

Ultisil® LP Series HPLC Column

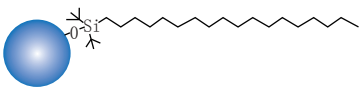
LP is abbreviation for **Low pH**. LP phases are designed for use at low pH conditions. LP phase consists of two very bulky hydrophobic protective groups to prevent siloxane bond from hydrolysis at low pH condition. So Ultisil® LP column is extremely stable in very low pH mobile phase and at high temperature, even at the lowest pH of 1.0, making it the most stable phase for low pH application in the market. Because it is not endcapped and has more surface silanols, LP phase has more retention for some early eluted polar compounds, and provides different selectivities. Ultisil® LP-C18 is the most polar C18 among all the C18 products of Welch.

- Not endcapped, prevents siloxane bond from hydrolysis at low pH condition.
- Compatible with 100% water as the mobile phase, more polar than "AQ", better peak shape and resolution
- Best peak shape for polar compounds
- Exceptional lifetime at low pH (0.5-8.0) and high temperature

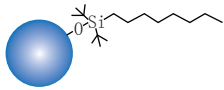
How to choose XB-C18 and LP-C18

When pH < 5.0, based on your separation conditions, you may choose either LP-C18 or XB-C18;
 When pH < 2.0 (such as 0.1% TFA), LP-C18, which provides exceptional stability, longer lifetime, perfect peak shape and superior selectivity, is your best choice

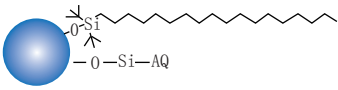
Ultisil® LP-C18

Structural Formula	
pH Range	0.5-8.0
Particle Size	3 µm, 5 µm, 10 µm
Surface Area(m²/g)	320(120 Å), 90(300 Å)
Carbon Loading(%)	10(120 Å), 5(300 Å)
USP List	L1
Endcapped	No

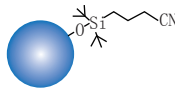
Ultisil® LP-C8

Structural Formula	
pH Range	1.0-8.0
Particle Size	3 µm, 5 µm
Surface Area(m²/g)	320(120 Å), 90(300 Å)
Carbon Loading(%)	5.5(120 Å), 3(300 Å)
USP List	L7
Endcapped	No

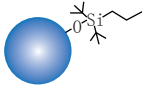
Ultisil® LP-AQ

Structural Formula	
pH Range	1.0-8.0
Particle Size	5 µm
Surface Area(m²/g)	320(120 Å)
Carbon Loading(%)	5(120 Å)
USP List	L1/L96
Endcapped	No

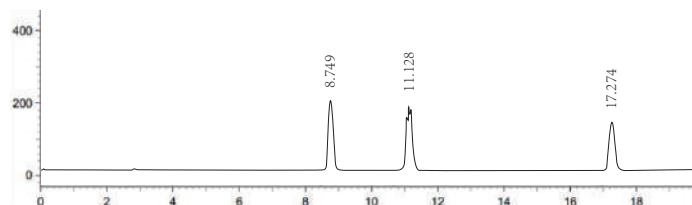
Ultisil® LP-CN

Structural Formula	
pH Range	1.0-8.0
Particle Size	5 µm
Surface Area(m²/g)	320(120 Å)
Carbon Loading(%)	6(120 Å)
USP List	L10
Endcapped	No

Ultisil® LP-C3

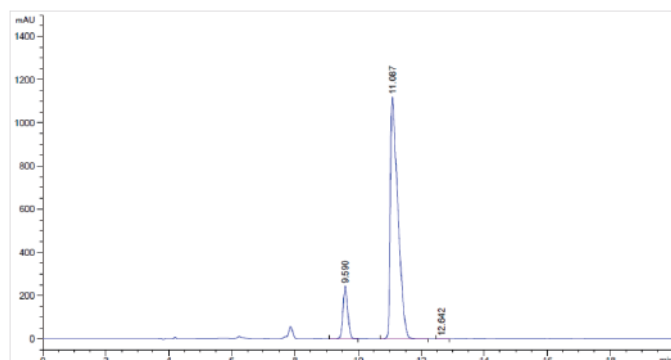
Structural Formula	
pH Range	1.0-8.0
Particle Size	5 µm
Surface Area(m²/g)	320(120 Å)
Carbon Loading(%)	4(120 Å)
USP List	L56
Endcapped	No

4-aminocyclohexanone HCl, cis-4-Aminocyclohexanol and trans-4-Aminocyclohexanol



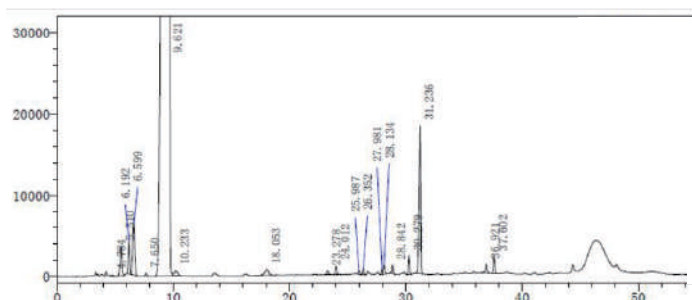
Column:	Ultisil® LP-C18, 4.6 ×250 mm, 5 µm		
Mobile Phase:	A: 0.1% heptafluorobutyric acid B: methanol		
Gradient Program:	Time(min)	A(%)	B(%)
	0	95	5
	10	95	5
	20	60	40
	21	95	5
	30	95	5
Flow Rate:	1.0 mL/min		
Detector:	ELSD, 115°C, gas: 3.2 L/min		
Temperature:	30°C		
Injection Volume:	20 µL		
Samples in order:	1. trans-4-Aminocyclohexanol 2. 4-aminocyclohexanone HCl 3. cis-4-Aminocyclohexanol		

Cefuroxime Sodium



Column:	Ultisil® LP-C8, 4.6 ×250 mm, 5 µm
Mobile Phase:	Acetate buffer*/acetonitrile=85/15 *Dissolve 0.68 g of anhydrous sodium acetate, 5.8 g of glacial acetic acid in 1000 mL water, adjust pH 3.4 with glacial acetic acid
Detector:	273 nm
Temperature:	30°C
Flow Rate:	1.0 mL/min
Injection Volume:	20 µL

Ampicillin Capsules



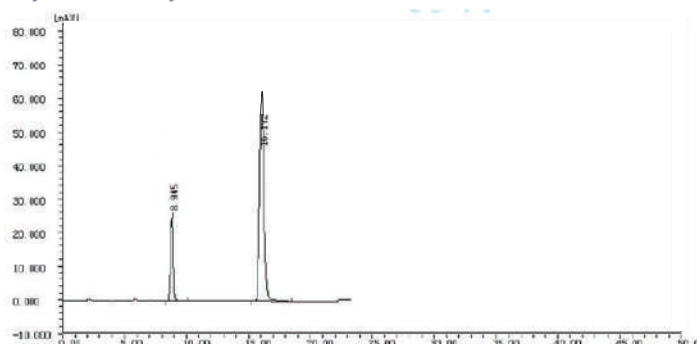
Column:	Ultisil® LP-AQ, 4.6 x250 mm, 5 µm		
Mobile Phase:	A: 12% acetum/0.2 mol/L KH ₂ PO ₄ /acetonitrile/water=0.5/50/50/900 B: 12% acetum/0.2 mol/L KH ₂ PO ₄ /acetonitrile/water=0.5/50/400/550		
Gradient Program:	Time(min)	A(%)	B(%)
	0	85	15
	10	85	15
	40	0	100
	55	0	100
	60	85	15
	70	85	15
Flow Rate:	1.0 mL/min		
Detector:	254 nm		
Temperature:	30°C		
Injection Volume:	20 µL		

Peptides



Column:	Ultisil® LP-AQ, 4.6 ×150 mm, 5 µm, 300 Å
Mobile Phase:	A: 0.1% TFA/water B: 0.1% TFA/acetonitrile
Gradient Program:	Linear gradient, 0-30% B
Flow Rate:	1.0 mL/min
Detector:	254 nm
Temperature:	30°C
Samples in order:	LeuGlyLeu, LeuArgLeu, LeuLeu-amide, leuLealeu, LeuLeaLeu, LeuLeuValtyr

Hydralazine Hydrochloride



Column:	Ultisil® LP-CN, 4.6 ×250 mm, 5 µm
Mobile Phase:	Acetonitrile/buffer*=22/78 *Dissolve 1.44 g of lauryl sodium sulfate, 0.75 g of tetrabutylammonium bromide in 1000 mL water, adjust pH 3.0 with 0.05 mol/L sulfuric acid solution
Detector:	230 nm
Temperature:	35°C
Flow Rate:	1.0 mL/min
Injection Volume:	20 µL

Ordering Information

Ultisil® LP-C18

Particle size	Column ID (mm)	Column Length (mm)										Guard Cartridge	Cartridge holder
		30	33	50	75	100	125	150	200	250	300	10mm length	
3 µm 120 Å	2.1	H00208-21009	H09208-21009	H00208-21010	H00208-21011	H00208-21012	H00208-21013	H00208-21014	H00208-21015	H00208-21016	-	H00808-23014	00808-01107
	3.0	H00208-21018	-	H00208-21019	H00208-21020	H00208-21021	H00208-21022	H00208-21023	H00208-21024	H00208-21025	-	H00808-23014	00808-01107
	4.0	H00208-21027	-	H00208-21028	H00208-21029	H00208-21030	H00208-21031	H00208-21032	H00208-21033	H00208-21034	-	H00808-03010	00808-01101
	4.6	H00208-21036	H11208-21036	H00208-21037	H00208-21038	H00208-21039	H00208-21040	H00208-21041	H00208-21042	H00208-21043	-	H00808-03010	00808-01101
5 µm 120 Å	2.1	H00208-31009	H09208-31009	H00208-31010	H00208-31011	H00208-31012	H00208-31013	H00208-31014	H00208-31015	H00208-31016	-	H00808-24015	00808-01107
	3.0	H00208-31018	-	H00208-31019	H00208-31020	H00208-31021	H00208-31022	H00208-31023	H00208-31024	H00208-31025	-	H00808-24015	00808-01107
	4.0	H00208-31027	-	H00208-31028	H00208-31029	H00208-31030	H00208-31031	H00208-31032	H00208-31033	H00208-31034	H00208-31035	H00808-04015	00808-01101
	4.6	H00208-31036	H11208-31036	H00208-31037	H00208-31038	H00208-31039	H00208-31040	H00208-31041	H00208-31042	H00208-31043	H00208-31044	H00808-04015	00808-01101
10 µm 120 Å	4.6	-	-	-	-	-	-	H00208-41041	H00208-41042	H00208-41043	H00208-41044	H00808-05014	00808-01101

Ultisil® LP-C8

Particle size	Column ID (mm)	Column Length (mm)										Guard Cartridge	Cartridge holder
		30	33	50	75	100	125	150	200	250	300	10mm length	
3 µm 120 Å	2.1	H00209-21009	H09209-21009	H00209-21010	H00209-21011	H00209-21012	H00209-21013	H00209-21014	H00209-21015	H00209-21016	-	H00808-23015	00808-01107
	3.0	H00209-21018	-	H00209-21019	H00209-21020	H00209-21021	H00209-21022	H00209-21023	H00209-21024	H00209-21025	-	H00808-23015	00808-01107
	4.0	H00209-21027	-	H00209-21028	H00209-21029	H00209-21030	H00209-21031	H00209-21032	H00209-21033	H00209-21034	-	H00808-03011	00808-01101
	4.6	H00209-21036	H11209-21036	H00209-21037	H00209-21038	H00209-21039	H00209-21040	H00209-21041	H00209-21042	H00209-21043	-	H00808-03011	00808-01101
5 µm 120 Å	2.1	H00209-31009	H09209-31009	H00209-31010	H00209-31011	H00209-31012	H00209-31013	H00209-31014	H00209-31015	H00209-31016	-	H00808-24012	00808-01107
	3.0	H00209-31018	-	H00209-31019	H00209-31020	H00209-31021	H00209-31022	H00209-31023	H00209-31024	H00209-31025	-	H00808-24012	00808-01107
	4.0	H00209-31027	-	H00209-31028	H00209-31029	H00209-31030	H00209-31031	H00209-31032	H00209-31033	H00209-31034	H00209-31035	H00808-04012	00808-01101
	4.6	H00209-31036	H11209-31036	H00209-31037	H00209-31038	H00209-31039	H00209-31040	H00209-31041	H00209-31042	H00209-31043	H00209-31044	H00808-04012	00808-01101

5µm Ultisil® LP-CN, LP-C3, LP-AQ

Bonded phase	Column ID (mm)	Column Length (mm)			Guard Cartridge	Cartridge holder
		150	200	250	10mm length	
LP-CN	4.6	H00247-31041	H00247-31042	H00247-31043	H00808-04049	00808-01101
LP-C3	4.6	H00265-31041	H00265-31042	H00265-31043	H00808-04050	00808-01101
LP-AQ	4.6	H00259-31041	H00259-31042	H00259-31043	H00808-04042	00808-01101

300 Å HPLC column provided. Please contact Welch or your local distributor for other dimensions.