:	10,000 Psi (690 Bar)
Maximum Operating Temperature:	240ºC
Material of Construction (ASME):	17-4PH Stainless Steel, H1150 Heat Treatment

Instructions for Use:

When using this Extraction Vessel, periodically use a small amount of the supplied PTFE Dry Release Agent (lubricant) on the vessel threads at each end of the vessel. For type B and D endcap vessels, close each vessel cover until it stops threading, then back off approximately 1/8 of a turn. For Type A and C endcap vessels, tighten to 5 foot pounds. Do not back off.

IMPORTANT: ***Using this lubricant and method of closure will ensure that the vessel threads do not stick or seize after operation.***

Vessels are supplied with a Cup Seal (type B&D) closure at each end. The Cup Seals at both ends of the vessel should be inspected regularly, and replaced when they are sufficiently worn, or if they begin to develop cracks or extrusions. To install a new Cup Seal, remove the four screws holding the stainless steel retainer to the inside of the vessel cover. Remove the retainer and the old Cup Seal. Place a new cup seal in the groove on the cover. Position the retainer over the Cup Seal and fasten the retainer to the cover with the four screws.

A Face Seal (type A&C) is installed by dropping the seal into the groove located in the vessel body, then tightening the lid.

100mL Vessel Endcaps
A Endcaps require replacement face seal **#7519**.
B Endcaps require replacement cup seal **#7521**.

300mL Vessel Endcaps
C Endcaps require replacement face seal #7520.
D Endcaps require replacement cup seal #7525.

Vessels also contains a stainless steel porous frit, held in place with a hand tightened fitting nut, on the inside surface of each vessel cover (end cap). Periodically inspect these frits for cleanliness. If dirty, the frits should be cleaned with any solvent suitable for stainless steel, and can be ultrasonically cleaned if desired. It is recommended to put a small amount of Polypropylene Wool into each of the frit retaining nuts, after re-assembly of the frit is complete.

	100mL Vessel	300mL Vessel	.5/1L Vessel
Supplied Parts			
PTFE Dry Release Agent	6199		
Replacement Parts			
Cup Seal	7521	7525	7318
10µ Frit, 2/pack	6198		
Nut, Frit Holder	6208		
O-Ring, 1L, Pack/2			6197

Vessel Lids for 100mL, 300mL, 500mL and 1L Vessels

100mL and 300mL vessel lids are available in one port or two port configurations.

All one liter and 500 mL SCF vessels have interchangeable caps. Choose between a 5-Port vessel lid, a 5-Port vessel lid with a large center port, and a single port vessel lid. This allows for great flexibility and control in processing samples.

The ports allow for the insertion of probes, thermocouples, fiber optics, illumination, and more. You can introduce a stirrer and/or meter in reactants and modifiers. You can "thief" samples. When the ports are not needed, merely insert the threaded plug. The possibilities are endless.

The 500mL and 1L vessels can be purchased with any of the three different lids. The vessel lids are interchangable. Additional lids can be purchased, and they will fit your 500mL or 1L vessel.

scf vessel
12/07

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NEW SCF Vessel – five port
5 vessel cap ports
Vessel cap (top)
Vessel cap (bottom)
--single port

NEW SCF Vessel – five port – stirrer port
5 vessel cap ports
Vessel cap (top)
Vessel cap (bottom)
– single port

NEW SCF Vessel – five port – stirrer port
Stirrer
Vessel cap (top)
5 vessel cap ports
Vessel cap (bottom) – single port

Applied

Vessels, Vessel Accessories and Vessel Lids for 100ml to 1L Vessels

	Vessel Supports[a]	Metal Frit[b]	Spring Loaded Seal	O-ring
7977 100mL Vessel	Large Vessel Support[b] **7916**	**6198**	**7521**	
7907 300mL Vessel	Large Vessel Support[b] **7916**	**6198**	**7525**	
7926 500mL Vessel (w/1port lid)	Large Vessel Support[b] **7916**	**6198**	**7318**	**6197**[d]
7908 1 Liter Vessel (w/1port lid)	Large Vessel Support[b] **7916**	**6198**	**7318**	**6197**[d]

7065 500mL Vessel 5-Port Lid	**7066 500mL Vessel 5-Port Lid, LG**	**7926 500mL Vessel 1-Port Lid**
7063 1 Liter Vessel 5-Port Lid	**7064 1 Liter Vessel 5-Port Lid, LG**	**7908 1 Liter Vessel 1-Port Lid**
7439 5-Port Lid for 500mL or 1L Vessel Top	**7069 5-Port Lid, LG for 500mL or 1L Vessel Top**	**7067 1-Port Lid for 500mL or 1L Vessel Top**

Inquire about special size vessels.

a Accessories to vessel -- not included with vessel.
b These items are included with vessel at time of purchase. These numbers are for ordering replacement parts only.
c Optional Spring-loaded seal. MUST be installed using #7984 Seal Insertion Tool.
d Optional O-Ring Seal

Part Numbers

Extractor Vessels

Standard Vessels		*High Temperature Vessels*	
7971	5mL	7076	5mL
7972	10mL	7077	10mL
7973	24mL	7078	24mL
7974	32mL	7079	32mL
7975	50mL	7087	50mL
7977	100mL		
7907	300mL		
7926	500mL		
7908	1 Liter		

Inquire about special size vessels.

Small Vessel Support*

7932 for 5, 10, 24, 32, 50mLvessels

Provides means of hanging vessel on the oven wall.

Filling Funnels*

7944 for 5mL, 10mL, 24mL, 32mL, and 50mL

Large Vessel Support**

7916 for 100, 300, 500mL, 1L

Tamping Rod

7930 for 5mL, 10mL, 24mL, 32mL, and 50 mL

Seal Insertion Tool*

7984 for 5mL, 10mL, 24mL, 32mL, and 50mL

Note: Funnels and seal insertion tools are not essential. They are tools to increase ease of use. Seal insertion tools are used to more easily replace cup seals and are not necessary for use with O-Rings.

Spring Loaded Seal**

7141***/7982 for 5, 10, 24, 32, 50mL
7521 for 100mL
7525 for 300mL
6197****/7318 for 500mL/1L

* Accessories to vessel -- not included with vessel.
** These items are included with vessel at time of purchase. These numbers are for ordering replacement parts only.
*** O-Ring Backup Ring Set - Recommended seal for these vessels.
**** O-Ring

Vessel Cleanliness

As part of the Applied Separations, Inc.'s vessel safety protocol and QC performance testing, this vessel is hydrostatically tested to extremely high pressures with oils specially manufactured for this purpose. The vessel is then extensively cleaned in an ultrasonic solvent bath and then pressure tested with supercritical carbon dioxide. Although the cleanliness is sufficient for most applications, it is recommended that you further clean the vessel, especially if your application is for trace analysis.

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