Ultisil® HILIC NH_2 Care and Use Manual

Ultisil HILIC NH_2 can be used for weak anionic ion exchange of polar compounds as well as for reversed phase analysis of mobile phase which contains water. Compared with the traditional amino column, it has better reproducibility and lifetime, and is the best choice to replace the amino column and silica gel column in the HILIC mode.

Features

- Ultra-pure porous spherical silica, purity > 99.999%
- Unique bonding technique and good stability
- pH range: 2.0-8.0
- Good lot-to-lot reproducibility

Column parameters

Bonded phase	Aminopropyl
USP listing	L8
Particle size	3μm, 5μm, 10μm
Pore size	120 Å
Specific surface area	320m^2/g
Carbon loading	4%
End-capping	No
pH stability	2.0-8.0
Max. Temperature	60℃(mobile phase pH ≤6.5), 40℃(mobile phase pH >6)
Max. Pressure	40MPa(≥5μm), 60MPa(<5μm)

Activation and Transition

Storage Solvent: acetonitrile

	Activation		Transition	
Column ID	≤3mm	>3mm	≤3mm	>3mm
Flow rate	0.1ml/min	0.3ml/min	0.2ml/min	1ml/min
Mobile phase	100% acetonitrile		70% acetonitrile*	
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. 70% acetonitrile 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
Flow rate	Analysis flow rate	
Flushing mobile phase	100% acetonitrile	70% acetonitrile-100% acetonitrile
Time	Column length≤100mm, 30min each step	
	Column length>100mm, 40min each step	
Storage	Stored in pure acetonitrile; Kept in cool dry places	

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;

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 HILIC NH_2 column is 2.0-8.0, and it is generally recommended to use at pH range of 2.0-7.5. 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.
3. Ultisil HILIC NH_2 column requires more than 60% organic solvents in the mobile phase. High water phase ratio can easily to lead to hydrolysis, affect column life time.
4. When investigating the mobile phase condition, it is recommended to investigate the pH from high to low. There is a risk that the packing surface will not return to its original state after the column is used at pH < 2
5. Sometimes it takes a long time to equilibrate the column. The time required for equilibrium is related to the amount of mobile phase and the concentration of salt. When time is urgent, it is recommended to increase the flow rate or salt concentration to equilibrate by keeping pH constant.

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