ZirChrom®

Technical Bulletin #246

... For Peak Performance

Ion Exchange Phase Column Selection Guide

CURRENT PROBLEM/CONCERN	COLUMN	SUGGESTED CONDITIONS
Improve Selectivity		
Need improved selectivity for proteins.	ZirChrom®-PEZ ZirChrom®-WCX ZirChrom®-WAX	Use at pH below protein pI with EDTPA, MES, and NaCl. Use at neutral pH with up to 500mM phosphate. Employ pH and ionic strength (salt) elution gradients.
Need improved selectivity for organic anions including nucleic acids.	ZirChrom®-SAX	Use at neutral pH with phosphate and NaCl.
Need improved selectivity for organic cations.	ZirChrom®-WCX ZirChrom®-PEZ	Use at low to neutral pH with phosphate. Use at low to neutral pH with TFA and EDTPA.
Need improved selectivity for sugars.	ZirChrom®-WAX	Acetonitrile / buffer (100mM NH_4HCO_3 pH 9).
Change Retention		
Need more retention for proteins or organic cations.	ZirChrom®-WCX	Adjust pH, lower ionic strength.
Need less retention for proteins or organic cations.	ZirChrom®-PEZ	Adjust pH, increase ionic strength.
Need more retention for organic anions, nucleic acids, & oligonucleotides.	ZirChrom®-SAX	Lower phosphate and ionic strength.
Need less retention for organic anions including nucleic acids.	ZirChrom®-WAX	Increase phosphate and ionic strength.
Improve Dynamic pH Range Stability		
Need more pH range stability for proteins or organic cations.	ZirChrom®-WCX ZirChrom®-PEZ	Stable from pH 1 to pH 10.
Need more pH range stability for organic anions including nucleic acids.	ZirChrom®-SAX	Stable from pH 1 to pH 12.
Change Selectivity from Current Phase		
If analytes do not separate on silica based anion phase.	ZirChrom®-SAX	For different selectivity.
If analytes do not separate on polymer based anion phase.	ZirChrom®-SHAX ZirChrom®-WAX	For different selectivity.
If analytes do not separate on polymer based cation phase.	ZirChrom®-WCX ZirChrom®-PEZ	For different selectivity.
Improve Efficiency / Productivity		
If separations are taking too long.	All Columns	Employ maximum operating temperature, increase flow.
If resolution is not adequate.	All Columns	Employ and optimize pH and ionic strength gradients.