Hypercarb HPLC Columns

100% porous graphitic carbon for extended separation capabilities

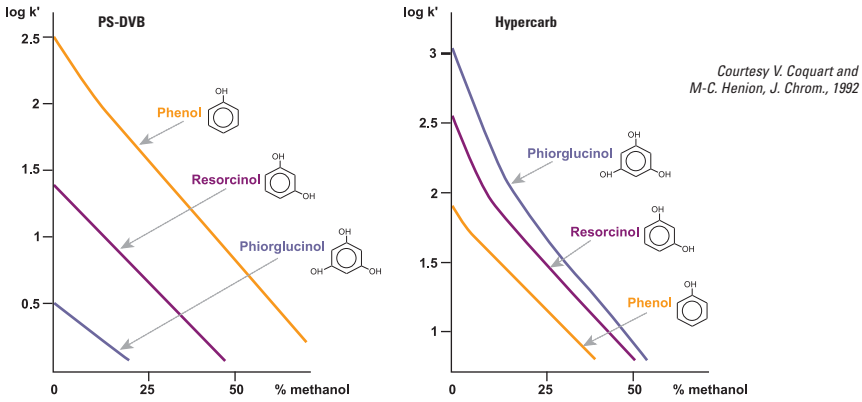
Used for the retention and separation of highly polar species. Thermo Scientific™ Hypercarb™ columns are ideally suited to solve in both reversed phase and normal phase HPLCand LC-MS applications.

- **Exceptional Retention of Very Polar Analytes**
  Ideal for complex separations
- **Separates Structurally Related Substances**
  More effective than silica-based columns
- **pH Stable from 0 to 14**
  Extended temperature and pressure capabilities

The Hypercarb web page contains the latest news, applications and downloads for the Hypercarb HPLC column range.
Visit **www.thermoscientic.com/hypercarb**

Increased Retention of Polar Analytes

In typical reversed phase chromatography, the retention of an analyte is directly related to its hydrophobicity: the more hydrophobic the analyte, the longer its retention. Conversely, as the polarity of the analyte increases, analyte-solvent interactions begin to dominate and retention is reduced. This observation holds true for the majority of reversed phase systems. An exception to this rule is Hypercarb columns, for which retention may in some cases increase as the polarity of the analyte increases, illustrated to the right. This phenomenon is referred to as the "polar retention effect on graphite" (PREG). This property makes Hypercarb columns particularly useful for the separation of highly polar compounds (with logP as low as -4) that are normally difficult to retain and resolve on silica-based alkyl chain phases. The retention of very polar solutes on Hypercarb columns can be achieved without ion pair reagents or complex mobile phase conditions, as illustrated in the chromatogram below.

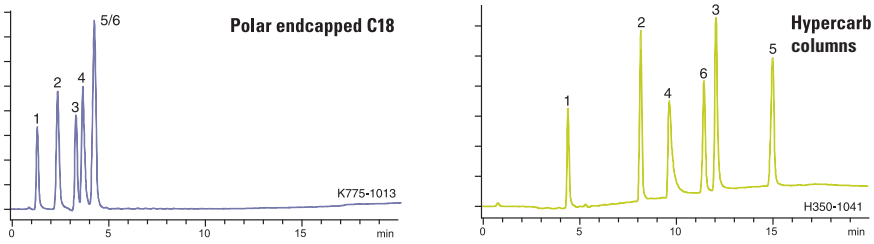


Courtesy V. Coquart and M-C. Henion, J. Chrom., 1992

Retention on Hypercarb columns increases as polarity of the analyte increases, which is the opposite of typical reversed phase materials such as PS-DVB

Extended pH Range

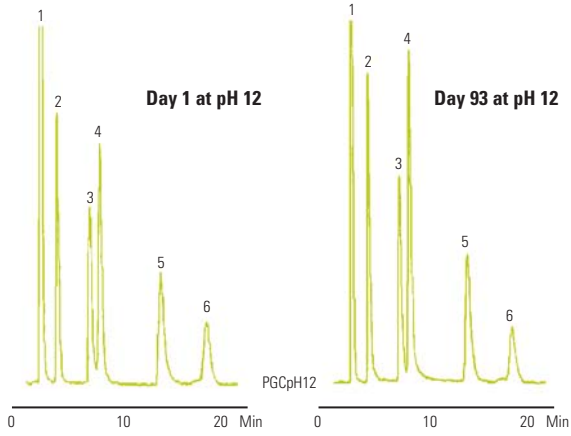
One of the other key benefits of Hypercarb columns is the extreme stability of the phase to chemical or physical attack. Due to the unique characteristics of the media, it can withstand chemical attack across the entire pH range of 0 to 14, allowing applications to be run at pH levels that are incompatible with typical silica-based columns. Hypercarb columns offer more choice in buffer selection while handling both high temperature and high pressure.



Hypercarb, 5µm, 100 x 0.32mm

Mobile Phase A:	H_2O + 0.1% formic acid
Mobile Phase B:	ACN + 0.1% formic acid
Gradient:	0 to 25% B in 15 minutes
Temperature:	25°C
Flow Rate:	8µL/min
Detection:	UV, 254nm
Analytes:	1. Cytosine 2. Uracil 3. Guanine 4. Adenine 5. Xanthine 6. Thymine

Additional retention is achieved for polar compounds using a Hypercarb column compared to a polar endcapped C18. Note also the change in elution order.



Hypercarb, 5µm, 100 x 4.6mm

Mobile Phase:	MeOH:H_2O
Gradient:	70:30
Flow Rate:	0.7mL/min
Detection:	UV, 254nm
Analytes:	1. Acetone 2. Phenol 3. p-Cresol 4. Anisol 5. Phenetole 6. 3,5 -Xylenol

Hypercarb column stability at pH 12: retention and selectivity do not change even after 93 days of storage in 0.1M NaOH/MeOH

Hypercarb

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
3	Drop-in Guard (2/pk)	10	2.1	**35003-012101**
			3.0	**35003-013001**
			4.6	**35003-014001**
	HPLC Column	30	1.0	**35003-032130**
			3.0	**35003-033030**
		50	2.1	**35003-052130**
			3.0	**35003-053030**
			4.6	**35003-054630**
		100	2.1	**35003-102130**
			3.0	**35003-103030**
			4.6	**35003-104630**
		150	2.1	**35003-152130**
			3.0	**35003-153030**
			4.6	**35003-154630**
	High Temperature HPLC Column	30	2.1	**35003-032146**
		50	2.1	**35003-052146**
			4.6	**35003-054646**
		100	2.1	**35003-102146**
			3.0	**35003-103046**
			4.6	**35003-104646**
5	Drop-in Guard (4/pk)	10	2.1	**35005-012101**
			3.0	**35005-013001**
			4.6	**35005-014001**
	HPLC Column	30	2.1	**35005-032130**
			3.0	**35005-033030**
			4.6	**35005-034630**
		50	2.1	**35005-052130**
			3.0	**35005-053030**
			4.6	**35005-054630**
		100	2.1	**35005-102130**
			3.0	**35005-103030**
			4.6	**35005-104630**
		150	2.1	**35005-152130**
			3.0	**35005-153030**
			4.6	**35005-154630**
	High Temperature HPLC Column	30	2.1	**35005-032146**
			4.6	**35005-034646**
		50	2.1	**35005-052146**
			4.6	**35005-054646**
		100	2.1	**35005-102146**
			4.6	**35005-104646**
	Javelin HTS Column	20	2.1	**35005-022135**
	Preparative HPLC Column	100	10	**35005-109070**
			21.2	**35005-109270**
			30	**35005-109370**
		150	10	**35005-159070**
			21.2	**35005-159270**

Format	Length (mm)	ID (mm)	Cat. No.
UNIGUARD Guard Cartridge Holder	10	1.0	**851-00**
		2.1	**852-00**
		3.0	**852-00**
		4.6	**850-00**