

# Ultisil™ LP Series HPLC Column

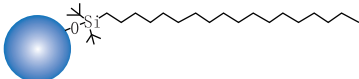
LP is abbreviation for **Low pH**. LP phases are designed for use at low pH conditions. LP phase consists of two very bulky hydrophobic protective groups to prevent siloxane bond from hydrolysis at low pH condition. So Ultisil™ LP column is extremely stable in very low pH mobile phase and at high temperature, 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

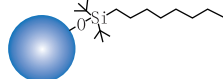
## How to choose XB-C18 and LP-C18

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

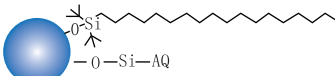
### Ultisil™ LP-C18

Structural Formula	
pH Range	0.5-8.0
Particle Size	3 μm, 5 μm, 10 μm
Surface Area(m <sup>2</sup> /g)	320(120 Å), 90(300 Å)
Carbon Loading[%]	10(120 Å), 5(300 Å)
USP List	L1
Endcapped	No

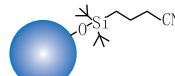
### Ultisil™ LP-C8

Structural Formula	
pH Range	1.0-8.0
Particle Size	3 μm, 5 μm
Surface Area(m <sup>2</sup> /g)	320(120 Å), 90(300 Å)
Carbon Loading[%]	5.5(120 Å), 3(300 Å)
USP List	L7
Endcapped	No

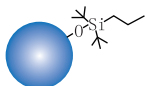
### Ultisil™ LP-AQ

Structural Formula	
pH Range	1.0-8.0
Particle Size	5 μm
Surface Area(m <sup>2</sup> /g)	320(120 Å)
Carbon Loading[%]	5(120 Å)
USP List	L1
Endcapped	No

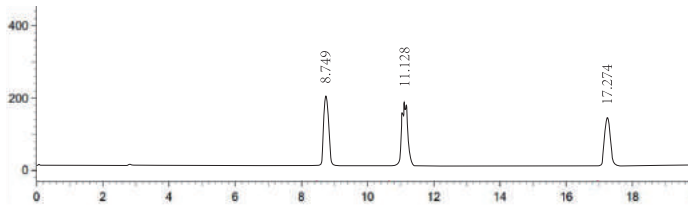
### Ultisil™ LP-CN

Structural Formula	
pH Range	1.0-8.0
Particle Size	5 μm
Surface Area(m <sup>2</sup> /g)	320(120 Å)
Carbon Loading[%]	6(120 Å)
USP List	L10
Endcapped	No

### Ultisil™ LP-C3

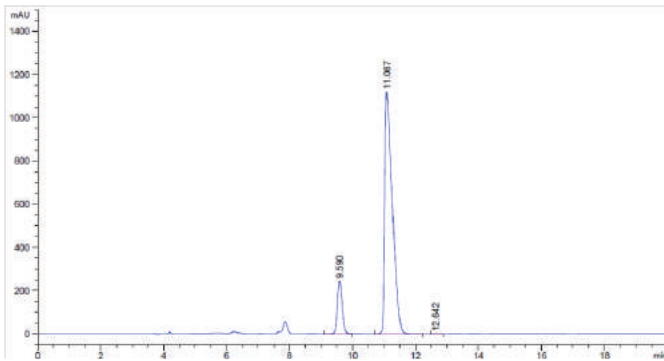
Structural Formula	
pH Range	1.0-8.0
Particle Size	5 μm
Surface Area(m <sup>2</sup> /g)	320(120 Å)
Carbon Loading[%]	4(120 Å)
USP List	L56
Endcapped	No

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



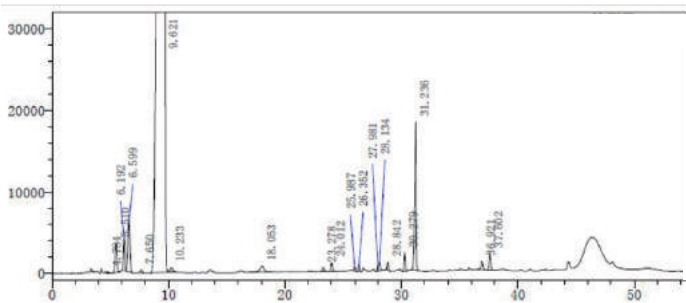
<b>Column:</b>	Ultisil™ LP-C18, 4.6 ×250 mm, 5 μm
<b>Mobile Phase:</b>	A: 0.1% heptafluorobutyric acid B: methanol
<b>Gradient Program:</b>	Time(min)    A(%)    B(%)
	0            95        5
	10           95        5
	20           60        40
	30           95        5
<b>Flow Rate:</b>	1.0 mL/min
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

### Cefuroxime Sodium



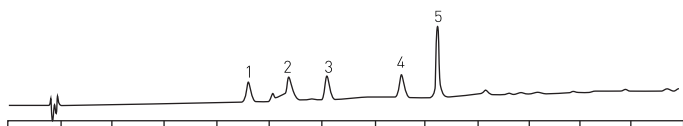
<b>Column:</b>	Ultisil™ LP-C8, 4.6 ×250 mm, 5 μm
<b>Mobile Phase:</b>	Acetate buffer*/acetonitrile=85/15 *Dissolve 0.68 g of anhydrous sodium acetate, 5.8 g of glacial acetic acid in 1000 mL water, adjust pH 3.4 with glacial acetic acid
<b>Detector:</b>	273 nm
<b>Temperature:</b>	30°C
<b>Flow Rate:</b>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

### Ampicillin Capsules



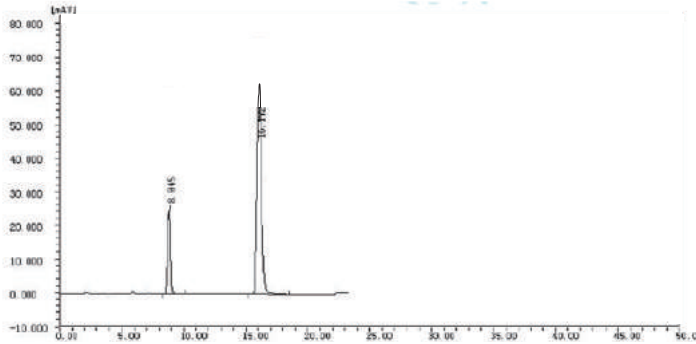
<b>Column:</b>	Ultisil™ LP-AQ, 4.6 ×250 mm, 5 μm
<b>Mobile Phase:</b>	A: 12% acetum/0.2 mol/L KH <sub>2</sub> PO <sub>4</sub> /acetonitrile/water=0.5/50/50/900 B: 12% acetum/0.2 mol/L KH <sub>2</sub> PO <sub>4</sub> /acetonitrile/water=0.5/50/400/550
<b>Gradient Program:</b>	Time(min)    A(%)    B(%)
	0            85        15
	10           85        15
	40           0         100
	55           0         100
	60           85        15
70           85        15	
<b>Flow Rate:</b>	1.0 mL/min
<b>Detector:</b>	254 nm
<b>Temperature:</b>	30°C
<b>Injection Volume:</b>	20 μL

### Peptides



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

## Hydralazine Hydrochloride



<b>Column:</b>	Ultisil™ LP-CN, 4.6 ×250 mm, 5 μm
<b>Mobile Phase:</b>	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
<b>Detector:</b>	230 nm
<b>Temperature:</b>	35°C
<b>Flow Rate:</b>	1.0 mL/min
<b>Injection Volume:</b>	20 μL

## Ordering Information

### Ultisil™ LP-C18

Particle size	Column ID (mm)	Column Length (mm)										Guard Cartridge	Guard Column Holder
		30	33	50	75	100	125	150	200	250	300		
3 μm 120 Å	2.1	00208-21009	09208-21009	00208-21010	00208-21011	00208-21012	00208-21013	00208-21014	00208-21015	00208-21016	-	00808-23014	00808-01107
	3.0	00208-21018	-	00208-21019	00208-21020	00208-21021	00208-21022	00208-21023	00208-21024	00208-21025	-	00808-23014	00808-01107
	4.0	00208-21027	-	00208-21028	00208-21029	00208-21030	00208-21031	00208-21032	00208-21033	00208-21034	-	00808-03010	00808-01101
	4.6	00208-21036	11208-21036	00208-21037	00208-21038	00208-21039	00208-21040	00208-21041	00208-21042	00208-21043	-	00808-03010	00808-01101
5 μm 120 Å	2.1	00208-31009	09208-31009	00208-31010	00208-31011	00208-31012	00208-31013	00208-31014	00208-31015	00208-31016	-	00808-24015	00808-01107
	3.0	00208-31018	-	00208-31019	00208-31020	00208-31021	00208-31022	00208-31023	00208-31024	00208-31025	-	00808-24015	00808-01107
	4.0	00208-31027	-	00208-31028	00208-31029	00208-31030	00208-31031	00208-31032	00208-31033	00208-31034	00208-31035	00808-04015	00808-01101
	4.6	00208-31036	11208-31036	00208-31037	00208-31038	00208-31039	00208-31040	00208-31041	00208-31042	00208-31043	00208-31044	00808-04015	00808-01101
10 μm 120 Å	4.6	-	-	-	-	-	-	00208-41041	00208-41042	00208-41043	00208-41044	00808-05014	00808-01101

### Ultisil™ LP-C8

Particle size	Column ID (mm)	Column Length (mm)										Guard Cartridge	Guard Column Holder
		30	33	50	75	100	125	150	200	250	300		
3 μm 120 Å	2.1	00209-21009	09209-21009	00209-21010	00209-21011	00209-21012	00209-21013	00209-21014	00209-21015	00209-21016	-	00808-23015	00808-01107
	3.0	00209-21018	-	00209-21019	00209-21020	00209-21021	00209-21022	00209-21023	00209-21024	00209-21025	-	00808-23015	00808-01107
	4.0	00209-21027	-	00209-21028	00209-21029	00209-21030	00209-21031	00209-21032	00209-21033	00209-21034	-	00808-03011	00808-01101
	4.6	00209-21036	11209-21036	00209-21037	00209-21038	00209-21039	00209-21040	00209-21041	00209-21042	00209-21043	-	00808-03011	00808-01101
5 μm 120 Å	2.1	00209-31009	09209-31009	00209-31010	00209-31011	00209-31012	00209-31013	00209-31014	00209-31015	00209-31016	-	00808-24012	00808-01107
	3.0	00209-31018	-	00209-31019	00209-31020	00209-31021	00209-31022	00209-31023	00209-31024	00209-31025	-	00808-24012	00808-01107
	4.0	00209-31027	-	00209-31028	00209-31029	00209-31030	00209-31031	00209-31032	00209-31033	00209-31034	00209-31035	00808-04012	00808-01101
	4.6	00209-31036	11209-31036	00209-31037	00209-31038	00209-31039	00209-31040	00209-31041	00209-31042	00209-31043	00209-31044	00808-04012	00808-01101

### 5μm Ultisil™ LP-CN, LP-C3, LP-AQ

Bonded phase	Column ID (mm)	Column Length (mm)			Guard Cartridge	Guard Column Holder
		150	200	250		
LP-CN	4.6	00247-31041	00247-31042	00247-31043	00808-04049	00808-01101
LP-C3	4.6	00265-31041	00265-31042	00265-31043	00808-04050	00808-01101
LP-AQ	4.6	00259-31041	00259-31042	00259-31043	00808-04042	00808-01101

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