

- Spherical silica, 60 - 1500Å pore size
- Polypeptide covalently bound coating
- High recovery for sensitive, labile proteins

PolyLC of Maryland, USA manufactures a range of unique columns for the more challenging HPLC biochemical applications. Their phases are characterised by the attachment of a polypeptide coating to wide pore silica.

PolyLC Phases

PolyLC Phase ¹	Particle Size (µm)	Pore Size (Å)	Functional Group	Chromatography Mode	Applications
PolyHYDROXYETHYL A™	3, 5, 12	60, 100, 200, 300, 500, 1000, 1500	Hydroxyethylaspartamide	1. Hydrophilic Interaction (HILIC) 2. Size Exclusion	Peptides, proteins, carbohydrates, polar small molecules
PolyCAT A™	3, 5, 12	300, 1000, 1500	Aspartic acid	Weak cation-exchange	Proteins with isoelectric point >6.0
PolyWAX LP™	3, 5, 12	100, 300, 1000, 1500	Linear polyethyleneimine	Weak anion-exchange	Proteins with isoelectric points <6.0, nucleic acids and oligonucleotide analogues
PolyGLYCOPLEX™	5, 12	-	-	Hydrophilic Interaction (HILIC)	Complex carbohydrates
PolySULFOETHYL A™	3, 5, 12	200, 300, 1000	Sulphoethylaspartamide	Strong cation-exchange	Peptides
PolyPROPYL A™	3, 5, 12	300, 1000, 1500	Propylaspartamide	Hydrophobic Interaction (HIC)	Proteins and peptides

¹ PolyMETHYL A™ and PolyETHYL A™ materials are also available

PolyHYDROXYETHYL A™

PolyHYDROXYETHYL A™ is a neutral polar material designed specifically for HILIC. Peptides and proteins are typically eluted with a decreasing gradient of acetonitrile or propanol for peptide mapping or multidimensional purification of synthetic and natural peptides. PolyHYDROXYETHYL A is also used for eliminating detergents, lipids and salts from samples and for the HPLC of solutes that are insoluble in aqueous media, such as membrane proteins. Figure 1 shows a typical chromatogram for the isolation of pure pathogenic prion protein from the brain of a sheep with scrapie.

Table 1.
PolyHYDROXYETHYL A - SEC fractionation ranges (Daltons)

Pore Diameter (Å)	Denaturing Eluent (e.g. 50mM formic acid)	Conventional Eluent (phosphate/sulphate buffer)
60	40-600	40-10,000
200	40-1600	200-25,000
300	40-40,000	300-100,000
500	40-150,000	400-300,000
1000	40-1,000,000	1000-2,000,000
1500	40-1,000,000	5000-2,000,000

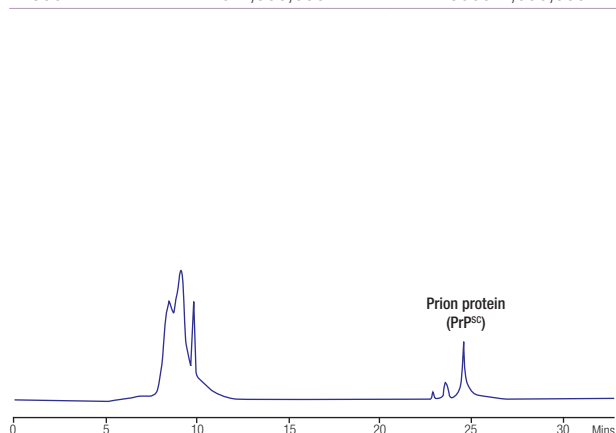


Figure 1. Extract of brain from sheep with scrapie (Proteinase K-treated)

In the absence of organic solvent, PolyHYDROXYETHYL A functions in the SEC mode. Using conventional salt buffers, the fractionation range is determined by the pore size of the packing (see Table 1). However, if the eluent contains a denaturing agent (eg. 50mM formic acid), smaller solutes can be separated by size. The 60Å pore size material permits the separation of peptides and other small solutes by SEC (Figure 2).

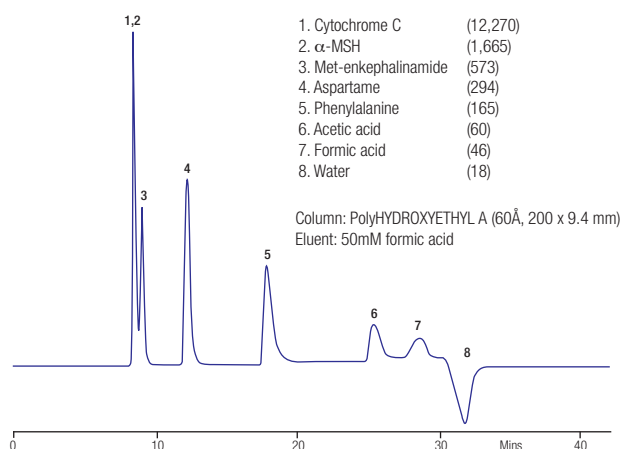


Figure 2. Size exclusion separation of small molecules

PolyPROPYL A™, PolyETHYL A™ and PolyMETHYL A™

These materials separate proteins on the basis of hydrophobicity, using totally aqueous buffers and retaining tertiary structure and biological activity. Elution is typically with a decreasing salt gradient of sulphate or phosphate. The relative hydrophobic character of PolyPROPYL A™, PolyETHYL A™ and PolyMETHYL A™ is 100, 60 and 15 respectively.

Sodium Dodecyl Sulphate (SDS) Removal

SDS is sometimes used to solubilise proteins. However, its presence interferes with subsequent bioanalysis. It can be removed by either:

1. Use of PolyHYDROXYETHYL A in HILIC mode
2. Use of specific PolyLC SPE cartridges in reversed-phase mode

Ordering Information – PolyLC Phases

Formulating Catalogue Numbers

Select column dimensions and phase from the table, then complete the catalogue number by adding a suffix to specify pore diameter as follows:

Pore Diameter (Å)	60	100	200	300	500	1000	1500
Catalogue No. Suffix	-006	-01	-02	-03	-05	-10	-15

Example:

PolyCAT A column (200 x 4.6mm) with 300Å pores would be 204CT0503.

Please note that not all phases are available in all pore sizes.

For bulk material part numbers, specify pore diameter with the same suffixes as for column materials.

Example: Bulk material of PolyCAT A with 300Å pores and 5µm particle size would be BMCT0503.

Columns

PolyLC 5µm Phase ²	Column Dimensions ¹ (mm)							
	100 x 2.1	200 x 2.1	35 x 4.6	100 x 4.6	200 x 4.6	200 x 9.4	250 x 9.4	250 x 21.0
PolyCAT A	102CT05- -	202CT05- -	3.54CT05- -	104CT05- -	204CT05- -	209CT05- -	259CT05- -	2521CT05- -
PolyPROPYL A	102PR05- -	202PR05- -	3.54PR05- -	104PR05- -	204PR05- -	209PR05- -	259PR05- -	2521PR05- -
PolyETHYL A	102ET05- -	202ET05- -	3.54ET05- -	104ET05- -	204ET05- -	209ET05- -	259ET05- -	2521ET05- -
PolyMETHYL A	102ME05- -	202ME05- -	3.54ME05- -	104ME05- -	204ME05- -	209ME05- -	259ME05- -	2521ME05- -
PolyWAX LP	102WX05- -	202WX05- -	3.54WX05- -	104WX05- -	204WX05- -	209WX05- -	259WX05- -	2521WX05- -
→ PolyHYDROXYETHYL A	102HY05- -	202HY05- -	3.54HY05- -	104HY05- -	204HY05- -	209HY05- -	259HY05- -	2521HY05- -
PolyGLYCOPLEX	102GL0500	202GL0500	3.54GL0500	104GL0500	204GL0500	209GL0500	259GL0500	2521GL0500
PolySULFOETHYL A	102SE05- -	202SE05- -	3.54SE05- -	104SE05- -	204SE05- -	209SE05- -	259SE05- -	2521SE05- -

Guard Cartridges³, Solid Phase Extraction Cartridges and Bulk Material

PolyLC 5µm Phase ²	Guard Cartridge Dimensions ^{4,5} (mm)		Solid Phase Extraction Cartridges (10/pk)	Bulk Material/g
	10 x 2.1	10 x 4.0		
PolyCAT A	J22GCCT05- -	JGCCT05- -	SPECT1203	BMCT05- -
PolyPROPYL A	J22GCPR05- -	JGCPR05- -	SPEPR1203	BMPRO5- -
PolyETHYL A	J22GCET05- -	JGCET05- -	SPEET1203	BMET05- -
PolyMETHYL A	J22GCME05- -	JGCME05- -	SPEME1203	BMME05- -
PolyWAX LP	J22GCWX05- -	JGCWX05- -	SPEWX1203	BMWX05- -
SDS Removal	J2SDS	J4SDS	SPESDS1203	BMSDS05- -
→ PolyHYDROXYETHYL A	J22GCHY05- -	JGCHY05- -	SPEHY1203	BMHY05- -
PolyGLYCOPLEX	J22GCGL0500	JGCGL0500	SPEGL1200	BMGL0500
PolySULFOETHYL A	J22GCSE05- -	JGCSE05- -	SPESE1203	BMSE05- -

¹ Packed capillaries and 1mm i.d. columns also available

² 3 and 12µm particle size material also available

³ Disposable Javelin design. No additional holder required

⁴ 20 x 4.0 and 10 x 1.0mm cartridges also available

⁵ Waters compatible cartridges available