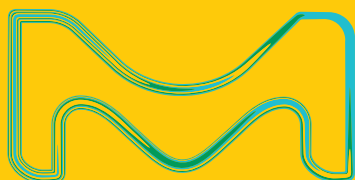


CHIRAL HPLC COLUMNS

Columns for versatile and robust Chiral HPLC and LC-MS separations



Astec® CHIROBIOTIC® Product Listing

Method Development Kits

ID (mm)	Length (cm)	Cat. No.	
4.6	10	10300AST	- One each of Astec® CHIROBIOTIC® V2, T, TAG and R
4.6	25	10305AST	- One each of Astec® CHIROBIOTIC® V2, T, TAG and R

(5 µm)

Length (mm)	I.D. (mm)	V	V2	T	T2	TAG	R
100 x 2.1		11018AST	15018AST	12018AST	16018AST	14018AST	
150 x 2.1		11019AST	15019AST	12019AST	16019AST	14019AST	13019AST
250 x 2.1		11020AST	15020AST	12020AST		14020AST	13020AST
100 x 3.0				12010AST			
50 x 4.6				12021AST			
100 x 4.6		11022AST	15022AST	12022AST		14022AST	13022AST
150 x 4.6		11023AST	15023AST	12023AST	16023AST	14023AST	13023AST
250 x 4.6		11024AST	15024AST	12024AST	16024AST	14024AST	13024AST
250 x 10		11034AST		12034AST		14034AST	
250 x 21.2		11044AST	15044AST			14044AST	
Guard 20	x 1.0	11101AST	15101AST	12101AST			13101AST
Guard 20	x 4.0	11100AST	15100AST	12100AST		14100AST	
Guard Holder	x			21150AST			

For more information and to review our complete offering of Astec® CHIROBIOTIC® columns, please visit [SigmaAldrich.com](https://www.sigmaaldrich.com)

*Other column dimensions, including guard columns and preparative dimensions, are found on our website or by inquiring with technical service.

Astec® CYCLOBOND® Columns

Other dimensions are available as a custom offering, please visit our web site or contact techservice@sial.com

CYCLOBOND® (5.0 µm)

Length (mm)		I.D. (mm)	I 2000	I 2000 AC	I 2000 SP	I 2000 RSP	I 2000 HP RSP	I 2000 DMP	II
100	x	2.1	20018AST						
150	x	2.1	20019AST						
100	x	4.6						20722AST	
150	x	4.6		20123AST			24023AST		46023AST
250	x	4.6	20024AST	20124AST	20224AST	20324AST	24024AST	20724AST	41020AST
250	x	10.0	20034AST					20734AST	
250	x	21.2						20744AST	
Guard 20	x	4.0				21103AST			
Guard Holder						21150AST			

Guard Column Holders



Guard Holders for 4 mm I.D. cartridges
(holder not required for 1 mm I.D. guards)

Cat. No.	Description
21150AST	Guard Column Holder

Ordering Information

Cellulose DMP (5.0 μm)

Length (mm)		I.D. (mm)	SKU
150	x	2.1	51100AST
100	x	4.6	51097AST
150	x	4.6	51098AST
250	x	4.6	51099AST
Guard 20	x	2.1	51104AST
Guard 20	x	4.0	51106AST
Kit 20	x	2.1	51105AST

References

1. Hesse, G.; Hagel, R. Chromatographia 1973, 6(6), 277 – 280.
2. Okamoto, Y.; Kawashima, M.; Yamamoto, K.; Hadata, K. Chem. Lett. (The Journal of the Chemical Society of Japan) 1984, 739 – 742.
3. Okamoto, Y.; Kawashima, M.; Hadata, K. J. Amer. Chem. Soc. 1984, 106, 5357 – 5359.

Method Development and Optimization Protocols for Astec® CLC Columns

For the ligand exchange process to occur, the mobile phase must contain 1 to 10 mM copper sulfate (CuSO_4). The recommended starting mobile phase is 20% methanol in 5 mM copper sulfate.

Optimization Parameters and Guidelines:

Parameter	Relationship	Range
Copper sulfate concentration	Retention is inversely proportional to the copper sulfate concentration	1 to 10 mM
% Organic modifier	Retention is inversely proportional to the % of organic modifier	Methanol – up to 30% Ethanol – up to 20% Isopropanol – up to 15%
Temperature	Retention is inversely proportional to temperature	5 – 40 °C
pH	Retention is proportional to the pH	pH 3 to pH 6

Part of the Astec® Family of Chiral HPLC, GC and SFC Columns:

- **Astec® CHIROBIOTIC®** – Macrocyclic Glycopeptides for Chiral HPLC
- **Astec® CYCLOBOND®** – Native and Derivatized Cyclodextrins for Chiral HPLC
- **Astec® P-CAP™** – Polycyclic Amine Polymers for Chiral HPLC
- **Astec® Cellulose DMP** – Rugged and Economical Derivatized Cellulose for Chiral HPLC and SFC
- **Astec® CLC** – Ligand Exchange for Chiral HPLC
- **Astec® CHIRALDEX and Supelco® DEX™** – Derivatized Cyclodextrins for Chiral GC

Product Listing

Description	Cat. No.
Astec® CLC-D, 15 cm x 4.6 mm I.D., 5 µm particles	53023AST
Astec® CLC-L, 15 cm x 4.6 mm I.D., 5 µm particles	53123AST

1. Davankov, V. A.; Rogozhin, S. V. Ligand chromatography as a novel method for the investigation of mixed complexes: Stereoselective effects in α -amino acid copper(II) complexes. J. Chrom. A. 1971, 60, 284-312.