ES INDUSTRIES

Epic Polar XP HPLC Columns

Application News

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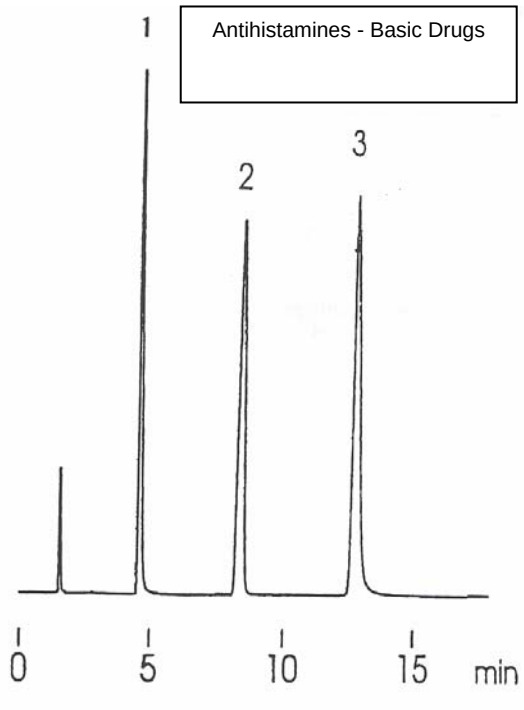
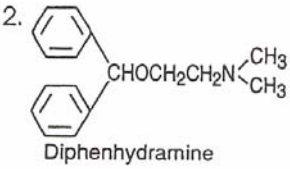
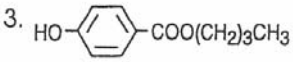
Epic Polar XP – At ES Industries we are pleased to introduce a new base deactivated high aqueous ODS stationary phase – Epic Polar XP. Epic Polar XP has been specifically designed to deliver high aqueous performance with superior peak shape for the most difficult to chromatograph amine compounds. Epic Polar XP is the clear choice for the discriminating HPLC chromatographer faced with a difficult separation challenge such as polar compounds including amines, compounds requiring a highly aqueous mobile phase or difficult to retain compounds. The Epic Polar XP ODS phase has been specifically developed using patented technology for use with highly aqueous mobile phases, including 100% aqueous, along with a specially developed propriety endcapping technology. Our unique patented approach provides a complete solution to ensure that Epic Polar XP is totally resistant to " phase collapse" under all mobile phase conditions and is able to deliver superior peak performance for amine containing compounds. In addition, Epic Polar XP can be used with any routinely used mobile phase modifier such as acetonitrile, methanol etc.



Chlorpheniramine



Diphenhydramine



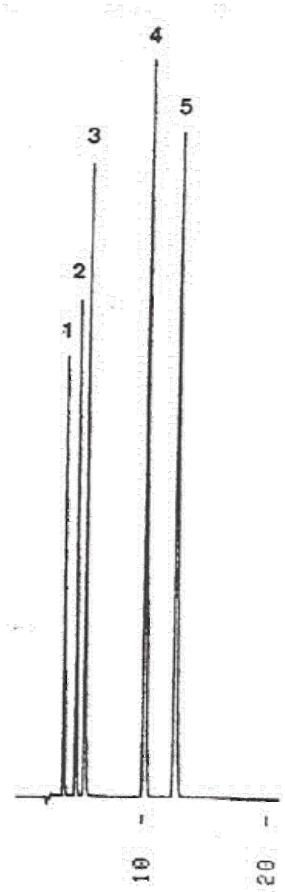
Butyl *p*-hydroxybenzoate

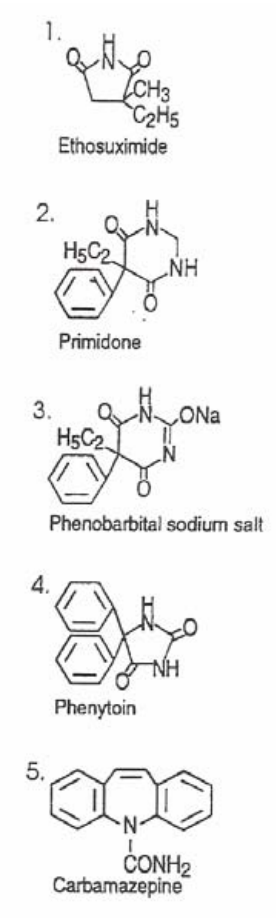
HPLC Conditions	135291-EPO-XP
Column:	Epic Polar XP, 5um 150 X 4.6mm
Mobile Phase:	CH_3CN : 20mM potassium phosphate, pH 6.9, 40 :60
Flow Rate:	1.0 mL/min
Temperature:	35°C
Detection:	UV @ 254nm

Antiepileptics

ES Industries has conducted extensive research to gain a fundamental insight into the " phase collapse" phenomenon. Our research has uncovered the key fundamental mechanism to explain and ultimately prevent " phase collapse" . The key facet to the mechanism is the relationship between mobile phase operating pressure and surface wettability of the bonded phase/silica particle.

Other column designs have been tried, with limited success, to prevent " phase collapse" from occurring. One of these approaches requires the use of a hydrophilic endcapping after the initial alkyl chain bonding. This approach falls short in two major areas. First, it requires a two-step bonding sequence, which subjects the final product to increased variability that can seriously jeopardize the reliability of HPLC methods. Secondly, the hydrophilic endcapping can be easily damaged by the mobile phase which can considerably shorten column life and lead to unacceptable poor performance for routine chromatographic methods. Given these two major limitations we did not pursue the development of any hydrophilic endcapping approach in the development of a " phase collapse" resistant product.





HPLC Conditions	135291-EPO-XP
Column:	Epic Polar XP, 5um 150 X 4.6mm
Mobile Phase:	CH3OH :50mM ammonium phosphate,pH 6.7, 50 :50
Flow Rate:	1.0 mL/min
Temperature:	35°C
Detection:	UV @ 215nm

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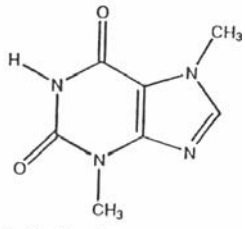
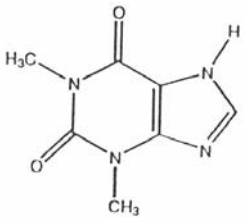
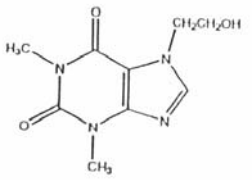
Our patented silane allows the bonded alkyl chains to remain fully extended in the mobile phase even under highly aqueous conditions. To obtain high aqueous stability and maximum hydrophobic interaction Epic Polar XP relies on our specially developed silane which is bonded to ultra high purity synthetically produced spherical silica. This silane contains an ether linkage placed near the point of attachment to the silica base particle. This ether group is polar enough to allow water to penetrate and hydrate the silica surface preventing the self association of the hydrophobic alkyl chains. This layer of hydration permits the maximum interaction of the alkyl chains with the analytes of interest and prevents any phase collapse. The superior performance of Epic Polar XP not only includes our bonded ODS ether linked groups but a newly developed proprietary endcapping technique that delivers superior peak shape performance for amine containing compounds. This combination of our ether linked technology and proprietary endcapping technology enables the chromatographer to obtain high performance separation with any mobile phase condition.



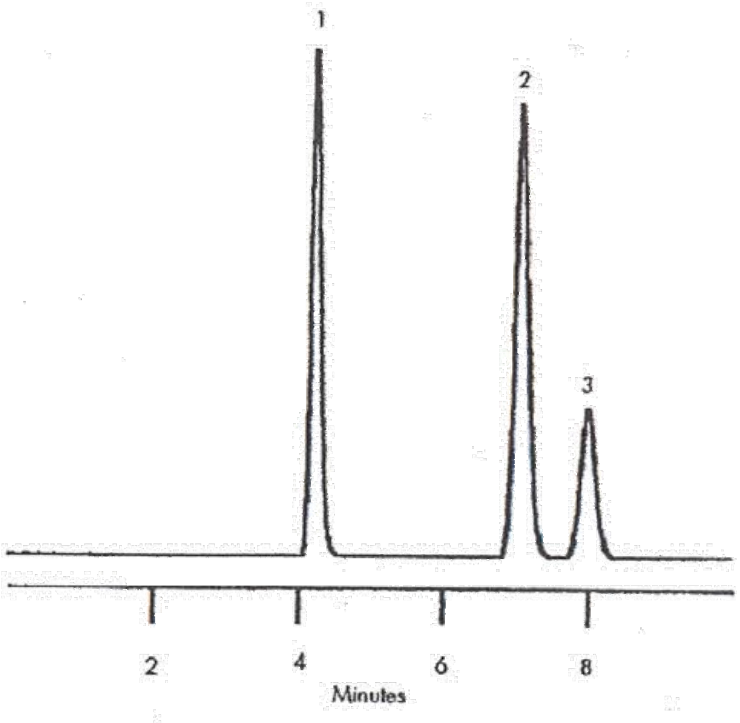
1. Theobromine



2. Theophylline



3. 7-(2-hydroxyethyl) theophylline



HPLC Conditions	135291-EPO-XP
Column:	Epic Polar XP, 5um 150 X 4.6mm
Mobile Phase:	5 mM potassium phosphate pH 2.0/Acetonitrile 95:5
Flow Rate:	1.0 mL/min
Sample:	5 ul injection of solution containing: theobromine theophylline and 7-(2-hydroxyethyl) theophylline
Detection:	254 nm

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Epic Polar XP 3u 120A

	4.6mm (ID)	4.0mm (ID)	3.2mm (ID)	2.1mm (ID)
5cm	115191-EPO-XP	114191-EPO-XP	11d191-EPO-XP	112191-EPO-XP
7.5cm	195191-EPO-XP	194191-EPO-XP	19d191-EPO-XP	192191-EPO-XP
10cm	125191-EPO-XP	124191-EPO-XP	12d191-EPO-XP	122191-EPO-XP
15cm	135191-EPO-XP	134191-EPO-XP	13d191-EPO-XP	132191-EPO-XP

Epic Polar XP 5u 120A

	4.6mm (ID)	4.0mm (ID)	3.2mm (ID)	2.1mm (ID)
5cm	115291-EPO-XP	114291-EPO-XP	11d291-EPO-XP	112291-EPO-XP
10cm	125291-EPO-XP	124291-EPO-XP	12d291-EPO-XP	122291-EPO-XP
15cm	135291-EPO-XP	134291-EPO-XP	13d291-EPO-XP	132291-EPO-XP
25cm	155291-EPO-XP	154291-EPO-XP	15d291-EPO-XP	152291-EPO-XP

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