

SepaFlash® Column Overview for Standard Series

SepaFlash® columns are an excellent alternative to the other columns available on the market, and you will enjoy fast, easy purification and scale-up from milligram to hundreds of grams. The Standard Series columns offer the following advantages:

Reliable and Reproducible

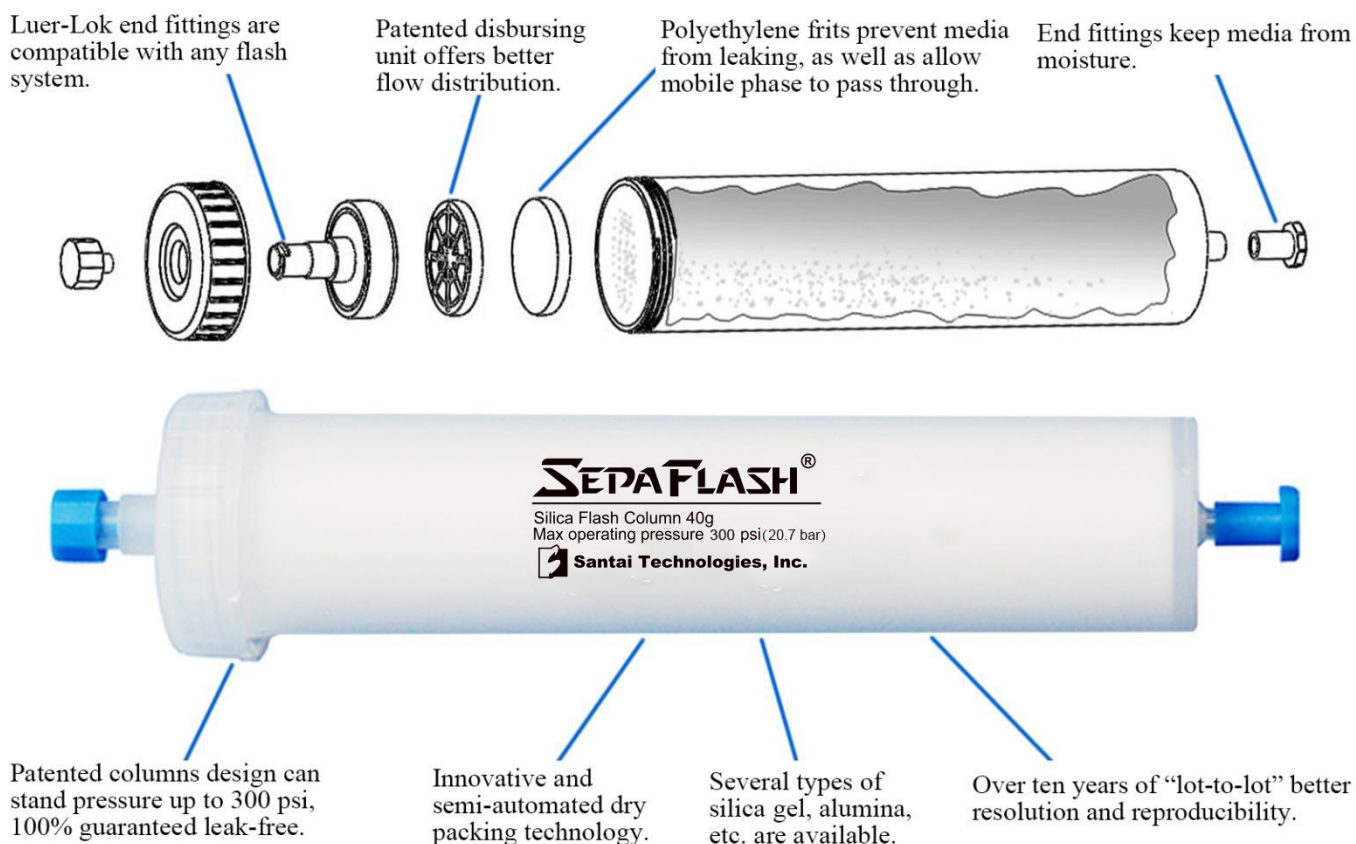
SepaFlash® columns are produced with proprietary dry packing technique for uniform packed sorbent bed with less channeling effect, tighter band and symmetrical peak profile, resulting higher resolution and reproducibility. They feature innovative design with standard Luer-Lok end fittings for quick, easy connection to commercially available flash systems on the market. The quality is consistent for SepaFlash® columns over for decades of years, to ensure that the chemists are able to complete the everyday purification with pleasure.

Versatile

The Standard Series columns are available from 4 gram up to 3 kg column size allowing purification from 10 milligram up to 300 grams. The enhanced product offering with high-efficiency silica gel (irregular, 25-40 μm , 60 \AA) provides an outstanding performance with lower cost of use.

Safe

Innovative column design on Standard Series columns are pressure rated for safe operation. Machine assembling column heads ensure that the columns are able to withstand the pressure capacity of modern flash systems and not leak valuable compound.



Standard Series

Standard Series flash columns are machine packed with UltraPure silica gel using proprietary dry packing technique.

- UltraPure silica features tight particle size distribution, low level of fines and low trace metal content, neutral pH, controlled water content and high surface area, providing scientists the desired reproducible experimental results
- Unique, proprietary dry packing technique guarantees high resolution and reproducibility for everyday purifications.
- Improved pressure rated up to 300 psi



UltraPure irregular silica, 40–63 μm , 60 Å

(surface area 500 m^2/g , pH 6.5–7.5, loading capacity 0.1–10%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
S-5101-0004	4 g	4 mg–0.4 g	20	15–40	105.8	12.4	300/20.7
S-5101-0012	12 g	12 mg–1.2 g	18	30–60	124.5	21.2	300/20.7
S-5101-0025	25 g	25 mg–2.5 g	12	30–60	172.7	21.3	300/20.7
S-5101-0040	40 g	40 mg–4.0 g	12	40–70	176.0	26.7	300/20.7
S-5101-0080	80 g	80 mg–8.0 g	10	50–100	246.8	30.9	200/13.8
S-5101-0120	120 g	120 mg–12 g	10	60–150	264.6	36.2	200/13.8
S-5101-0220	220 g	220 mg–22 g	6	80–220	203.7	60.1	150/10.3
S-5101-0330	330 g	330 mg–33 g	5	80–220	275.0	60.4	150/10.3
S-5101-0800	800 g	800 mg–80 g	3	80–160	382.9	78.2	100/6.9
S-5101-1600	1600 g	1.6 g–160 g	2	100–200	432.4	103.8	100/6.9
S-5101-3000	3000 g	3.0 g–300 g	1	100–200	509.5	127.5	100/6.9

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

High-efficiency irregular silica, 25–40 μm , 60Å

(surface area 500 m^2/g , pH 6.5–7.5, loading capacity 0.1–15%)

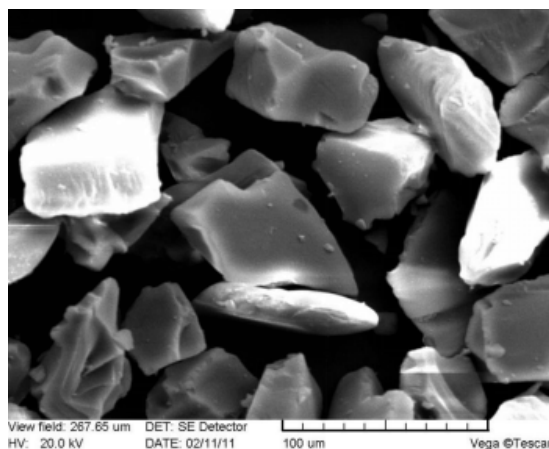
Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
S-5102-0004	4 g	4 mg–0.6 g	20	15–30	105.8	12.4	300/20.7
S-5102-0012	12 g	12 mg–1.8 g	18	25–50	124.5	21.2	300/20.7
S-5102-0025	25 g	25 mg–3.8 g	12	25–50	172.7	21.3	300/20.7
S-5102-0040	40 g	40 mg–6.0 g	12	30–60	176.0	26.7	300/20.7
S-5102-0080	80 g	80 mg–12 g	10	40–80	246.8	30.9	200/13.8
S-5102-0120	120 g	120 mg–18 g	10	45–90	264.6	36.2	200/13.8
S-5102-0220	220 g	220 mg–33 g	6	60–120	203.7	60.1	150/10.3
S-5102-0330	330 g	330 mg–50 g	5	60–120	275.0	60.4	150/10.3

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

The characteristics for UltraPure irregular silica gel

This cost efficient material has an irregular particle shape with smooth edges, a very narrow particle size distribution and the low level of fines offered by Santai, which will optimize your separating power and save your time and money. There are two kinds of irregular silica gel available: 40-63 μm and 25-40 μm .

Especially, Santai further develops the stable dry packing technique for irregular 25-40 μm silica, and the pre-packed 25-40 μm silica cartridges will show extraordinary separation ability.



SEM picture of 40-63 μm silica gel

Santai' silica gel also offers these advantages over competitor's products:

Neutral pH:

The pH of Santai's irregular silica gel is kept between 6.5–7.5. A neutral pH is needed to separate pH sensitive compounds.

Stable water content:

Water content of silica gel affects the selectivity of the silica. The water content of Santai's irregular silica is strictly controlled between 4% - 6%.

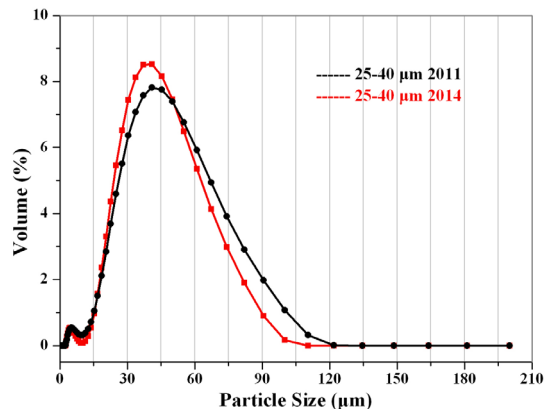
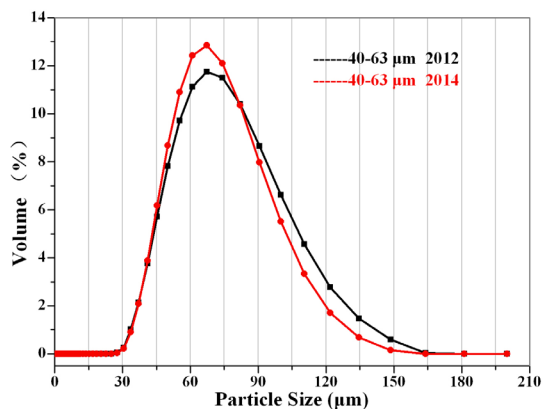
High surface area:

Higher surface area (500 m^2/g for 60 \AA pore size) provides higher sample loading capacity

Tight particle size distribution and high batch-to-batch reproducibility:

A narrower particle size distribution will give a more homogenous packing that will help in collecting more concentrated fractions and reduced solvent consumption, which will lead to cost savings. The high batch-to-batch reproducibility of particle size distribution fundamentally guarantees the excellent separation performance. Please refer to the SEM picture and particle size distribution analysis results of two batches.

Particle size distribution of two batches for 40-63 μm and 25-40 μm silica gel



More comparison data for SepaFlash® Standard Series columns

SepaFlash® flash columns offer incredible performance over competitive products due to the higher silica gel quality and innovative packing technique.

High Reproducibility with SepaFlash® columns

SepaFlash® Standard Series Column 120 g

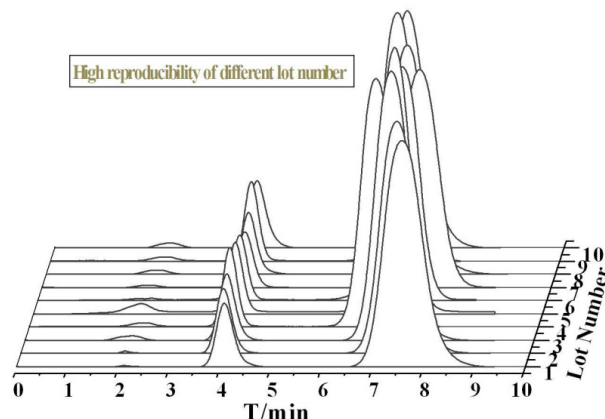
Sample: Acetophenone and P-Methoxyacetophenone

Mobile Phase: 80% hexane and 20% ethyl acetate

Flow Rate: 85 mL/min

Sample Size: 1.5 mL

Wave Length: 254 nm



Better Separations with SepaFlash® columns

Santai evaluated the performance of the SepaFlash® columns comparing with other well-known brands. The results suggested SepaFlash Columns have better performance than other competing products.

SepaFlash® 120 g Versus Brand A 120 g

Sample: Acetophenone and P-Methoxyacetophenone

Mobile Phase: 80% hexane and 20% ethyl acetate

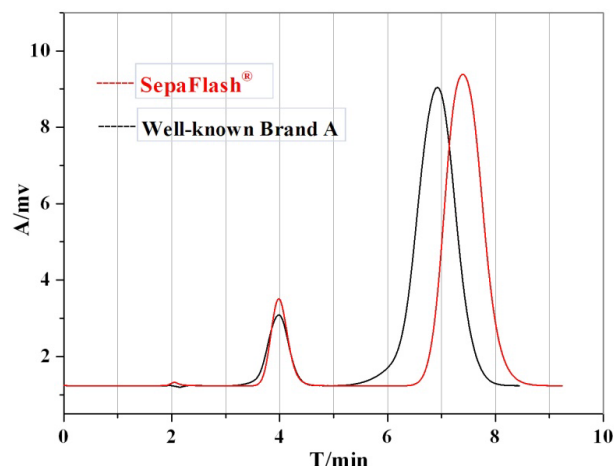
Flow Rate: 85 mL/min

Sample Size: 1.5 mL

Wave Length: 254 nm

Chromatographic Parameters:

Column Size	tR	N	Rs	T
SepaFlash® 120g	4.0 min	519	3.54	1.13
Brand A 120g	4.0 min	408	0.92	



SepaFlash® 330 g Versus Brand B 340 g

Sample: Acetophenone and P-Methoxyacetophenone

Mobile Phase: 80% hexane and 20% ethyl acetate

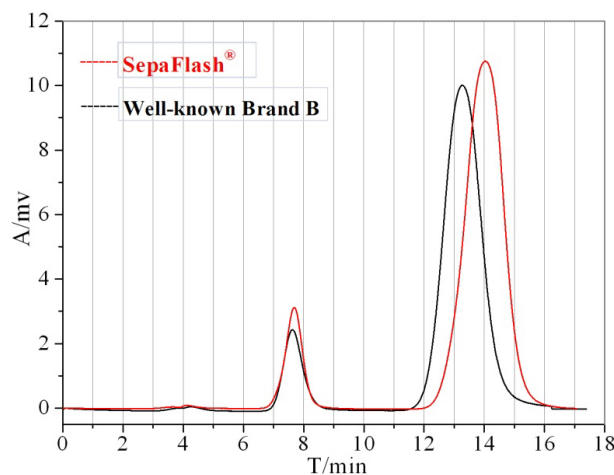
Flow Rate: 120 mL/min

Sample Size: 5 mL

Wave Length: 254 nm

Chromatographic Parameters:

Column Size	tR	N	Rs	T
SepaFlash® 330g	7.7 min	539	3.54	0.97
Brand B 340g	7.6 min	510	3.11	1.11



NEW COLUMN SIZE – 3 kg

SepaFlash® columns are now available in a 3 kg column size which could purify up to 300 grams in a single run with the same reliability and reproducibility. The 3 kg flash columns are spin-welded and can stand pressure up to 100 psi. Universal Luer-Lok ending fittings facilitate compatibility with any flash system on the market.

- Reliable, consistent performance from proprietary packing technique
- Reinforced cartridge body with maximum operating pressure up to 100 psi
- Luer-Lok end fittings compatible with any flash system
- Faster purification runs to save time and solvent



UltraPure irregular silica, 40–63 µm, 60 Å (NEW Product)

(surface area 500 m²/g, pH 6.5–7.5, loading capacity 0.1–10%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
S-5101-3000	3000 g	3.0 g–300 g	1	200–500	509.5	127.5	100/6.9

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

Better Separation with SepaFlash® columns

SepaFlash® 3 kg Versus Competitor A 3 kg

Sample: Acetophenone and P-Methoxyacetophenone

Mobile Phase: 80% hexane and 20% ethyl acetate

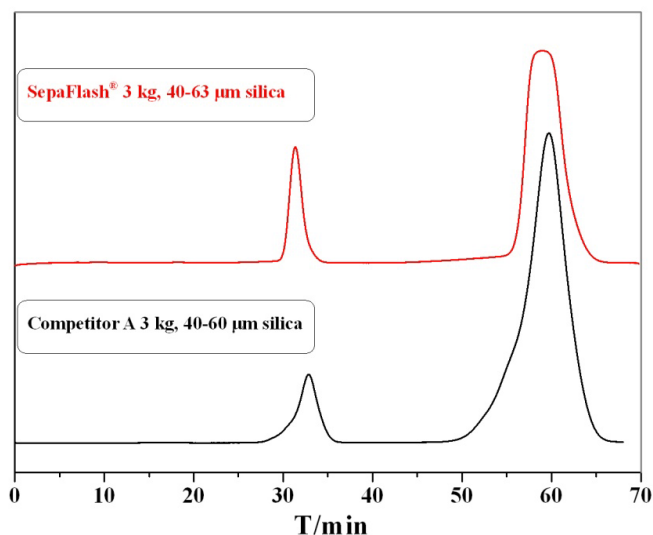
Flow Rate: 250 mL/min

Sample Size: 40 mL

Wave Length: 254 nm

Chromatographic Parameters:

Column Size	tR	N	Rs	T
SepaFlash® 3 kg	31 min	890	5.13	1.20
Competitor A 3 kg	33 min	743	4.00	0.80



E Series

E series flash columns are manufactured with the same cartridges as the standard series (and therefore have all the same great characteristics) but are packed with economical, high-quality silica gel (40-63 μm , 60 Å) or 50-75 μm alumina. Especially, the alumina flash columns are useful when the samples are sensitive and prone to degradation on silica gel. This series products are a good choice of cost saving for everyday purification.



High-quality irregular silica, 40–63 μm , 60 Å

(surface area 500 m^2/g , pH 6.5–7.5, loading capacity 0.1–10%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
S-8101-0004	4 g	4 mg–0.4 g	20	15–40	105.8	12.4	300/20.7
S-8101-0012	12 g	12 mg–1.2 g	18	30–60	124.5	21.2	300/20.7
S-8101-0025	25 g	25 mg–2.5 g	12	30–60	172.7	21.3	300/20.7
S-8101-0040	40 g	40 mg–4.0 g	12	40–70	176.0	26.7	300/20.7
S-8101-0080	80 g	80 mg–8.0 g	10	50–100	246.8	30.9	200/13.8
S-8101-0120	120 g	120 mg–12 g	10	60–150	264.6	36.2	200/13.8
S-8101-0220	220 g	220 mg–22 g	6	80–220	203.7	60.1	150/10.3
S-8101-0330	330 g	330 mg–33 g	5	80–220	275.0	60.4	150/10.3
S-8101-0800	800 g	800 mg–80 g	3	80-160	382.9	78.2	100/6.9
S-8101-1600	1600 g	1.6 g–160 g	2	100–200	432.4	103.8	100/6.9
S-8101-3000	3000 g	3.0 g–300 g	1	100–200	509.5	127.5	100/6.9

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

High-quality alumina, 50–75 μm , 55 Å

(surface area 155 m^2/g , pH: acidic 3.8–4.8, neutral 6.5–7.5, basic 9.0–10.0; loading capacity 0.1–4%)

For acidic alumina, replace “N” with “A” in item number, and for basic alumina with “B”.

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
S-8601-0004-N	8 g	8 mg–0.32 g	20	10–30	105.8	12.4	300/20.7
S-8601-0012-N	24 g	24 mg–1.0 g	18	15–45	124.5	21.2	300/20.7
S-8601-0025-N	50 g	50 mg–2.0 g	12	15–45	172.7	21.3	300/20.7
S-8601-0040-N	80 g	80 mg–3.2 g	12	20–50	176.0	26.7	300/20.7
S-8601-0080-N	160 g	160 mg–6.4 g	10	30–70	246.8	30.9	200/13.8
S-8601-0120-N	240 g	240 mg–9.6 g	10	40–80	264.6	36.2	200/13.8
S-8601-0220-N	440 g	440 mg–17.6 g	6	50–120	203.7	60.1	150/10.3
S-8601-0330-N	660 g	660 mg–26.4 g	5	50–120	275.0	60.4	150/10.3
S-8601-0800-N	1600 g	1.6 g–64 g	3	100–200	382.9	78.2	100/6.9
S-8601-1600-N	3200 g	3.2 g–128 g	2	150–300	432.4	103.8	100/6.9
S-8601-3000-N	6000 g	6.0 g–240 g	1	150–300	509.5	127.5	100/6.9

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

HP Series

HP series flash columns are spin-welded and allow for higher pressure of up to 400 psi. Available adapter facilitates compatibility with any flash system on the market. This series provides Luer-Lok in and Luer-Lok out flexibility for convenient column stacking. When pre-packed with high-efficiency silica gel (irregular, 25-40 μm , 60 \AA ; spherical, 20-45 μm , 70 \AA), this series presents an outstanding resolution over conventional flash cartridges.

- Solid, one-piece polypropylene body with thick walls for safety
- Freely choose irregular silica or spherical silica according to your personal preference
- Markedly improved resolution and higher sample loading capability
- Spherical silica provides improved performance without increasing the system backpressure



UltraPure irregular silica, 40–63 μm , 60 \AA

(surface area 500 m^2/g , pH 6.5–7.5, loading capacity 0.1–10%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
SW-5101-004	4 g	4 mg–0.4 g	20	15–40	113.8	12.4	400/27.5
SW-5101-012	12 g	12 mg–1.2 g	18	30–60	134.8	21.4	400/27.5
SW-5101-025	25 g	25 mg–2.5 g	12	30–60	184.0	21.4	400/27.5
SW-5101-040	40 g	40 mg–4.0 g	12	40–70	184.4	26.7	400/27.5
SW-5101-080	80 g	80 mg–8.0 g	10	50–100	257.4	31.2	350/24.0
SW-5101-120	120 g	120 mg–12 g	10	60–150	261.5	38.6	300/20.7
SW-5101-220	220 g	220 mg–22 g	6	80–220	223.5	61.4	300/20.7
SW-5101-330	330 g	330 mg–33 g	5	80–220	280.2	61.4	250/17.2

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

High-efficiency irregular silica, 40-75 μm , 60 \AA

(surface area 500 m^2/g , pH 6.5–7.5, loading capacity 0.1–15%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
SW-2101-004-SP	4 g	4 mg–0.4 g	20	15–40	113.8	12.4	400/27.5
SW-2101-012-SP	12 g	12 mg–1.2 g	18	30–60	134.8	21.4	400/27.5
SW-2101-025-SP	25 g	25 mg–2.5 g	12	30–60	184.0	21.4	400/27.5
SW-2101-040-SP	40 g	40 mg–4.0 g	12	40–70	184.4	26.7	400/27.5
SW-2101-080-SP	80 g	80 mg–8.0 g	10	50–100	257.4	31.2	350/24.0
SW-2101-120-SP	120 g	120 mg–12 g	10	60–150	261.5	38.6	300/20.7
SW-2101-220-SP	220 g	220 mg–22 g	6	80–220	223.5	61.4	300/20.7
SW-2101-330-SP	330 g	330 mg–33 g	5	80–220	280.2	61.4	250/17.2

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

UltraPure spherical silica, 40–75 µm, 70 Å

(surface area 500 m²/g, pH 6.0–8.0, loading capacity 0.1–10%)

Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
SW-5102-004	4 g	4 mg–0.6 g	20	15–30	113.8	12.4	400/27.5
SW-5102-012	12 g	12 mg–1.8 g	18	25–50	134.8	21.4	400/27.5
SW-5102-025	25 g	25 mg–3.8 g	12	25–50	184.0	21.4	400/27.5
SW-5102-040	40 g	40 mg–6.0 g	12	30–60	184.4	26.7	400/27.5
SW-5102-080	80 g	80 mg–12 g	10	40–80	257.4	31.2	350/24.0
SW-5102-120	120 g	120 mg–18 g	10	45–90	261.5	38.6	300/20.7
SW-5102-220	220 g	220 mg–33 g	6	60–120	223.5	61.4	300/20.7
SW-5102-330	330 g	330 mg–50 g	5	60–120	280.2	61.4	250/17.2

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

High-efficiency spherical silica, 20–45 µm, 70 Å

(surface area 500 m²/g, pH 6.0–8.0, loading capacity 0.1–15%)

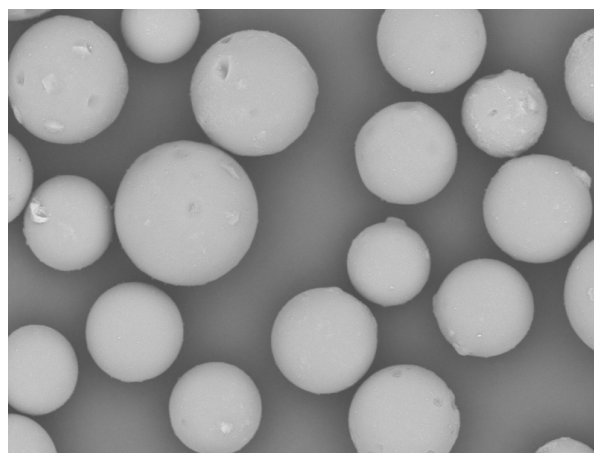
Item Number	Column Size	Sample Size	Units/Box	Flow Rate (mL/min)	Cartridge Length (mm)	Cartridge ID (mm)	Max. Pressure (psi/bar)
SW-2102-004-SP	4 g	4 mg–0.6 g	20	15–30	113.8	12.4	400/27.5
SW-2102-012-SP	12 g	12 mg–1.8 g	18	25–50	134.8	21.4	400/27.5
SW-2102-025-SP	25 g	25 mg–3.8 g	12	25–50	184.0	21.4	400/27.5
SW-2102-040-SP	40 g	40 mg–6.0 g	12	30–60	184.4	26.7	400/27.5
SW-2102-080-SP	80 g	80 mg–12 g	10	40–80	257.4	31.2	350/24.0
SW-2102-120-SP	120 g	120 mg–18 g	10	45–90	261.5	38.6	300/20.7
SW-2102-220-SP	220 g	220 mg–33 g	6	60–120	223.5	61.4	300/20.7
SW-2102-330-SP	330 g	330 mg–50 g	5	60–120	280.2	61.4	250/17.2

- Compatible with all flash chromatography systems, for example ISCO, Biotage, Yamazen, etc.

The benefits of spherical silica gel

For spherical silica gel, strict quality controls from raw material to finished product ensures high lot-to-lot reproducibility and tightly controlled specifications.

- Consistency, reliability, reproducibility
- No contamination, lower backpressure
- Superior resolution
- Symmetrical peaks with no tailing
- Higher sample loading capacity



NL D8.1 x1.0k 100 µm

SEM picture of 20–45 µm spherical silica gel

SepaFlash[®] column stacking to improve resolution of normal phase flash chromatography

Purification of compounds that are difficult to separate by flash chromatography ($\Delta R_f \leq 0.2$ between spots on TLC) often results in additional steps such as subsequent purification by preparative HPLC. It is possible to reduce additional work required for purification by simply stacking several prepacked SepaFlash[®] columns end to end on a flash chromatography system.



In liquid chromatography, chemical species are separated on the basis of their difference in velocity as they move through the column. Increasing column length can significantly increase resolution. By stacking columns end to end the length to diameter (L/D) ratio is increased so that no major changes to the media and solvent system are necessary. Often this increased L/D ratio is sufficient to provide successful separation for complex mixtures which cannot be realized by single column due to the close retention time of the components in the mixture. The data shown below illustrates the linear relationship between peak-to-peak resolution and number of columns stacked

Columns: SepaFlash[®] flash columns, 25 g
Item number: SW-5102-025
Sample: Acetophenone and P-Methoxyacetophenone

Mobile Phase: 80% hexane and 20% ethyl acetate

Flow Rate: 20 mL/min

Sample Size: One 25g 0.25 mL
 Two 25g stacked 0.50 mL
 Three 25g stacked 0.75 mL
 Four 25g stacked 1.00 mL
 Five 25g stacked 1.25 mL

Wave Length: 254 nm

Observed Chromatographic Parameters:

Column Size	tR1 (Peak 1)	tR2 (Peak 2)	N	Rs	T
One 25 g	3.7 min	6.5 min	1075	4.42	1.11
Two 25 g stacked	7.3 min	13.1 min	1770	6.02	1.10
Three 25 g stacked	11.0 min	19.8 min	1832	6.41	1.23
Four 25 g stacked	15.1 min	27.0 min	1902	6.51	1.20
Five 25 g stacked	19.0 min	34.2 min	2183	7.13	1.29

Table 1: Experimental parameters and results

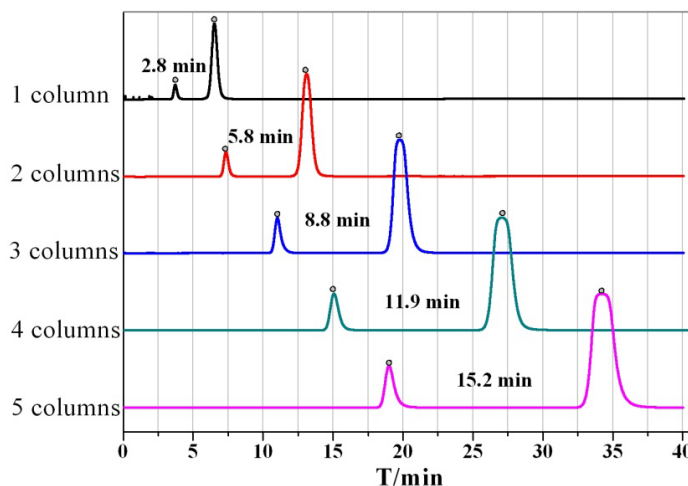
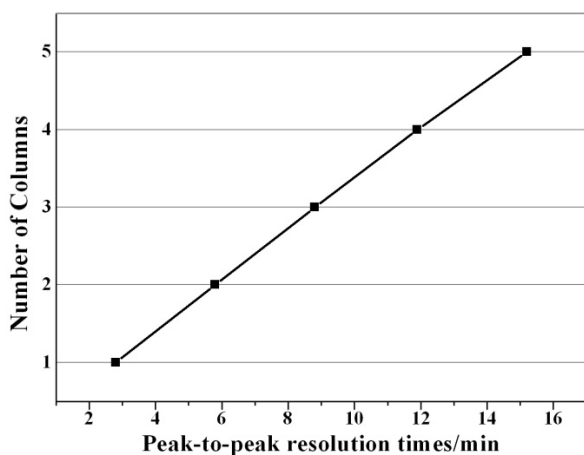


Figure 1: Linear relationship between number of stacked columns and peak-to-peak resolution times

Figure 2: Peak-to-peak resolution of multiple stacked 25 g columns