Robust and efficient chiral purification

YMC's CHIRAL ART is a series of chiral packing materials with high stereo-selectivity. They are suitable for separations of a wide range of chiral compounds, cis-trans isomers and geometric isomers. The range of particle sizes and column dimensions available offers outstanding cost effectiveness for analytical to preparative separations.

Immobilised Type

CHIRAL ART immobilised polysaccharide derivatives can be used either in normal phase or in reversed phase modes. They are available in pre-packed HPLC columns and in bulk preparative grades, in large (multi kg) quantities.

Coated Type

A family of coated chiral polysaccharide phases has been developed by YMC, designed to supply superior products which are competitively priced compared to established vendors. In addition – and typical of YMC – fully scalable preparative grades are also available in large quantities.

Product name	Base material	Particle size [µm]	Chiral selector	Type	Usable pH range	Pressure limit
CHIRAL ART Amylose-C Neo	Porous silica	3 5 10 20	Amylose tris (3,5-dimethylphenylcarbamate)	Coated	3.5–6.5	4350 psi (30 MPa)
CHIRAL ART Cellulose-C			Cellulose tris (3,5-dimethylphenylcarbamate)			
CHIRAL ART Amylose-SA	Porous silica	3 5 10 20	Amylose tris (3,5-dimethylphenylcarbamate)	Immobilised	2.0–9.0	4350 psi (30 MPa)
CHIRAL ART Cellulose-SB			Cellulose tris (3,5-dimethylphenylcarbamate)			
CHIRAL ART Cellulose-SC			Cellulose tris (3,5-dichlorophenylcarbamate)			
CHIRAL ART Cellulose-SJ			Cellulose tris (4-methylbenzoat)			

Success in preparative LC is defined by maximising the target output per chromatographic cycle. Consequently, preparative grades need to provide high loadability for larger amounts of product to be purified in less time. The following application studies illustrate how to find the optimum overloading conditions with optimised YMC chiral phases.

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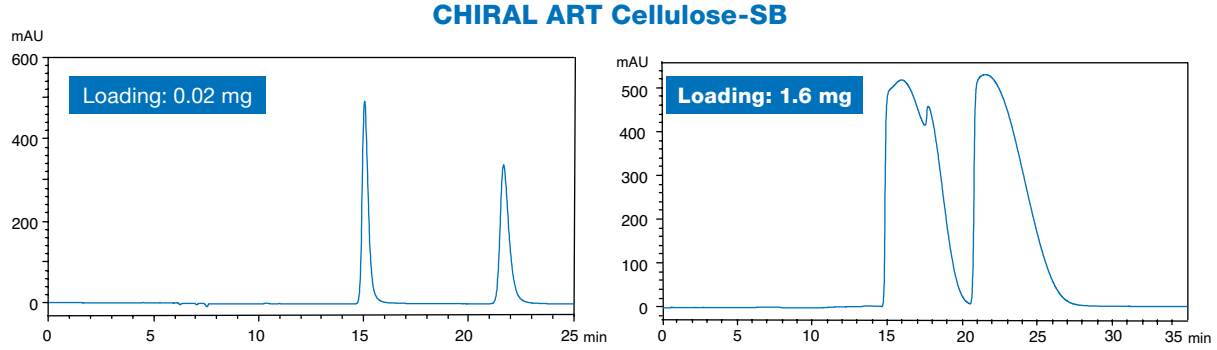
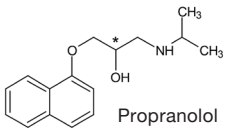
Comparative Loading Study *Propranolol*

YMC's CHIRAL ART Cellulose-SB is well suited for the chiral purification of propranolol. The analytical separation provides excellent resolution. Applying preparative loading (an increase of loading amount by factor 80!), the resolution still remains efficient enough to provide 99.9% ee.

CHIRAL ART Cellulose-SB



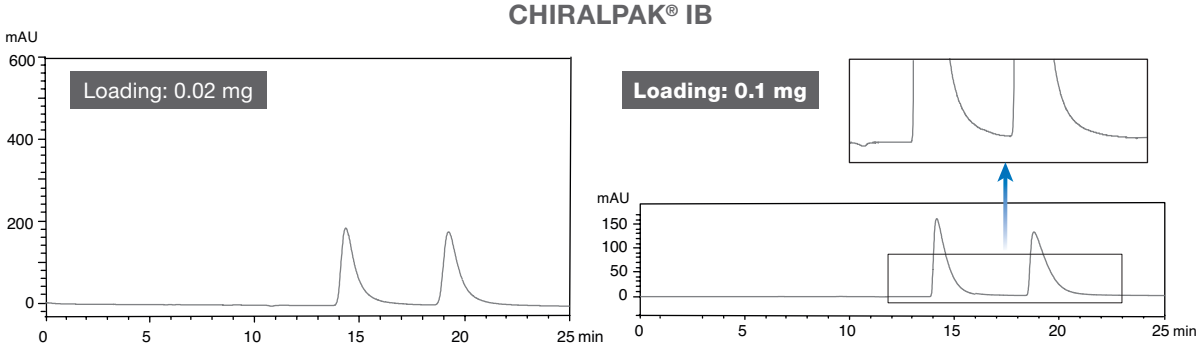
Column:	5 µm, 250 x 4.6 mm ID
Eluent:	n-hexane / 2-propanol / diethylamine (80/20/0.1)
Flow rate:	0.5 ml/min
Detection:	UV at 230 nm
Temperature:	25 °C



Propranolol

In contrast to this, an alternative phase already shows insufficient separation at a lower loading level.

CHIRALPAK® IB



	CHIRAL ART Cellulose-SB		CHIRALPAK® IB	
	1st peak	2nd peak	1st peak	2nd peak
Enantiomeric excess	>99.9%ee	99.3%ee	>99.9%ee	97.9%ee
Recovery	99%	99%	99%	97%
Productivity (mg/h)*	3.1	3.3	0.3	0.3

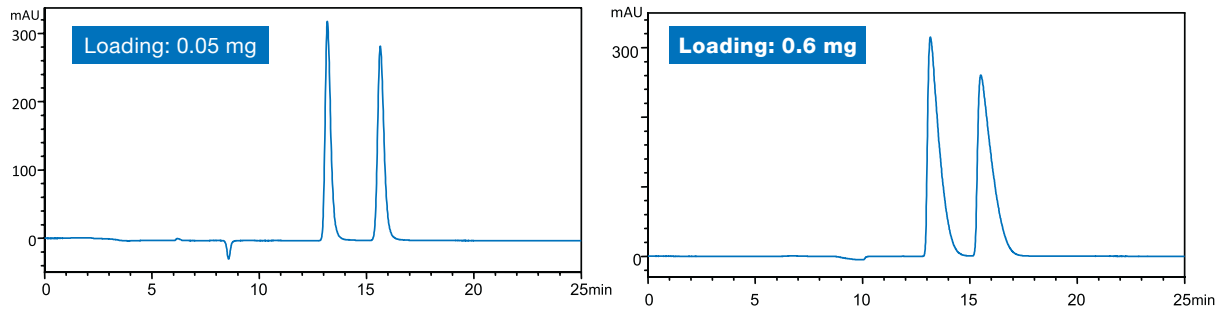
*Calculated for repeated injections every 15 minutes (CHIRAL ART Cellulose-SB) and every 10 minutes (CHIRALPAK® IB).

The calculated maximum loading amount on CHIRAL ART Cellulose-SB of 1.6 mg was 10 times larger than that obtained for the competitor's product due to the large differences in the peak shapes, even though the interval between repeat injections was higher!

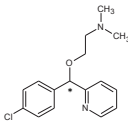
Comparative Loading Study *Carbinoxamine*

For the separation of carbinoxamine YMC's CHIRAL ART-SA is the preparative media of choice. On the analytical scale, as well as for overloading studies, the resolution obtained is high. As a sign of quality, the peaks elute with nearly no tailing.

CHIRAL ART Cellulose-SA



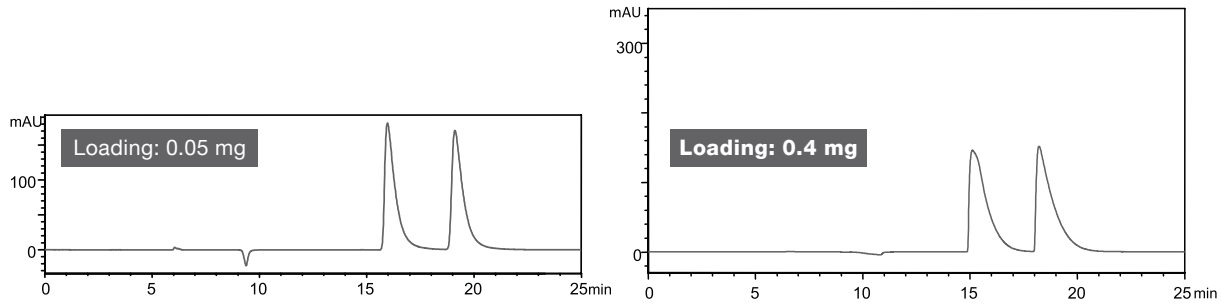
Column:	5 µm, 250 x 4.6 mm ID
Eluent:	n-hexane / 2-propanol / diethylamine (90/10/0.1)
Flow rate:	0.5 ml/min
Detection:	UV at 230 nm
Temperature:	25 °C



Carbinoxamine

In contrast to this, an alternative phase already shows insufficient separation at a lower loading level.

CHIRALPAK® IB



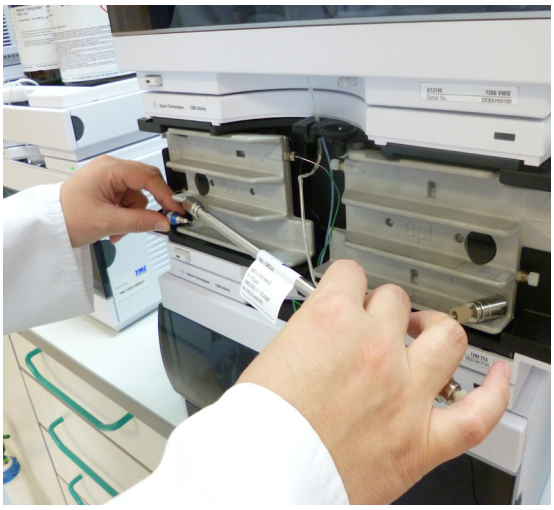
	CHIRAL ART Cellulose-SA		CHIRALPAK® IB	
	1st peak	2nd peak	1st peak	2nd peak
Enantiomeric excess	>99.9%ee	99.4%ee	>99.9%ee	98.9%ee
Recovery	99%	99%	99%	98%
Productivity (mg/h)*	2.9	2.9	1.4	1.4

*Calculated for repeated injections every 6 minutes (CHIRAL ART Amylose-SA) and every 8 minutes (CHIRALPAK® IA).

The calculated maximum loading amount on CHIRAL ART Amylose-SA was double that obtained for the competitor's product due to the good peak shape with no tailing, which also allowed increased productivity.

FREE Chiral Screening Service

- >90% success rate
- Rapid screening within a short period of time
- Screening according to your requirements: e.g. RP-mode, MS-compatibility etc.
- Screening on all available CHIRAL ART phases and further YMC CHIRAL phases if needed
- Results presented in a detailed report
- Confidentiality Agreements can be arranged as necessary



Ordering Information – Bulk material for self-packing

Chiral stationary phase	Type	Particle size [µm]	Product code
CHIRAL ART Amylose-C Neo	Coated	10	KBN99S11
		20	KBN99S21
CHIRAL ART Cellulose-C	Coated	10	KCN99S11
		20	KCN99S21
CHIRAL ART Amylose-SA	Immobilised	10	KSA99S11
		20	KSA99S21
CHIRAL ART Amylose-SB	Immobilised	10	KSB99S11
		20	KSB99S21
CHIRAL ART Amylose-SC	Immobilised	10	KSC99S11
		20	KSC99S21
CHIRAL ART Amylose-SJ	Immobilised	10	KSJ99S11
		20	KSJ99S21

Ordering Information – Pre-packed columns

YMC provides pre-packed columns from analytical to preparative dimensions.

Particle sizes: 3 µm, 5 µm, 10 µm, 20 µm
ID's: 2 mm–50 mm
Lengths: 100 mm–250 mm

For detailed ordering information for pre-packed columns please refer to the YMC homepage: **www.ymc.de**