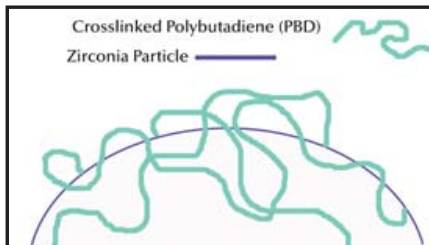




ZIRCHROM®-PBD



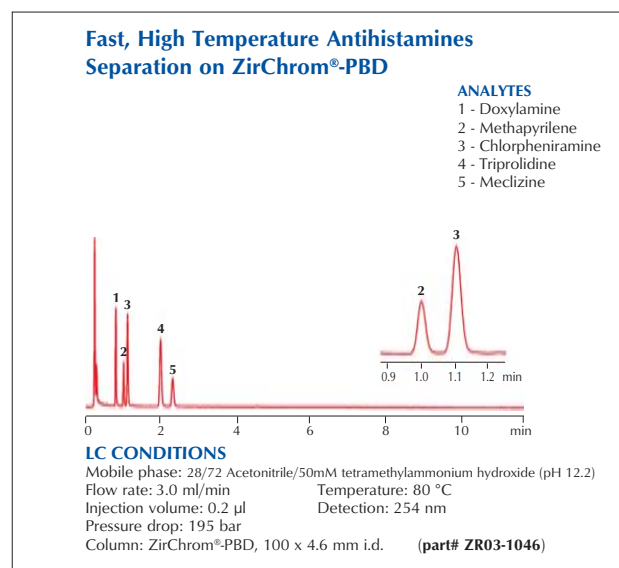
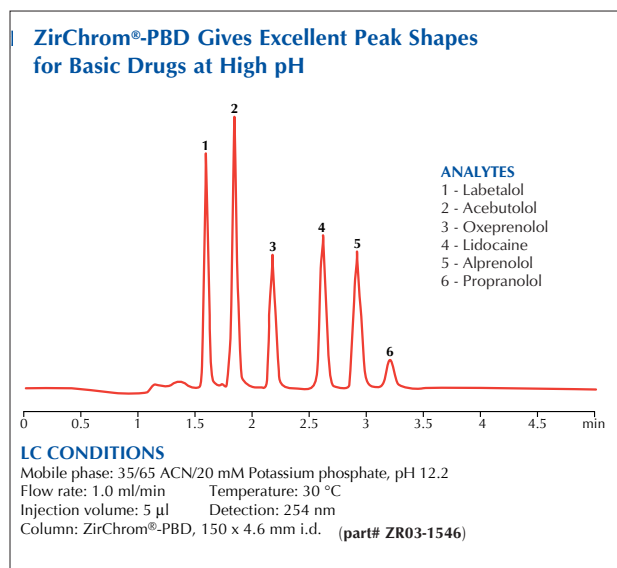
- Great Peak Shapes for Basic Compounds
- Easy Method Transfer from ODS Silica
- pH Stable from 1 up to 14
- Excellent Thermal Stability
- High Efficiency (>120,000 plates/meter)

Method Development with ZirChrom®-PBD (USP L49)

ZirChrom®-PBD is produced by coating ultra-stable zirconia particles with an equally stable extremely thin layer of crosslinked polybutadiene. The chemical selectivity of ZirChrom®-PBD columns is similar to that of a traditional C8 or C18 silica based column for non-ionic analytes. In the case of ionizable analytes there are secondary interactions which can be used to fine tune the chromatographic selectivity (band spacing).

The surface chemistry of zirconia is very rich and may be used to change chemical selectivity of the column simply through the addition of mobile phase additives.

Consider using ZirChrom®-PBD with a phosphate buffer if either the tailing of amines or their selectivities are problematic on C18 silica, and explore the full pH range (pH 1-14) to optimize your separation. For example, a 20 mM phosphate buffer will produce good peak shapes for many ionizable compounds.





ZirChrom®-PBD vs. C-18 Silica and Polymers

ZirChrom®-PBD columns combine the high stability of polymer columns with the high efficiency of silica columns.

An ultra-stable reversed-phase alternative to bonded phases, ZirChrom®-PBD is a conventional reversed-phase support with the selectivity and column efficiency of C18, allowing for easy method transfer. But, ZirChrom®-PBD is vastly more stable than any silica phase—both chemically and thermally (pH 1-14, up to 150 °C). This makes ZirChrom®-PBD far superior to silica-based phases for the separation of basic compounds.

ZirChrom®-PBD is also a superior reversed-phase alternative to polymer (PRP) phases. Like PRP, ZirChrom®-PBD offers extreme chemical and thermal stability. Unlike PRP, ZirChrom®-PBD has high efficiency (generally 2-3 times the plates/meter of polymer phases).

ZirChrom®-PBD for Fast HPLC

The extraordinary thermal stability of ZirChrom®-PBD allows for fast separations at elevated temperature. By raising the temperature to 50 °C, many separations are twice as fast. At 80 °C, separations up to 3-5 times faster are possible. Unlike silica-based columns, ZirChrom®-PBD has superior column life at these temperatures.

ZirChrom®-PBD for Amines

ZirChrom®-PBD has excellent selectivity for amines, and also very high loadability. Often, 50% more compound can be loaded on ZirChrom®-PBD compared to C18 silica (see technical bulletin #200 for more details).

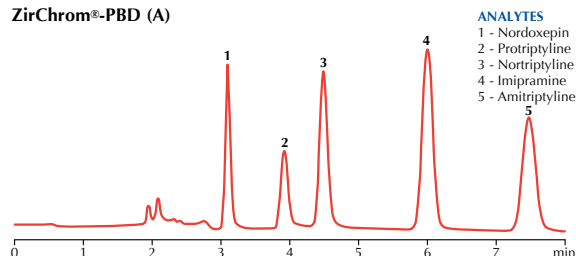
ZirChrom®-PBD for Azithromycin

ZirChrom®-PBD has been designated by the USP as L49 and can be used for the analysis of azithromycin (see technical bulletin #311 for more details). The high pH necessary for the analysis of azithromycin prohibits the use of traditional silica based substrates and necessitates the use of the pH stable zirconia-based ZirChrom®-PBD.

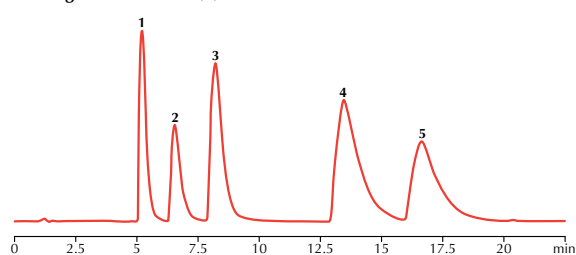
PACKING	MODE	PART
ZirChrom®-PBD	Reversed-Phase	ZR03
Microbore, Semi-Prep and Prep Formats Available—see Page 24		

ZirChrom®-PBD Versus ODS-Silica for Basic Drugs

ZirChrom®-PBD (A)



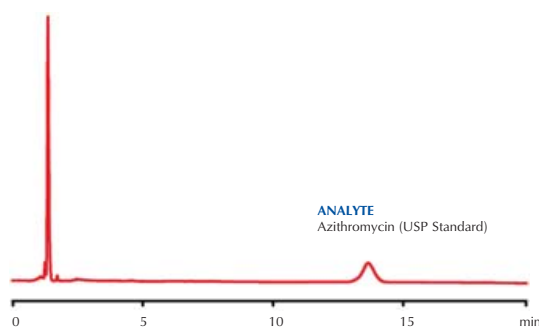
Leading Silica Column (B)



LC CONDITIONS

Mobile phase: (A) 45/55 ACN/20 mM Potassium phosphate, pH 12.0
 (B) 50/50 ACN/20 mM Potassium phosphate, pH 7.0
 Flow rate: 1.0 ml/min Temperature: 30 °C
 Injection volume: 5 µl Detection: 254 nm
 Column: ZirChrom®-PBD, 150 x 4.6 mm i.d. (part# ZR03-1546)

USP Standard Azithromycin on ZirChrom®-PBD



LC CONDITIONS

Mobile phase: 5.8 g monobasic potassium phosphate in 2130 mL of water, added to 870 mL of acetonitrile adjusted to pH 11.0 with potassium hydroxide
 Flow rate: 1.0 ml/min Temperature: 30 °C
 Injection volume: 5 µl (1mg/mL) Detection: 215 nm
 Column: ZirChrom®-PBD, 150 x 4.6 mm i.d. (part# ZR03-1546)

