



Basics of preparative HPLC

In principal for preparative HPLC the same rules apply than for analytic HPLC. However both differ significantly in their aim. The aim of analytic HPLC is a preferably complete separation of the single components of a mixture with subsequent peak identification. In contrast the goal of preparative HPLC is isolation of the desired product in defined purity, maximum amount while having a cost effective method of operating.

Demand of a preparative separation

- Throughput
- Purity
- Yield

Upscaling table for current MN column dimensions



ID x Length [mm]	4 x 250	8 x 250	10 x 250	16 x 250	21 x 250	32 x 250	40 x 250	50 x 250	80 x 250
Linear scale-up factor	1	4	6.25	16	27.6	64	100	156.3	400
Typical amount of sample* [mg]	0.02–2	0.08–8	0.13–13	0.3–35	0.6–60	1.3–130	2–210	3–350	10–850
Typical flow rate [mL/min]	0.5–1.5	2–6	3–9	8–24	14–40	32–96	50–150	80–250	200–600

* based on RP material; the herein stated maximum amounts of sample are dependent on the separation problem and the sample. In some cases half the maximum amount of sample can already lead to a drastic overload of the column, in other cases the maximum amount of sample still leads to an acceptable separation.

NUCLEODUR® bulk packings

- Fully spherical high purity silica
- Pore size 110 Å; pore volume 0.9 mL/g; surface (BET) 340 m²/g; density 0.47 g/mL; pressure stable up to 600 bar
- Bigger particles for preparative application

Ordering information

Phase	Endcapped	Carbon content	Particle size	Pack of 100 g	Pack of 1000 g
NUCLEODUR® C₁₈ HTec premium octadecyl phase (see page 178)					
NUCLEODUR® C ₁₈ HTec, 7 µm	yes	18 % C	7 µm	713831.0100	713831.1
NUCLEODUR® C ₁₈ HTec, 10 µm	yes	18 % C	10 µm	713832.0100	713832.1
NUCLEODUR® C₁₈ ec standard octadecyl phase (see page 181)					
NUCLEODUR® 100-10 C ₁₈ ec	yes	17.5 % C	10 µm	713611.0100	713611.1
NUCLEODUR® 100-12 C ₁₈ ec	yes	17.5 % C	12 µm	713618.0100	713618.1
NUCLEODUR® 100-16 C ₁₈ ec	yes	17.5 % C	16 µm	713621.0100	713621.1
NUCLEODUR® 100-20 C ₁₈ ec	yes	17.5 % C	20 µm	713601.0100	713601.1
NUCLEODUR® 100-30 C ₁₈ ec	yes	17.5 % C	30 µm	713631.0100	713631.1
NUCLEODUR® 100-50 C ₁₈ ec	yes	17.5 % C	50 µm	713550.0100	713550.1
Unmodifiziertes NUCLEODUR® SiOH silica (see page 190)					
NUCLEODUR® 100-10			10 µm	713610.0100	713610.1
NUCLEODUR® 100-12			12 µm	713615.0100	713615.1
NUCLEODUR® 100-16			16 µm	713620.0100	713620.1
NUCLEODUR® 100-20			20 µm	713600.0100	713600.1
NUCLEODUR® 100-30			30 µm	713630.0100	713630.1
NUCLEODUR® 100-50			50 µm	713551.0100	713551.1



POLYGOSIL[®] bulk packings

- Irregular silica for analytical applications
- pH stability 2–8

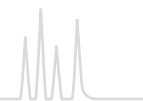
Physical properties of unmodified POLYGOSIL[®] materials

Phase	Pore size	Pore volume	Surface (BET)	Density	Pressure stability
POLYGOSIL [®] 60	60 Å	0.75 mL/g	350 m ² /g	0.45 g/mL	600 bar
POLYGOSIL [®] 100	100 Å	1 mL/g	280 m ² /g	0.35 g/mL	400 bar
POLYGOSIL [®] 300	300 Å	0.8 mL/g	100 m ² /g	0.45 g/mL	400 bar
POLYGOSIL [®] 1000	1000 Å	0.8 mL/g	25 m ² /g	0.45 g/mL	300 bar

Modification of POLYGOSIL[®] follows the same processes as for NUCLEOSIL[®] silica.

Ordering information

Phase	Endcapped	Carbon content	Pore size	Particle size	Pack of 10 g	Pack of 100 g
Octadecyl phases –(CH₂)₁₇–CH₃						
POLYGOSIL [®] 60-5 C ₁₈	yes	12 % C	60 Å	5 µm	711330.10	711330.100
POLYGOSIL [®] 60-7 C ₁₈	yes	12 % C	60 Å	7 µm	711340.10	711340.100
POLYGOSIL [®] 60-10 C ₁₈	yes	12 % C	60 Å	10 µm	711350.10	711350.100
POLYGOSIL [®] 100-5 C ₁₈	yes	14 % C	100 Å	5 µm	711560.10	711560.100
POLYGOSIL [®] 100-7 C ₁₈	yes	14 % C	100 Å	7 µm	711570.10	711570.100
POLYGOSIL [®] 100-10 C ₁₈	yes	14 % C	100 Å	10 µm	711580.10	711580.100
POLYGOSIL [®] 300-7 C ₁₈	yes	4 % C	300 Å	7 µm	711710.10	711710.100
POLYGOSIL [®] 1000-7 C ₁₈	yes	~ 1 % C	1000 Å	7 µm	711992.10	711992.100
Octyl phases –(CH₂)₇–CH₃						
POLYGOSIL [®] 60-5 C ₈	no	7 % C	60 Å	5 µm	711300.10	711300.100
POLYGOSIL [®] 60-7 C ₈	no	7 % C	60 Å	7 µm	711310.10	711310.100
POLYGOSIL [®] 60-10 C ₈	no	7 % C	60 Å	10 µm	711320.10	711320.100
Butyl phases –(CH₂)₃–CH₃						
POLYGOSIL [®] 300-7 C ₄	yes	~ 1 % C	300 Å	7 µm	711680.10	711680.100
POLYGOSIL [®] 1000-7 C ₄	yes	< 1 % C	1000 Å	7 µm	711991.10	711991.100
Cyano phases (nitrile) –(CH₂)₃–CN						
POLYGOSIL [®] 60-5 CN		~ 5 % C	60 Å	5 µm	711380.10	711380.100
POLYGOSIL [®] 60-10 CN		~ 5 % C	60 Å	10 µm	711390.10	711390.100
Amino phases –(CH₂)₃–NH₂						
POLYGOSIL [®] 60-5 NH ₂		~ 3 % C	60 Å	5 µm	711360.10	711360.100
POLYGOSIL [®] 60-10 NH ₂		~ 3 % C	60 Å	10 µm	711370.10	711370.100
Dimethylamino phases –(CH₂)₃–N(CH₃)₂						
POLYGOSIL [®] 60-5 N(CH ₃) ₂		~ 3.5 % C	60 Å	5 µm	711420.10	711420.100
POLYGOSIL [®] 60-10 N(CH ₃) ₂		~ 3.5 % C	60 Å	10 µm	711430.10	711430.100
Unmodified silica SiOH						
POLYGOSIL [®] 60-5			60 Å	5 µm	711010.10	711010.100
POLYGOSIL [®] 60-7			60 Å	7 µm	711280.10	711280.100
POLYGOSIL [®] 60-10			60 Å	10 µm	711020.10	711020.100
POLYGOSIL [®] 100-5			100 Å	5 µm	711510.10	711510.100
POLYGOSIL [®] 100-7			100 Å	7 µm	711520.10	711520.100
POLYGOSIL [®] 100-10			100 Å	10 µm	711530.10	711530.100
POLYGOSIL [®] 300-7			300 Å	7 µm	711600.10	711600.100
POLYGOSIL [®] 1000-7			1000 Å	7 µm	711890.10	711890.100



POLYGOPREP bulk packings

- Irregular silica for preparative applications
- pH stability 2–8

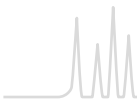
Physical properties of unmodified POLYGOPREP materials

Phase	Pore size	Pore volume	Surface (BET)	Density	Pressure stability
POLYGOPREP 60	60 Å	0.75 mL/g	350 m ² /g	0.45 g/mL	600 bar
POLYGOPREP 100	100 Å	1 mL/g	280 m ² /g	0.35 g/mL	400 bar
POLYGOPREP 300	300 Å	0.8 mL/g	100 m ² /g	0.45 g/mL	400 bar
POLYGOPREP 1000	1000 Å	0.8 mL/g	35 m ² /g	0.45 g/mL	300 bar

Modification of POLYGOPREP follows the same processes as for NUCLEOSIL® silica.

Ordering information

Phase	Endcapped	Carbon content	Pore size	Particle size	Pack of 100 g	Pack of 1 kg
Octadecyl phases –(CH₂)₁₇–CH₃						
POLYGOPREP 60-12 C ₁₈	no*	12% C	60 Å	10–15 µm	711009.100	711009.1000
POLYGOPREP 60-20 C ₁₈	no*	12% C	60 Å	15–25 µm	711031.100	711031.1000
POLYGOPREP 60-30 C ₁₈	no*	12% C	60 Å	25–40 µm	711480.100	711480.1000
POLYGOPREP 60-50 C ₁₈	no*	12% C	60 Å	40–63 µm	711500.100	711500.1000
POLYGOPREP 60-80 C ₁₈	no*	12% C	60 Å	63–100 µm	711011.100	711011.1000
POLYGOPREP 60-130 C ₁₈	no*	12% C	60 Å	63–200 µm	711590.100	711590.1000
POLYGOPREP 100-12 C ₁₈	no*	14% C	100 Å	10–15 µm	711018.100	711018.1000
POLYGOPREP 100-20 C ₁₈	no*	14% C	100 Å	15–25 µm	711019.100	711019.1000
POLYGOPREP 100-30 C ₁₈	no*	14% C	100 Å	25–40 µm	711032.100	711032.1000
POLYGOPREP 100-50 C ₁₈	no*	14% C	100 Å	40–63 µm	711021.100	711021.1000
POLYGOPREP 300-12 C ₁₈	yes	4% C	300 Å	10–15 µm	711024.100	711024.1000
POLYGOPREP 300-20 C ₁₈	yes	4% C	300 Å	15–25 µm	711025.100	711025.1000
POLYGOPREP 300-30 C ₁₈	yes	4% C	300 Å	25–40 µm	711720.100	711720.1000
POLYGOPREP 300-50 C ₁₈	yes	4% C	300 Å	40–63 µm	711730.100	711730.1000
POLYGOPREP 1000-30 C ₁₈	yes	~ 1% C	1000 Å	25–40 µm	711028.100	711028.1000
POLYGOPREP 1000-50 C ₁₈	yes	~ 1% C	1000 Å	40–63 µm	711029.100	711029.1000
Octyl phases –(CH₂)₇–CH₃						
POLYGOPREP 60-12 C ₈	no*	7% C	60 Å	10–15 µm	711007.100	711007.1000
POLYGOPREP 60-20 C ₈	no*	7% C	60 Å	15–25 µm	711008.100	711008.1000
POLYGOPREP 60-30 C ₈	no*	7% C	60 Å	25–40 µm	711470.100	711470.1000
POLYGOPREP 60-50 C ₈	no*	7% C	60 Å	40–63 µm	711490.100	711490.1000
* On request, these POLYGOPREP RP phases can be endcapped at surcharge.						
Butyl phases –(CH₂)₃–CH₃						
POLYGOPREP 300-12 C ₄	yes	~ 1% C	300 Å	10–15 µm	711022.100	711022.1000
POLYGOPREP 300-20 C ₄	yes	~ 1% C	300 Å	15–25 µm	711023.100	711023.1000
POLYGOPREP 300-30 C ₄	yes	~ 1% C	300 Å	25–40 µm	711690.100	711690.1000
POLYGOPREP 300-50 C ₄	yes	~ 1% C	300 Å	40–63 µm	711700.100	711700.1000
POLYGOPREP 1000-30 C ₄	yes	< 1% C	1000 Å	25–40 µm	711026.100	711026.1000
POLYGOPREP 1000-50 C ₄	yes	< 1% C	1000 Å	40–63 µm	711027.100	711027.1000
Cyano phases (nitrile) –(CH₂)₃–CN						
POLYGOPREP 60-12 CN		~ 4.5% C	60 Å	10–15 µm	711015.100	711015.1000
POLYGOPREP 60-20 CN		~ 4.5% C	60 Å	15–25 µm	711016.100	711016.1000
POLYGOPREP 60-30 CN		~ 4.5% C	60 Å	25–40 µm	711017.100	711017.1000
Amino phases –(CH₂)₃–NH₂						
POLYGOPREP 60-12 NH ₂		~ 3% C	60 Å	10–15 µm	711012.100	711012.1000
POLYGOPREP 60-20 NH ₂		~ 3% C	60 Å	15–25 µm	711013.100	711013.1000
POLYGOPREP 60-30 NH ₂		~ 3% C	60 Å	25–40 µm	711014.100	711014.1000



POLYGOPREP irregular silica for HPLC



Ordering information

Phase	Pore size	Particle size	Pack of 100 g	Pack of 1 kg	Pack of 5 kg
Unmodified POLYGOPREP silica SiOH					
POLYGOPREP 60-12	60 Å	10–15 µm		711001.1000	711001.5000
POLYGOPREP 60-20	60 Å	15–25 µm		711240.1000	711240.5000
POLYGOPREP 60-30	60 Å	25–40 µm		711250.1000	711250.5000
POLYGOPREP 60-50	60 Å	40–63 µm		711260.1000	711260.5000
POLYGOPREP 60-80	60 Å	63–100 µm		711270.1000	711270.5000
POLYGOPREP 60-130	60 Å	63–200 µm		711037.1000	711037.5000
POLYGOPREP 100-12	100 Å	10–15 µm		711002.1000	711002.5000
POLYGOPREP 100-20	100 Å	15–25 µm		711003.1000	711003.5000
POLYGOPREP 100-30	100 Å	25–40 µm		711540.1000	711540.5000
POLYGOPREP 100-50	100 Å	40–63 µm		711550.1000	711550.5000
POLYGOPREP 100-80	100 Å	63–100 µm		711033.1000	711033.5000
POLYGOPREP 100-130	100 Å	63–200 µm		711034.1000	711034.5000
POLYGOPREP 300-12	300 Å	10–15 µm	711004.100	711004.1000	
POLYGOPREP 300-20	300 Å	15–25 µm	711610.100	711610.1000	
POLYGOPREP 300-30	300 Å	25–40 µm	711620.100	711620.1000	
POLYGOPREP 300-50	300 Å	40–63 µm	711630.100	711630.1000	
POLYGOPREP 1000-12	1000 Å	10–15 µm	711035.100	711035.1000	
POLYGOPREP 1000-20	1000 Å	15–25 µm	711036.100	711036.1000	
POLYGOPREP 1000-30	1000 Å	25–40 µm	711005.100	711005.1000	
POLYGOPREP 1000-50	1000 Å	40–63 µm	711006.100	711006.1000	