

SFC (Supercritical Fluid Chromatography) Column

Alcyon SFC

- Available in chiral or achiral stationary phases
- Faster separation with high resolution
- Excellent durability



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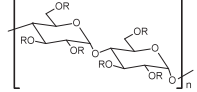
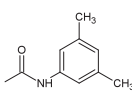
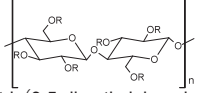
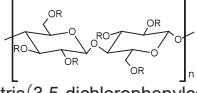
Features

- Available in chiral or achiral stationary phases
- Faster separation with high resolution
- Excellent durability
- Great reduction of solvent consumption

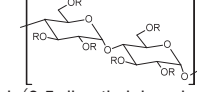
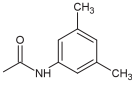
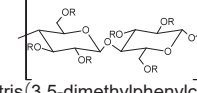


Specifications

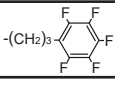
Alcyon SFC CSP «Chiral Immobilized type»

Packing material	Particle size (µm)	Chiral selector	
Amylose-SA	3, 5		 R: 3,5-Dimethylphenylcarbamate
Cellulose-SB			
Cellulose-SC			

Alcyon SFC CSP «Chiral Coated type»

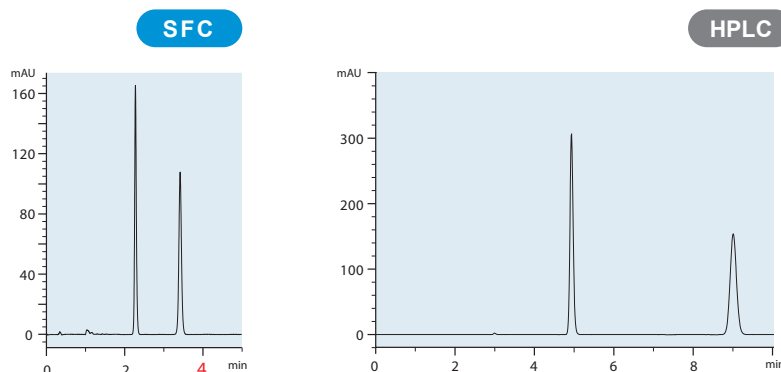
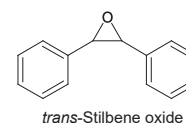
Packing material	Particle size (µm)	Chiral selector	
Amylose-C	3, 5		 R: 3,5-Dimethylphenylcarbamate
Cellulose-C			

Alcyon SFC «Achiral»

Packing material	Particle size (µm)	Functional group	Base	Silanol treatment
Triart C18	5	-C ₁₈ H ₃₇	Organic/inorganic hybrid silica	Yes
Triart Diol		-CH ₂ CH(OH)CH ₂	Organic/inorganic hybrid silica	No
Triart PFP			Organic/inorganic hybrid silica	No
CN		-(CH ₂) ₃ CN	Silica gel	Yes
SIL		(-OH)	Silica gel	-

Faster separation with high resolution

Faster chiral separation of *trans*-Stilbene oxide can be achieved using supercritical fluid chromatography compared with HPLC separation. The lower viscosity and larger diffusion coefficient of the supercritical fluid provide rapid separation of both chiral and achiral compounds.

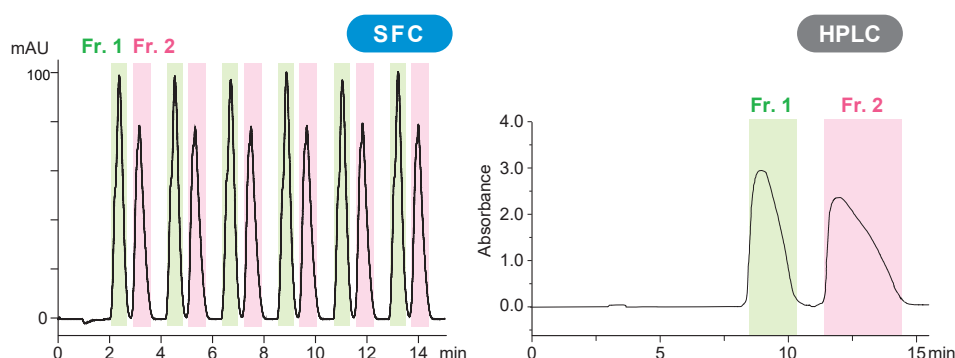
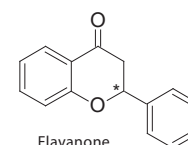


■ SFC conditions	
Column	: Alcyon SFC CSP Amylose-C 5 μm, 250 X 4.6 mmI.D.
Eluent	: CO ₂ /methanol (60/40)
Flow rate	: 3.0 mL/min
Temperature	: 40°C
Detection	: UV at 220 nm
Back pressure	: 17.2 MPa (2500 psi)

■ HPLC conditions	
Column	: CHIRAL ART Amylose-C 5 μm, 250 X 4.6 mmI.D.
Eluent	: <i>n</i> -hexane/2-propanol (90/10)
Flow rate	: 1.0 mL/min
Temperature	: 25°C
Detection	: UV at 220 nm

Cost effective purification using SFC

SFC preparative separation of flavanone



■ SFC conditions	
Column	: Alcyon SFC CSP Amylose-C 5 μm, 250 X 20 mmI.D.
Eluent	: CO ₂ /ethanol (80/20)
Flow rate	: 60 mL/min
Temperature	: 30°C
Detection	: UV at 280 nm
Back pressure	: 15 MPa (2180 psi)
Injection	: 1.5 mL (20 mg/mL)

■ HPLC conditions	
Column	: CHIRAL ART Amylose-C 5 μm, 250 X 20 mmI.D.
Eluent	: <i>n</i> -hexane/ethanol (90/10)
Flow rate	: 20 mL/min
Temperature	: ambient
Detection	: UV at 220 nm
Injection	: 3 mL (20 mg/mL)

SFC	Fr. 1	Fr. 2
Enantiomeric purity	>99.9%ee	99.8%ee
Yield	94.5%	95.6%

HPLC	Fr. 1	Fr. 2
Enantiomeric purity	>99.9%ee	99.7%ee
Yield	95.7%	93.7%

Effective of SFC preparative method compared to HPLC preparative method

Alcyon SFC columns show excellent peak shape, even for faster separations. As a result, high-purity and high-recovery purification will be achieved. Alcyon SFC columns offer purification with higher efficiency owing to lower solvent consumption.

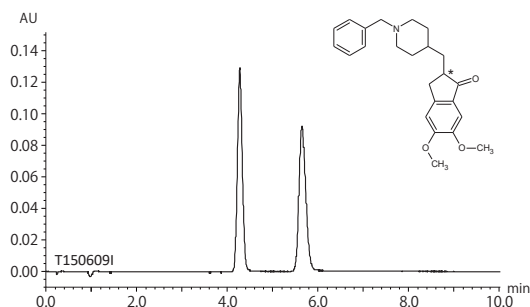
Column : 250 X 20 mmI.D.	SFC		HPLC	
	Fr. 1	Fr. 2	Fr. 1	Fr. 2
Enantiomeric purity (%ee)	>99.9	99.8	>99.9	99.7
Yield (%)	94.5	95.6	95.7	93.7
Productivity* ¹ (mg product/hr)	340	344	172	169
Fractionated liquid volume (L solvent/g product)	0.39	0.57	1.15	2.88
Solvent consumption (L solvent/g product)	about 2		about 7	
Cost factor* ²	0.4		1	

*¹ Calculated based on injections of every 2.5 minutes on SFC, and of every 9.0 minutes on HPLC.

*² Calculated based on costs of solvents/CO₂ and waste disposal. Cost on SFC is calculated when the cost on HPLC is fixed as 1.

Application

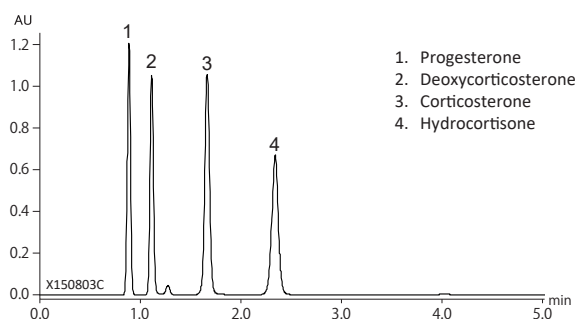
Donepezil



Column : Alcyon SFC CSP Cellulose-C (5 µm)
 250 X 4.6 mm.I.D.
 Eluent : CO₂/2-propanol containing 0.1% DEA* (70/30)
 Flow rate : 3.0 mL/min
 Temperature : 35°C
 Detection : UV at 268 nm
 Back pressure : 13.8 MPa (2000 psi)
 Injection : 5 µL (1.0 mg/mL)

* Diethylamine

Steroids



Column : Alcyon SFC Triart Diol (5 µm, 12 nm)
 150 X 4.6 mm.I.D.
 Eluent : CO₂/methanol (80/20)
 Flow rate : 3.0 mL/min
 Temperature : 40°C
 Detection : UV at 254 nm
 Back pressure : 13.8 MPa (2000 psi)
 Injection : 5 µL (0.8 mg/mL)

Ordering Information

Alcyon SFC CSP Columns : Chiral

Particle size (µm)	Column size inner diameter X length (mm)	Product number				
		Immobilized type			Coated type	
		Amylose-SA	Cellulose-SB	Cellulose-SC	Amylose-C	Cellulose-C
3	2.1 X 150	KSA99S03-15Q1WTS	KSB99S03-15Q1WTS	KSC99S03-15Q1WTS	KAN99S03-15Q1WTS	KCN99S03-15Q1WTS
	3.0 X 50	KSA99S03-0503WTS	KSB99S03-0503WTS	KSC99S03-0503WTS	KAN99S03-0503WTS	KCN99S03-0503WTS
	3.0 X 100	KSA99S03-1003WTS	KSB99S03-1003WTS	KSC99S03-1003WTS	KAN99S03-1003WTS	KCN99S03-1003WTS
	3.0 X 150	KSA99S03-1503WTS	KSB99S03-1503WTS	KSC99S03-1503WTS	KAN99S03-1503WTS	KCN99S03-1503WTS
	4.6 X 150	KSA99S03-1546WTS	KSB99S03-1546WTS	KSC99S03-1546WTS	KAN99S03-1546WTS	KCN99S03-1546WTS
	4.6 X 250	KSA99S03-2546WTS	KSB99S03-2546WTS	KSC99S03-2546WTS	KAN99S03-2546WTS	KCN99S03-2546WTS
5	2.1 X 150	KSA99S05-15Q1WTS	KSB99S05-15Q1WTS	KSC99S05-15Q1WTS	KAN99S05-15Q1WTS	KCN99S05-15Q1WTS
	4.6 X 150	KSA99S05-1546WTS	KSB99S05-1546WTS	KSC99S05-1546WTS	KAN99S05-1546WTS	KCN99S05-1546WTS
	4.6 X 250	KSA99S05-2546WTS	KSB99S05-2546WTS	KSC99S05-2546WTS	KAN99S05-2546WTS	KCN99S05-2546WTS
	10 X 250	KSA99S05-2510WTS	KSB99S05-2510WTS	KSC99S05-2510WTS	KAN99S05-2510WTS	KCN99S05-2510WTS
	20 X 250	KSA99S05-2520WTS	KSB99S05-2520WTS	KSC99S05-2520WTS	KAN99S05-2520WTS	KCN99S05-2520WTS

Alcyon SFC Columns : Achiral

Particle size (µm)	Column size inner diameter X length (mm)	Product number				
		Triart C18	Triart Diol	Triart PFP	CN	SIL
5	2.1 X 150	TA12S05-15Q1WTS	TDN12S05-15Q1WTS	TPF12S05-15Q1WTS	CN12S05-15Q1WTS	SL12S05-15Q1WTS
	4.6 X 150	TA12S05-1546WTS	TDN12S05-1546WTS	TPF12S05-1546WTS	CN12S05-1546WTS	SL12S05-1546WTS
	4.6 X 250	TA12S05-2546WTS	TDN12S05-2546WTS	TPF12S05-2546WTS	CN12S05-2546WTS	SL12S05-2546WTS
	10 X 250	-	-	-	CN12S05-2510WTS	SL12S05-2510WTS
	20 X 250	-	-	-	CN12S05-2520WTS	SL12S05-2520WTS

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