SUMICHIRAL™ CORE-SHELL COLUMNS

Core-shell type chiral stationary phase

SUMICHIRAL™ OA-SHELL P1

SCAS Sumika Chemical Analysis Service

6-V0-20190626

Advantages

SUMICHIRAL™ OA-SHELL P1 is our first chiral stationary phase using optical active polymer. It is effective for chiral separation of compounds without amino group or carboxyl group, which are generally difficult to separate with conventional chiral stationary phases. Especially, it shows excellent resolution for aromatic chiral alcohol compounds. Core-shell silica is used as a support and coated with poly (diphenylacetylene) derivative (optically active spiral polymer).

【Advantages of SUMICHIRAL™ OA-SHELL P1】

Chiral stationary phase using core-shell silica support

★ Analysis time could be shortened with conventional HPLC ★

★ Effective for chiral separation of compounds without amino group or carboxyl group ★

★ Easy method development with simple mobile phase compositions ★

★ Excellent durability, lot-to-lot repeatability ★

Unlike full porous particles, the core-shell particle has a non-porous core in the center and a thin porous layer outside of the core.

【Method development 】

SUMICHIRAL™ OA-SHELL P1 makes it easy to set the conditions of mobile phase. The scheme of the general method development is shown in the right figure. For neutral compounds such as aromatic alcohols, it is not usually necessary to add special modifiers. For acidic compounds, add trifluoroacetic acid.

※ Do not use the following solvents as they will cause the column to deteriorate : tetrahydrofuran, 1,2-dichloroethane, chloroform, ethyl acetate, acetone, etc.

Standard mobile phase
n-hexane/2-propanol (95/5)

↓

Change the concentration of 2-propanol and adjust the retention time
(concentration of 2-propanol 0～20%)

↓

Change 2-propanol to ethanol
(concentration of ethanol 0～10%)

↓

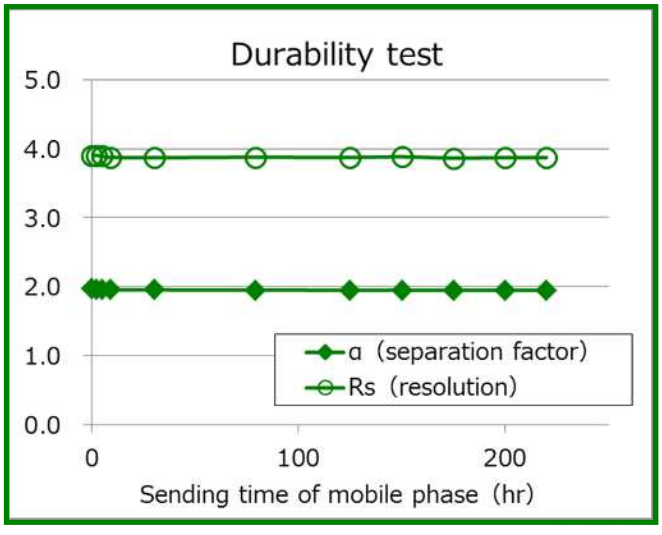
For acidic compounds etc.,
add trifluoroacetic acid
(concentration of trifluoroacetic acid 0.02～0.1%)

【Durability test】

SUMICHIRAL™ OA-SHELL P1 has excellent durability despite the use of optically active polymers as chiral selectors. The mobile phase was continuously fed to the column, and the stability was evaluated under the following conditions. As a result, almost no change was observed in separation factor, resolution, retention time, and column pressure.

<u>Conditions</u>

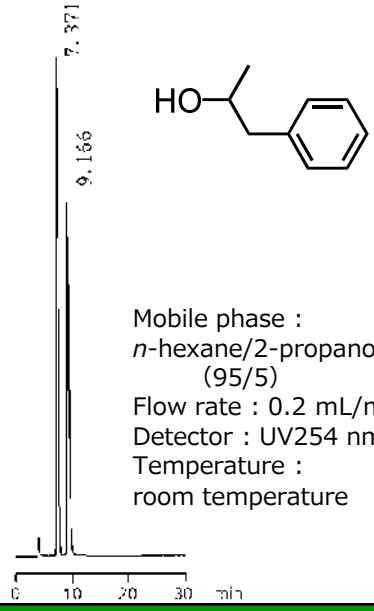
mobile phase : *n*-hexane / ethanol (95/5)
flow rate : 0.2 mL/min detection : UV254 nm
column temperature : 25℃
sample : *trans*-2-phenyl-1-cyclohexanol
10 mg/mL in ethanol



Applications for chiral separation

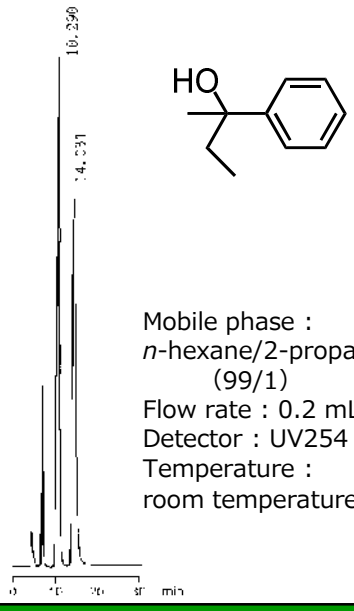
SUMICHIRAL™ OA-SHELL P1　2.6μm, 3.0×150 mm

1-phenyl-2-propanol



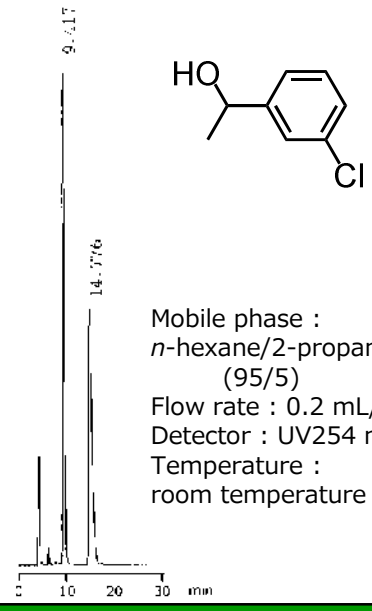
Mobile phase :
n-hexane/2-propanol
(95/5)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

2-phenyl-2-butanol



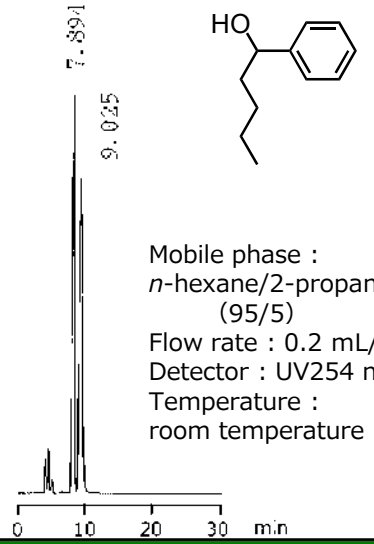
Mobile phase :
n-hexane/2-propanol
(99/1)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

1-(3-chlorophenyl)ethanol



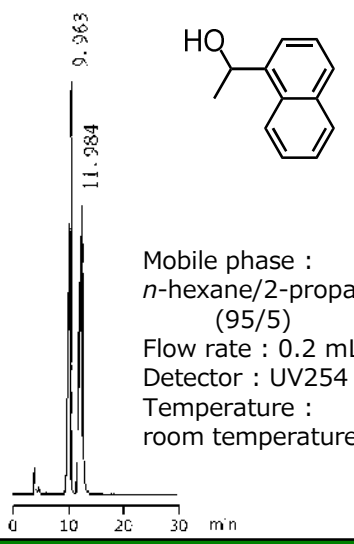
Mobile phase :
n-hexane/2-propanol
(95/5)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

1-phenyl-1-pentanol



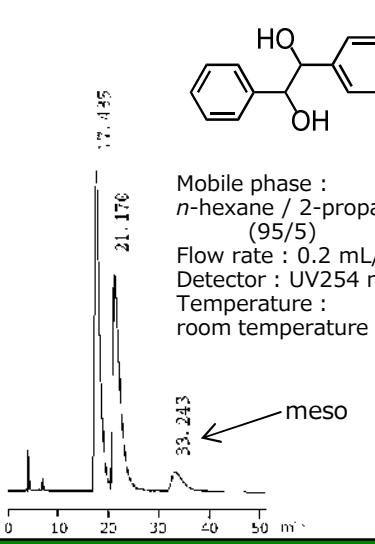
Mobile phase :
n-hexane/2-propanol
(95/5)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

1-(1-naphthyl)ethanol



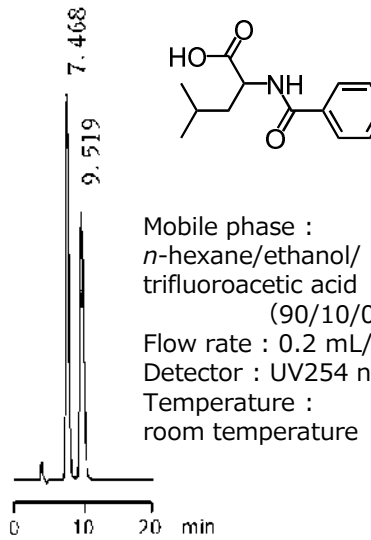
Mobile phase :
n-hexane/2-propanol
(95/5)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

hydrobenzoin



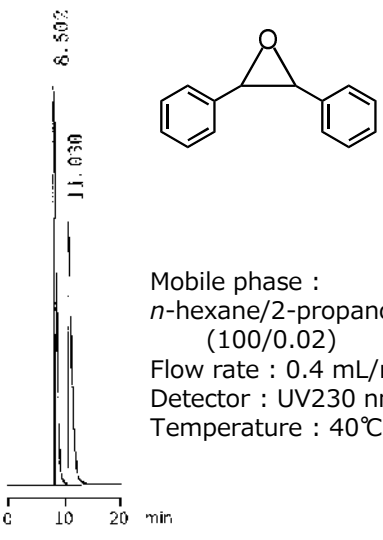
Mobile phase :
n-hexane / 2-propanol
(95/5)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

N-benzoylleucine



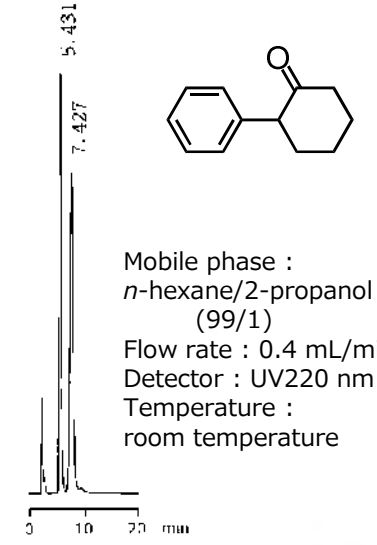
Mobile phase :
n-hexane/ethanol/
trifluoroacetic acid
(90/10/0.1)
Flow rate : 0.2 mL/min
Detector : UV254 nm
Temperature :
room temperature

trans-stilbene oxide



Mobile phase :
n-hexane/2-propanol
(100/0.02)
Flow rate : 0.4 mL/min
Detector : UV230 nm
Temperature : 40℃

2-phenylcyclohexanone



Mobile phase :
n-hexane/2-propanol
(99/1)
Flow rate : 0.4 mL/min
Detector : UV220 nm
Temperature :
room temperature

Ordering information

【Specification of SUMICHIRAL™ OA-SHELL P1】

chiral selector	core-shell silica support		
	particle size	pore size	specific surface area
poly (diphenylacetylene) derivative	2.6 μm	250～280 Å	40～60 m^2/g

【List of SUMICHIRAL™ OA-SHELL P1】

particle size (μm)	internal diameter (mm)	column length (mm)	P/N
2.6	3.0	50	C-SP01-3005W
		100	C-SP01-3010W
		150	C-SP01-3015W

【List of guard filter】

For column protection, we recommend porous glass guard filter "SUMIPAX™ Filter PG-ODS for semi-micro ".

product name	contents	P/N
SUMIPAX™ Filter Starter kit PG-ODS for semi-micro	SUS holder 1 pcs filter 1 pcs	GMODS001
SUMIPAX™ Filter PG-ODS Replacement filter for semi-micro	replacement filter 3 pcs	GMODS003
SUMIPAX™ Holder for semi-micro	SUS holder 1 pcs	GMACC001
Connection kit for semi-micro	ferrule screw 2 pcs SUS tube 1 pcs	GMACC002

【Column selection】

There are many kinds of SUMICHIRAL™ series columns, so it is important to select the optimum column depending on the target compounds. Since you can use the database of chiral applications on our website and search application data from compound names and functional group information, please refer to the column selection.

※ SUMICHIRAL™ and SUMIPAX™ are registered trademarks in Japan.
※ For prices and column sizes other than the above, please contact our distributor.

Sumika Chemical Analysis Service, Ltd.

Client Service Headquarters Materials Division
Column Sales Team

1-135, Kasugade-Naka 3-chome, Konohana-ku,
Osaka, 554-0022, Japan
TEL +81-6-6466-5243 FAX +81-6-6466-5255

https://www.scas.co.jp

<Distributor>

MZ-Analysentechnik GmbH
Barcelona-Allee 17 • D-55129 Mainz
Tel +49 6131 880 96-0
Fax +49 6131 880 96-20
e-mail: info@mz-at.de
www.mz-at.de

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