

TSK-GEL® Amide-80 Columns

The Perfect Choice for Separations of Polar Compounds such as Peptides, Natural Products and Carbohydrates

TSK-GEL
PRODUCT OVERVIEW

Introduction

TSK-GEL Amide-80 columns are among a few commercially available Normal Phase Chromatography (NPC) columns that are also classified as Hydrophilic Interaction Chromatography, or HILIC, columns. Solutes are eluted from these columns by increasing the polarity of the mobile phase. In HILIC the polar modifier is water, while in traditional NPC it is a polar organic solvent. The advantage of using TSK-GEL Amide-80 columns rather than other hydrophilic stationary phases such as in amino-bonded columns is that the stationary phase of TSK-GEL Amide-80 possesses superior stability in both aqueous/organic solvent systems. Thus the reason TSK-GEL Amide-80 columns are able to separate polar compounds in either normal phase or HILIC solvent systems.

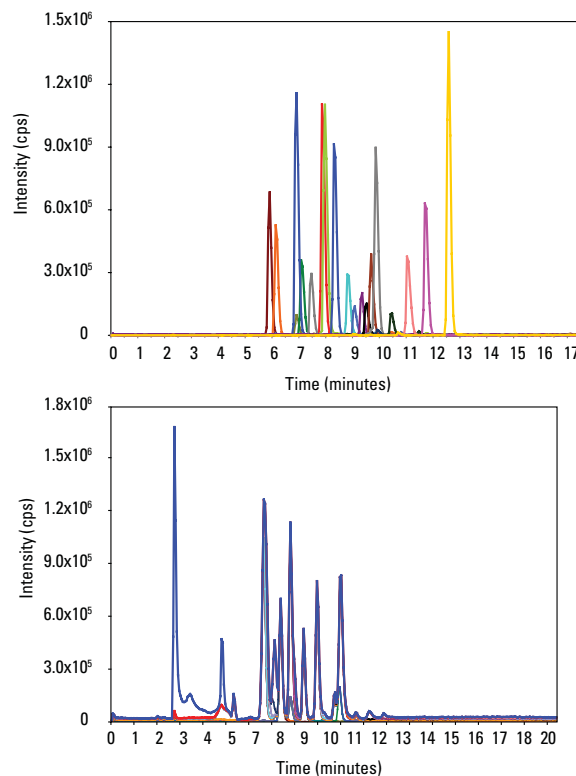
Product Highlights

- Ability to operate in either Normal Phase Chromatography or Hydrophilic Interaction Chromatography (HILIC) separation mechanisms
- Ideal choice for orthogonal selectivity to reversed phase chromatography (See Figure 1.)
- Offers substantially less secondary ionic interactions than other hydrophilic stationary phases
- Unique selectivity and improved stability compared to amino-bonded columns due to nonionic carbamoyl functional group
- Available in 5 μ m, 10 μ m, and now 3 μ m particle size for enhanced sensitivity in LC/MS applications

Applications

TSK-GEL Amide-80 columns were originally designed for separating carbohydrates and other poly alcohols by forming strong hydrogen bonds with hydroxyl functionalities. The carbamoyl functional groups of TSK-GEL Amide-80 do not react with reducing sugars, offering a distinct advantage over amino-bonded columns. Along with carbohydrates, scientists have begun to employ the hydrophilic stationary phase in separations of natural product extracts^{1,2}, peptide digests³ and other polar compound mixtures. Commonly, these complex mixtures are analyzed using the power of mass spectrometry in conjunction with liquid chromatography. TSK-GEL Amide-80 columns are advantageous for these applications because unwanted secondary ionic interactions from residual silanols can be eliminated with 0.1% TFA. The use of "mass-spec friendly" TFA eliminates extra steps involved with removing salts or non-volatile acids required by other amino-bonded columns to eliminate ionic interactions⁴.

Figure 1 TSK-GEL Amide-80 columns offer orthogonal selectivity to reversed phase columns



Columns: 1. TSKgel ODS-100V, 3 μ m (2mm ID x 15cm)
2. TSKgel Amide-80, 5 μ m (2mm ID x 15cm)
Eluent: A: 0.1% TFA in H₂O
B: 0.1% TFA in ACN
Gradient: Column 1: 0min (B 10%), 15min (B 70%), 17min (B 70%)
Column 2: 0min (B 95%), 15min (B 50%), 17min (B 50%)
Flow Rate: 0.2mL/min
Injection Vol.: Column 1: 2 μ L
Column 2: 1 μ L
Sample: β -Lactoglobulin tryptic digest
Instrument: Q TRAP® (Applied Biosystems), ESI +

References:

- (1) Dolan, J. Retaining Polar Compounds. LCGC 2002, 5, 2.
- (2) Yoshida, T. Anal. Chem. 1997, 69, 3038-3043.
- (3) Yoshida, T. J. Chromatogr., A 1998, 808, 105-112.
- (4) Yoshida, T.; Okada, T. J. Chromatogr., A 1999, 840, 19.

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Ordering Information

Part#	Description	Matrix	Housing	ID (mm)	Length (cm)
TSK-GEL Amide-80, 3µm, 80Å					
21864	TSKgel Amide-80, 3µm, 80Å	Silica	Stainless Steel	2	5
21865	TSKgel Amide-80, 3µm, 80Å	Silica	Stainless Steel	2	15
21866	TSKgel Amide-80, 3µm, 80Å	Silica	Stainless Steel	4.6	5
21867	TSKgel Amide-80, 3µm, 80Å	Silica	Stainless Steel	4.6	15
21862	Guard Cartridge for 2mm ID columns, 3µm, 3pk	Silica	Stainless Steel	2	1
21863	Guard Cartridge for 4.6mm ID columns, 3µm, 3pk	Silica	Stainless Steel	3.2	1.5
19308	Guard Cartridge Holder for 2mm ID cartridges	Silica	Stainless Steel	2	1
19018	Guard Cartridge Holder for 3.2mm ID cartridges	Silica	Stainless Steel	3.2	1.5
TSK-GEL Amide-80, 5µm, 80Å					
20009	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	1	5
20010	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	1	10
21486	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	1	15
21487	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	1	25
19694	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	2	5
19695	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	2	10
19696	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	2	15
19697	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	2	25
19532	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	4.6	5
19533	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	4.6	10
13071	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	4.6	25
14459	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	7.8	30
14460	TSKgel Amide-80, 5µm, 80Å	Silica	Stainless Steel	21.5	30
42140	Guard Cartridge for 2mm ID columns, 5µm, 3pk	Silica	Stainless Steel	2	1
19308	Guard Cartridge Holder for 2mm ID cartridges	Silica	Stainless Steel	2	1
19021	Guard Column for 4.6mm ID columns, 5µm	Silica	Stainless Steel	4.6	1
19010	Guard Cartridge for 4.6mm ID columns, 5µm, 3pk	Silica	Stainless Steel	3.2	1.5
19018	Guard Cartridge Holder for 3.2mm ID cartridges	Silica	Stainless Steel	3.2	1.5
14461	Guard Column for 21.5mm ID column, 10µm	Silica	Stainless Steel	21.5	7.5
07127	TSKgel NH2-60, 5µm, 60Å	Silica	Stainless Steel	4.6	25



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