Ultisil® Phenyl Care and Use Manual

Ultisil XB-Phenyl phase is less retentive than conventional C18 or C8 phases, but more retentive than standard cyano phase. Due to their ability to participate in π-π interactions, XB-Phenyl columns may actually be more retentive than C18 or C8 columns towards certain polar aromatic compounds, depending on running conditions. The selectivity for highly polar aromatics, which are poorly retained on alkyl-bonded phases, together with reduced retentivity towards non-polar compounds, make XB-Phenyl an excellent choice for the analysis of complex mixtures of polar and non-polar analytes.

Features

- Good selectivity for the separation of aromatic and polar compounds
- Can be the substitute of most phenyl propyl bonded silica column

Column parameters

Bonded phase	Phenyl
USP listing	L1
Particle size	3μm, 5μm, 10μm
Pore size	120Å, 300 Å
Specific surface area	320m^2/g (120Å), 90m^2/g(300Å)
Carbon loading	12% (120Å), 4%(300Å)
End-capping	Double end-capping
pH stability	1.5-10.0
Max. Temperature	60℃(mobile phase pH ≤6.5), 40℃(mobile phase pH >6)
Max. Pressure	40MPa(≥5μm), 60MPa(<5μm)

Activation and Transition

Storage Solvent: methanol/water

	Activation		Transition	
Column ID	≤3mm	>3mm	≤3mm	>3mm
Flow rate	0.1ml/min	0.3ml/min	0.2ml/min	1ml/min
Mobile phase	80% methanol		10% methanol*	
Time	4h		1h	
Temperature	30℃		30℃	
Note	No transition required for analysis mobile phases without buffer.			

*Transitional mobile phase refers to the proportion between organic phase and aqueous phase which is the same as that of analytical mobile phase, except that there is no buffer salt. 10% methanol is recommended as transitional mobile phase in most instances.

Column Daily Flushing

Back flushing recommended (reverse to the normal flow direction)

Analysis mobile phase	Without acid, alkali or salts	Containing acid, alkali or salts	Containing ion-pair reagents
Flow rate	Analysis flow rate		
Flushing mobile phase	80% methanol	10% methanol -80% methanol	10% methanol -50% methanol -80% methanol
Time	Column length≤100mm, 30min each step		
	Column length>100mm, 40min each step		
Storage	Store in the last flushing solvents, kept in cool dry places		
Note	The methanol in the flushing mobile phase can be changed into acetonitrile.		

Abnormal Column Flushing

In circumstances of high column pressure, abnormal peak shape, low column efficiency or low resolution etc., use transition mobile phase to flush off the salts in the column, then flush as following; If mobile phase contains ion-pair reagents, use 50% methanol in the first step and flush as following:

Back flushing recommended (reverse to the normal flow direction)

Flow rate	1/4 analysis flow rate
Mobile phase	100% methanol-100% acetonitrile-100% isopropanol-100%acetonitrile
Time	Column length≤100mm, 100min each step
	Column length>100mm, 120min each step
Note	Isopropanol has high viscosity, causing high pressure. Please adjust the flow rate as needed.

Precautions

1. It is recommended to filter the sample and mobile phase before testing.
2. pH range of Ultisil XB-Phenyl Column is 1.5-10.0, and it is generally recommended to use at pH range of 2.0 ~ 8.0. Mobile phase exceeding the pH range will lead to loss of silica gel and breakdown of bonded phase, resulting in decreased column efficiency and shorter service life. pH range should be strictly controlled.

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