

# 12

## Supercritical Fluid Chromatography (SFC) Columns

Alcyon SFC ----- 120-121

Ordering Information ----- 122

## Alcyon SFC

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

### Faster separation than conventional HPLC

Alcyon SFC columns are supercritical fluid chromatography (SFC) columns, and available in chiral/achiral stationary phases. Alcyon SFC columns are specifically packed in a SFC compatible hardware and are tested under SFC conditions. The low viscosity of supercritical carbon dioxide allows for analytical separations 3-5 times faster than those for normal-phase HPLC.

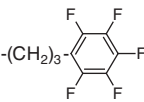
### Specifications

#### Alcyon SFC CSP : CHIRAL

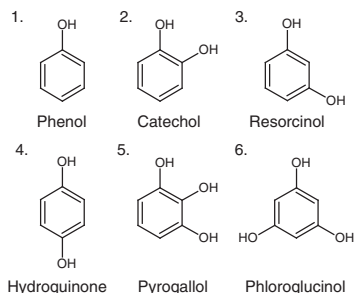
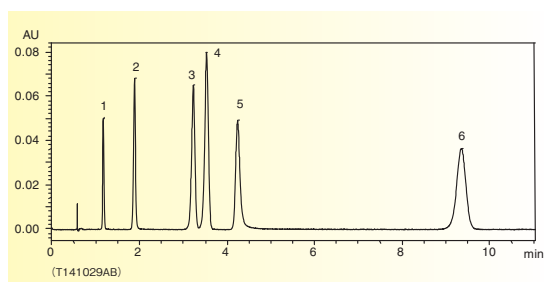
Packing material	Type	Chiral selector	Particle size (μm)
Amylose-SA	Immobilized type	Amylose tris(3,5-dimethylphenylcarbamate)	3, 5
Cellulose-SB		Cellulose tris(3,5-dimethylphenylcarbamate)	
Cellulose-SC		Cellulose tris(3,5-dichlorophenylcarbamate)	
Cellulose-SJ		Cellulose tris(4-methylbenzoate)	
Amylose-C Neo	Coated type	Amylose tris(3,5-dimethylphenylcarbamate)	
Cellulose-C		Cellulose tris(3,5-dimethylphenylcarbamate)	

\*Inquire us for the Amylose-C

#### Alcyon SFC : ACHIRAL

Packing material	Bonded phase	Base	Particle size (μm)
Triart C18	-C <sub>18</sub> H <sub>37</sub>	Organic/inorganic hybrid silica	5
Triart Diol	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OH		
Triart PFP	 -(CH <sub>2</sub> ) <sub>3</sub> -C <sub>6</sub> F <sub>5</sub>		
CN	-(CH <sub>2</sub> ) <sub>3</sub> -CN	Silica gel	
SIL	-OH		

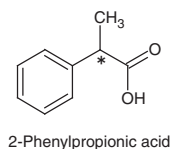
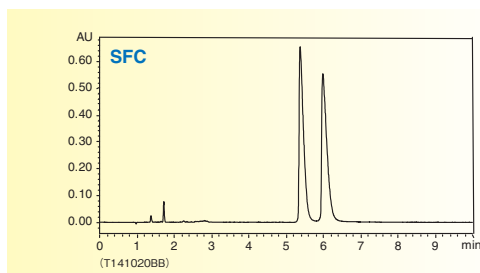
### Excellent peak shape on coordination compounds



Column	: Alcyon SFC Triart Diol 5 μm, 250 X 4.6 mm I.D.
Eluent	: CO <sub>2</sub> /methanol (88/12)
Flow rate	: 3.0 mL/min
Temperature	: 30°C
Detection	: UV at 230 nm
Back pressure	: 13.8 MPa (2000 psi)

Six phenols were analyzed with good separation using Alcyon SFC Triart Diol column. Excellent peak shape is obtained even on coordination compounds such as catechol and pyrogallol.

## Excellent peak shape under mobile phase without the addition of acid

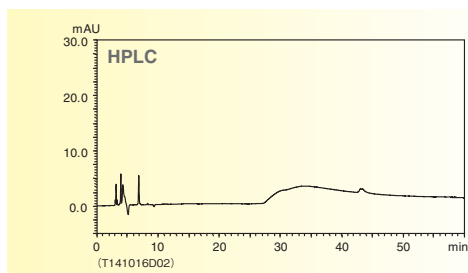


### SFC

Column : Alcyon SFC CSP Cellulose-C  
5  $\mu$ m, 250 X 4.6 mmI.D.  
Eluent : CO<sub>2</sub>/methanol (98/2)  
Flow rate : 3.0 mL/min  
Temperature : 35°C  
Detection : UV at 220 nm  
Back pressure : 13.8 MPa (2000 psi)

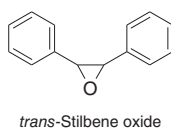
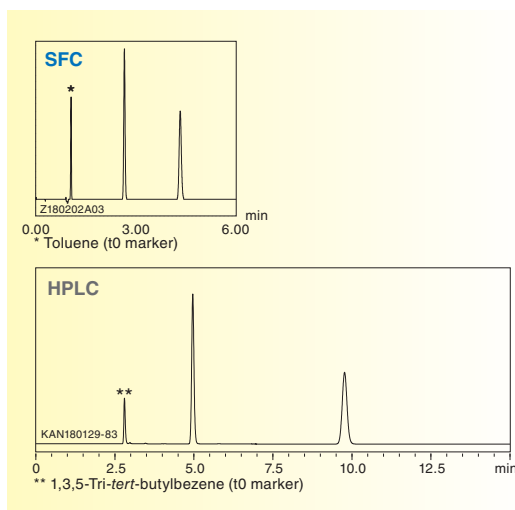
### HPLC

Column : CHIRAL ART Cellulose-C  
5  $\mu$ m, 250 X 4.6 mmI.D.  
Eluent : *n*-hexane/2-propanol (99/1)  
Flow rate : 1.0 mL/min  
Temperature : 25°C  
Detection : UV at 220 nm



Excellent peak shape of 2-phenylpropionic acid is obtained on SFC chiral separation. Under HPLC conditions, peak shape is very broad with mobile phase containing no additive such as acid. On SFC, on the other hand, peak shapes are very good just with mixture of CO<sub>2</sub> and methanol. It is considered that supercritical carbon dioxide acts as weak acid.

## Faster separation with high resolution



### SFC

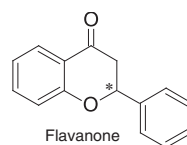
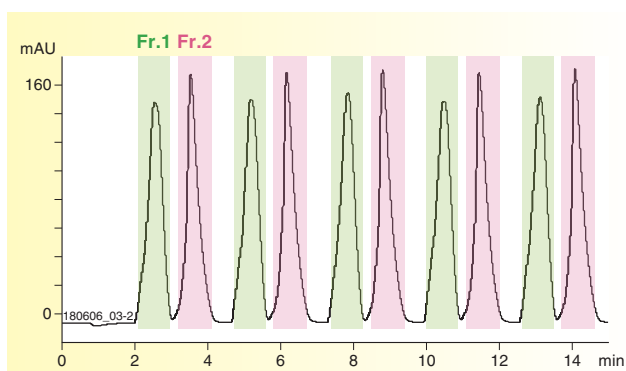
Column : Alcyon SFC CSP Amylose-C Neo  
5  $\mu$ m, 250 X 4.6 mmI.D.  
Eluent : CO<sub>2</sub>/methanol (80/20)  
Flow rate : 3.0 mL/min  
Temperature : 40°C  
Detection : UV 220 nm  
Back pressure : 13.8 MPa (2000 psi)

### HPLC

Column : CHIRAL ART Amylose-C Neo  
5  $\mu$ m, 250 X 4.6 mmI.D.  
Eluent : *n*-hexane/2-propanol (90/10)  
Flow rate : 1.0 mL/min  
Temperature : 25°C  
Detection : UV 230 nm

Faster chiral separation is achieved on SFC compared to HPLC separation due to lower viscosity and larger diffusion coefficient of supercritical fluid.

## Usefulness of purification using SFC



Column : Alcyon SFC CSP Amylose-C Neo  
5  $\mu$ m, 250 X 20 mmI.D.  
Eluent : CO<sub>2</sub>/ethanol (80/20)  
Flow rate : 60 mL/min  
Temperature : 30°C  
Detection : UV at 280 nm  
Back pressure : 15 MPa (2180 psi)  
Injection : 3 mL (20 mg/mL)  
Injected every 2.65 minutes

Alcyon SFC columns show excellent peak shape even on preparative separation. As a result, purification with high purity and high recovery will be achieved. Alcyon SFC columns offer purification with higher efficiency and lower solvent consumption.

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

## Ordering Information -Columns-

## Alcyon SFC CSP : CHIRAL

Particle size (µm)	Column size inner diameter X length (mm)	Product number			
		Amylose-SA	Cellulose-SB	Cellulose-SC	Cellulose-SJ
3	2.1 X 150	KSA99S03-15Q1WTS	KSB99S03-15Q1WTS	KSC99S03-15Q1WTS	KSJ99S03-15Q1WTS
	3.0 X 50	KSA99S03-0503WTS	KSB99S03-0503WTS	KSC99S03-0503WTS	KSJ99S03-0503WTS
	3.0 X 100	KSA99S03-1003WTS	KSB99S03-1003WTS	KSC99S03-1003WTS	KSJ99S03-1003WTS
	3.0 X 150	KSA99S03-1503WTS	KSB99S03-1503WTS	KSC99S03-1503WTS	KSJ99S03-1503WTS
	4.6 X 150	KSA99S03-1546WTS	KSB99S03-1546WTS	KSC99S03-1546WTS	KSJ99S03-1546WTS
5	4.6 X 250	KSA99S03-2546WTS	KSB99S03-2546WTS	KSC99S03-2546WTS	KSJ99S03-2546WTS
	2.1 X 150	KSA99S05-15Q1WTS	KSB99S05-15Q1WTS	KSC99S05-15Q1WTS	KSJ99S05-15Q1WTS
	4.6 X 150	KSA99S05-1546WTS	KSB99S05-1546WTS	KSC99S05-1546WTS	KSJ99S05-1546WTS
	4.6 X 250	KSA99S05-2546WTS	KSB99S05-2546WTS	KSC99S05-2546WTS	KSJ99S05-2546WTS
	10 X 250	KSA99S05-2510WTS	KSB99S05-2510WTS	KSC99S05-2510WTS	KSJ99S05-2510WTS
	20 X 250	KSA99S05-2520WTS	KSB99S05-2520WTS	KSC99S05-2520WTS	KSJ99S05-2520WTS

Particle size (µm)	Column size inner diameter X length (mm)	Product number	
		Amylose-C Neo	Cellulose-C
3	2.1 X 150	KBN99S03-15Q1WTS	KCN99S03-15Q1WTS
	3.0 X 50	KBN99S03-0503WTS	KCN99S03-0503WTS
	3.0 X 100	KBN99S03-1003WTS	KCN99S03-1003WTS
	3.0 X 150	KBN99S03-1503WTS	KCN99S03-1503WTS
	4.6 X 150	KBN99S03-1546WTS	KCN99S03-1546WTS
5	4.6 X 250	KBN99S03-2546WTS	KCN99S03-2546WTS
	2.1 X 150	KBN99S05-15Q1WTS	KCN99S05-15Q1WTS
	4.6 X 150	KBN99S05-1546WTS	KCN99S05-1546WTS
	4.6 X 250	KBN99S05-2546WTS	KCN99S05-2546WTS
	10 X 250	KBN99S05-2510WTS	KCN99S05-2510WTS
	20 X 250	KBN99S05-2520WTS	KCN99S05-2520WTS

\*Inquire us for the Amylose-C

## Alcyon SFC : ACHIRAL

Particle size (µm)	Column size inner diameter X length (mm)	Product number		
		Triart C18	Triart Diol	Triart PFP
5	2.1 X 150	TA12S05-15Q1WTS	TDN12S05-15Q1WTS	TPF12S05-15Q1WTS
	4.6 X 150	TA12S05-1546WTS	TDN12S05-1546WTS	TPF12S05-1546WTS
	4.6 X 250	TA12S05-2546WTS	TDN12S05-2546WTS	TPF12S05-2546WTS

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