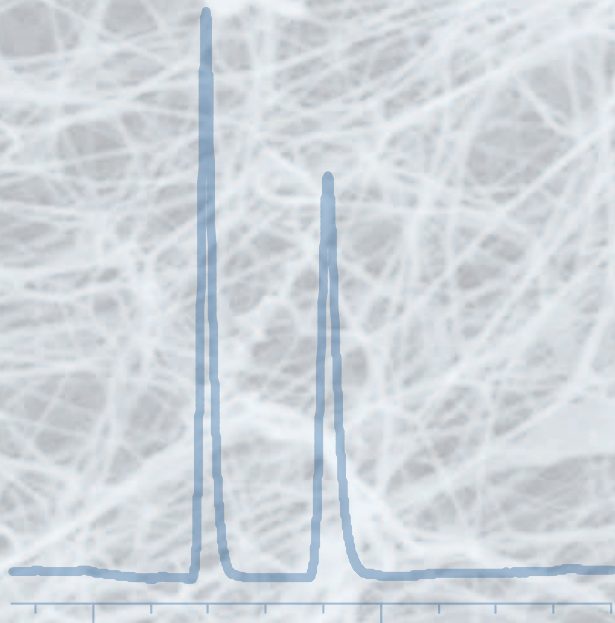


Chromatography



$\alpha\delta$

NUCLEOCEL

a new HPLC column family of chiral stationary phases

MACHERY-NAGEL

www.mn-net.com





NUCLEOCEL

In many cases it is not possible to purify chiral compounds by kinetic resolution methods or crystallization. Today liquid chromatographic methods are an efficient way to separate racemates in their pure enantiomers.

MACHEREY-NAGEL introduces NUCLEOCEL as a new column family of chiral stationary phases (CSPs). The chiral selector is either based on a modified cellulose (NUCLEOCEL *DELTA*) or amylose (NUCLEOCEL *ALPHA*) derivative, coated on a high quality silica support.

Both columns provide excellent enantioselective properties for a large number of known chiral molecules, which can be separated with high α -values.

➤ **NUCLEOCEL columns are powerful tools to separate the majority of all known racemic compounds with outstanding resolution. Avoid of time-consuming and costly column screening.**

➤ **NUCLEOCEL columns are durable and allow for longer use without loss in performance.**

➤ **As many samples can be directly injected without tedious derivatizing procedures, NUCLEOCEL columns help to make method development easy.**

NUCLEOCEL *DELTA*

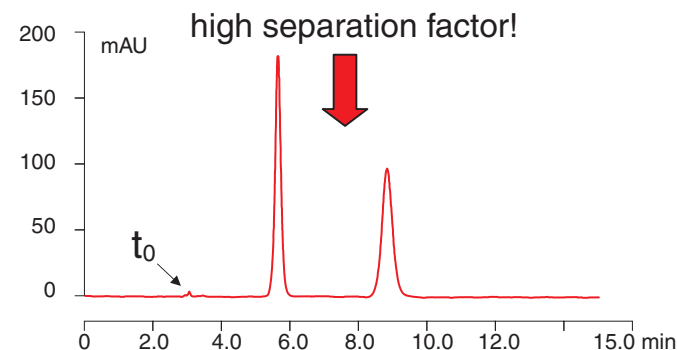
The chiral selector of NUCLEOCEL *DELTA* is cellulose-tris(3,5-dimethylphenyl)-carbamate. Almost the entire number of hydroxyl groups of the native cellulose have been transferred to carbamoyl derivatives by a stringently controlled synthetic process. Various polar and π - π interactions combined with the supramolecular polysaccharide structure are involved in the chiral recognition mechanisms.

NUCLEOCEL *DELTA* is intended for column runs in normal phase mode typically using mixtures of heptane/propanol in the mobile phase. NUCLEOCEL *DELTA-RP* has been particularly designed for use under reversed phase conditions either in polar organic mode or with eluents containing high concentrations of chaotropic salts such as perchlorate. Both column types are available in a standard (10 μ m) and high resolution (5 μ m) version.

Derivative

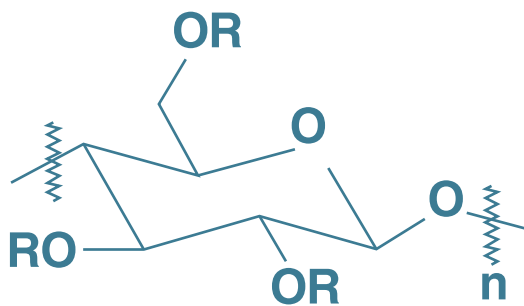
cellulose-tris-3,5-(dimethylphenyl)-carbamate

trans-stilben-oxide
1 ml/min
22°C
UV, 240nm
n-heptane /
2-propanol
(9:1 v/v)

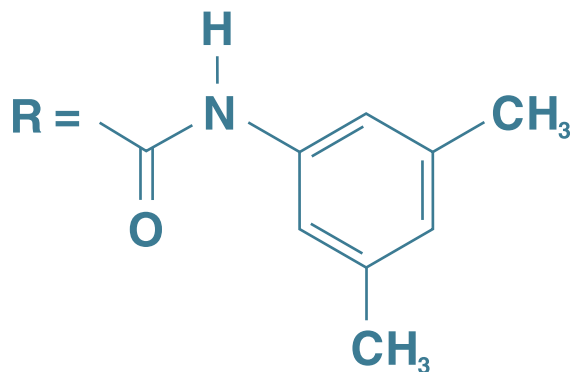


NUCLEOCEL *DELTA*
 $\alpha = 2.11$; $R_s = 5.7$; 35 bar

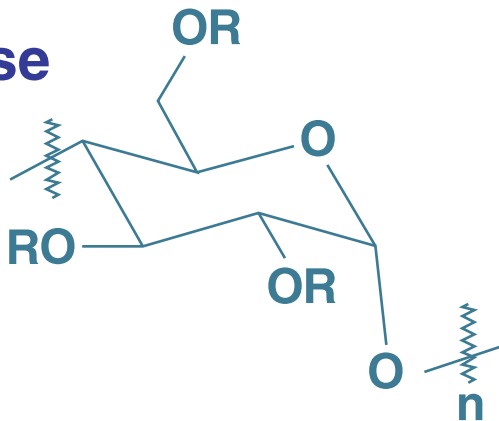
$\alpha\delta$



Cellulose



Amylose



NUCLEOCEL ALPHA

In addition to the cellulose-based NUCLEOCEL *DELTA* MACHEREY-NAGEL now launches two new amylose-based chiral stationary phases:

NUCLEOCEL *ALPHA S* and NUCLEOCEL *ALPHA RP-S*

The 5 μm silica gel particles are coated with amylose-tris-3,5-(dimethylphenyl)-carbamate. The small particles provide high separation efficiencies and allow the use of shorter (150 mm) columns for faster separations. However certainly the unsurpassed resolution for the enantiomeric separation of a wide variety of racemic compounds is the key feature of these columns. As well as their cellulose counterparts NUCLEOCEL *ALPHA* columns are available for normal and reversed phase applications.

Derivative

amylose-tris-3,5-(dimethylphenyl)-carbamate

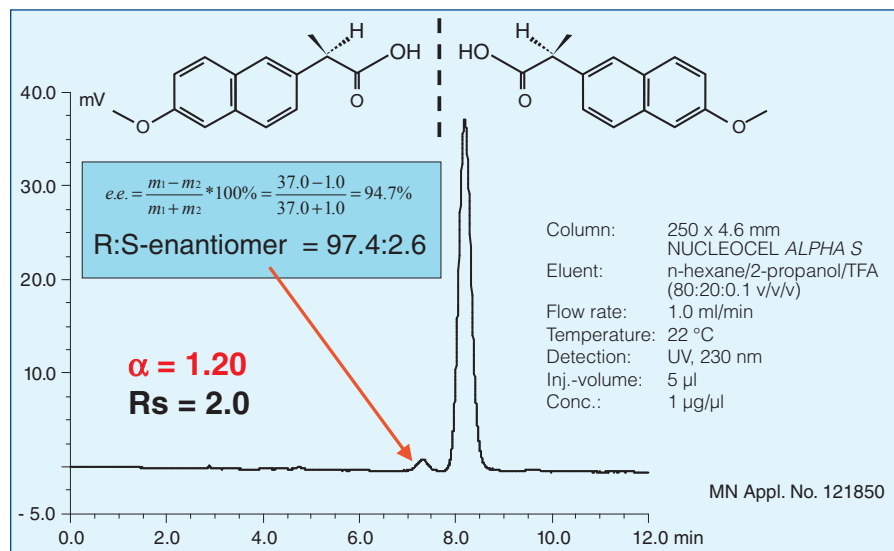
Up-scaling

Moreover, NUCLEOCEL polysaccharide based CSPs offer high loading capacities and are an ideal tool for scale-up purposes. NUCLEOCEL columns are extremely robust and endure hundreds of separation cycles without any loss in performance. The stable silica matrix protects the coated polysaccharide under high flow rates and exhibits an overall pressure stability up to 2000 psi (~ 150 bar).





NUCLEOCEL



Enantiomeric excess: naproxen

Quality control

All produced NUCLEOCEL lots have to undergo tight QC procedures, which only can be guaranteed by a silica manufacturer with respect to extensive process control up from the start of silica particle synthesis.

An instruction manual is enclosed illustrating the correct installation, usage and storage of the columns. All solvents which are not compatible to the CSP are listed to prevent damage by the use of wrong mobile phase systems.

Application range:

- pharmaceutical active compounds
- chiral pollutants, e.g. herbicides, PCBs
- chiral compounds in foodstuffs, dyes, preservatives
- chiral catalysts and bioorganic compounds



Applications

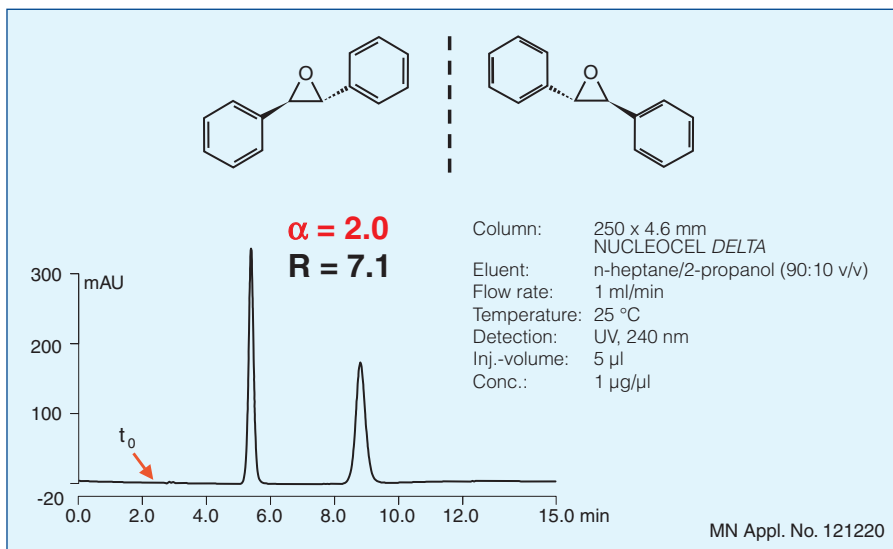


Fig. 1 *trans*-stilben oxide

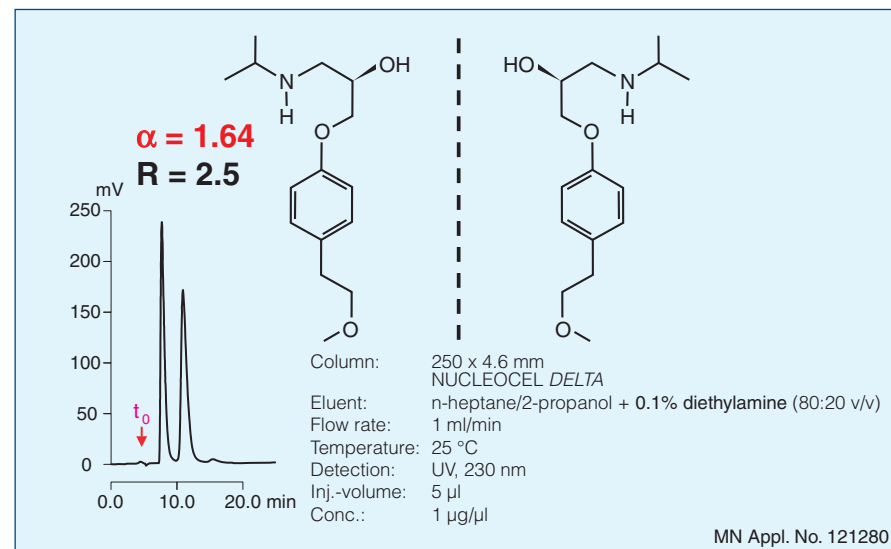


Fig. 3 metoprolol

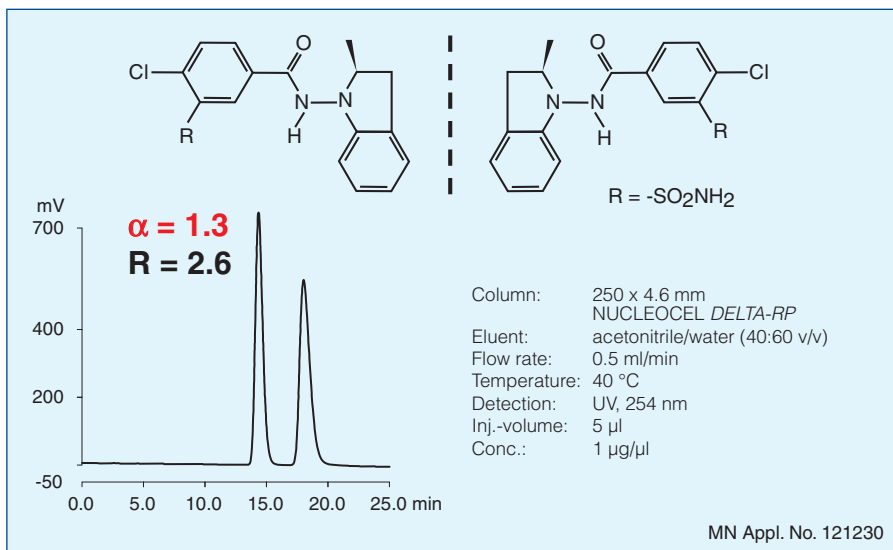


Fig. 2 indapamide

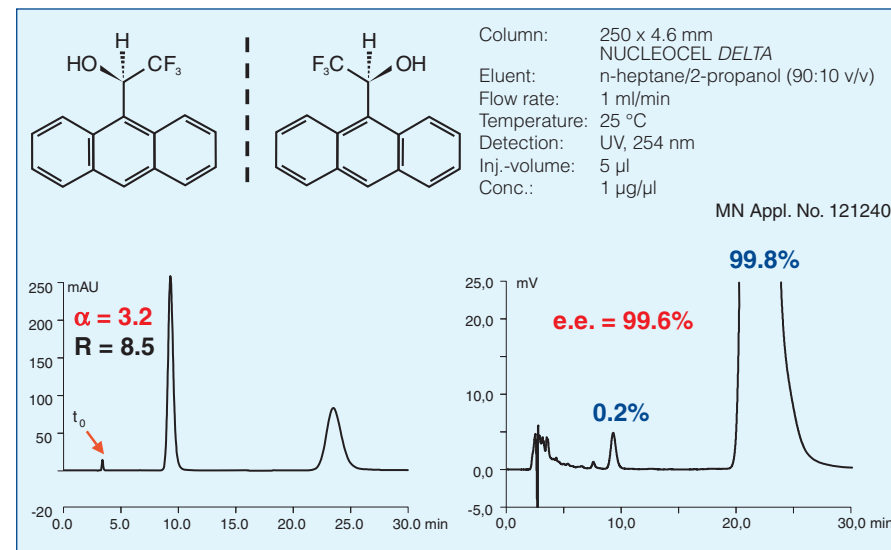


Fig. 4 1,1,1-trifluor-(9-anthryl)ethanol

Applications

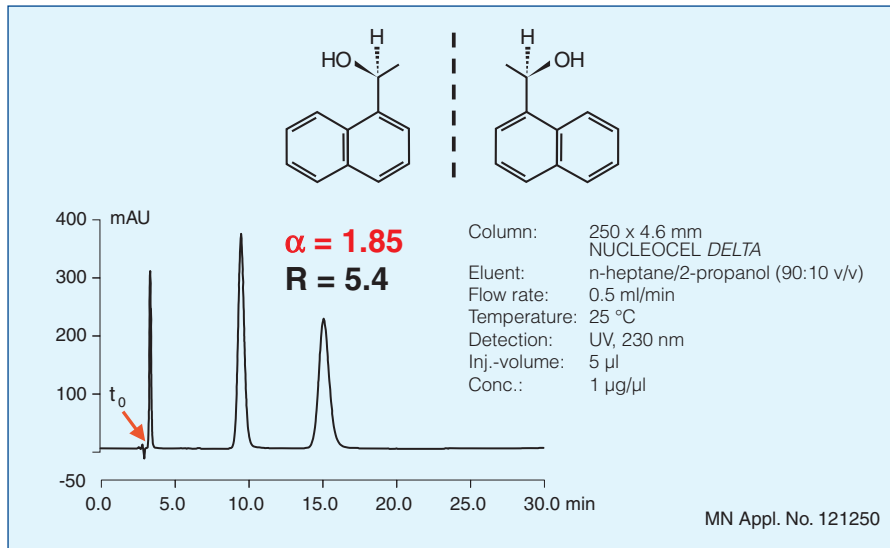


Fig. 5 1-(1-naphthyl)ethanol

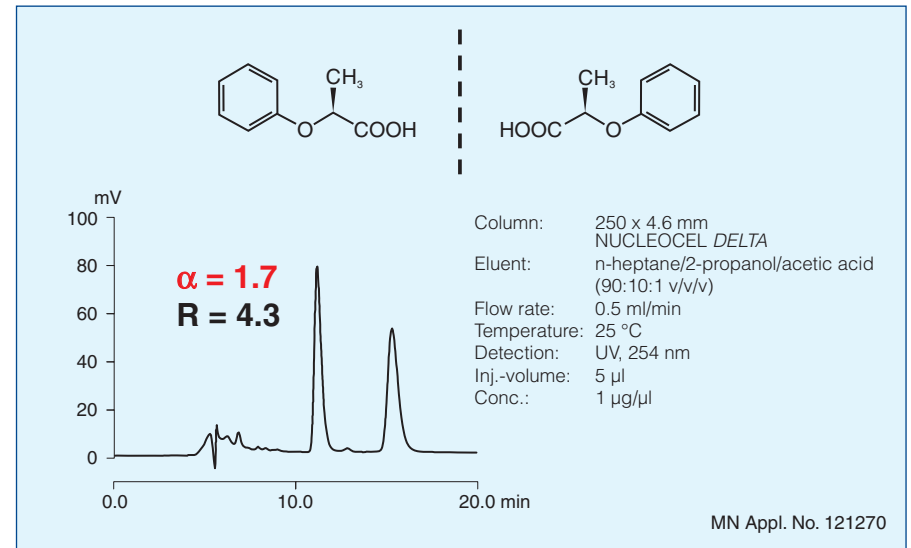


Fig. 7 2-phenoxy-propionic acid

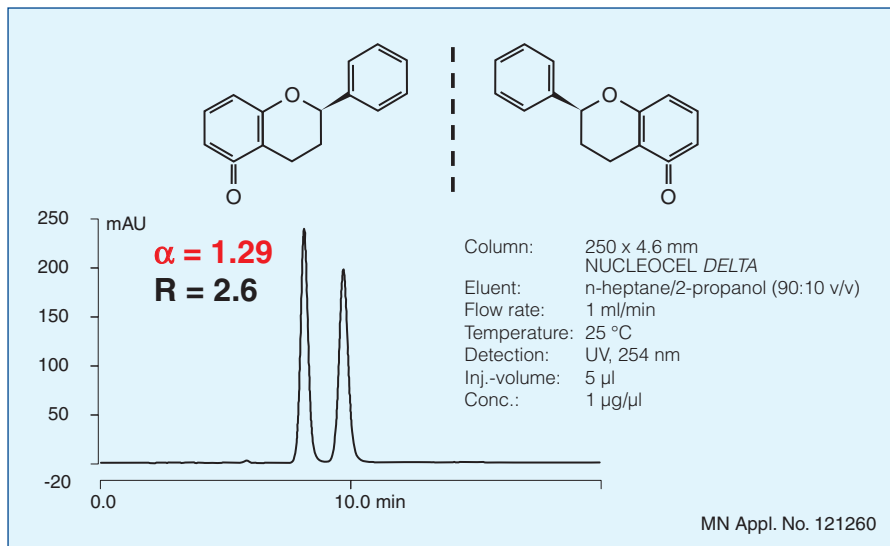


Fig. 6 flavanone

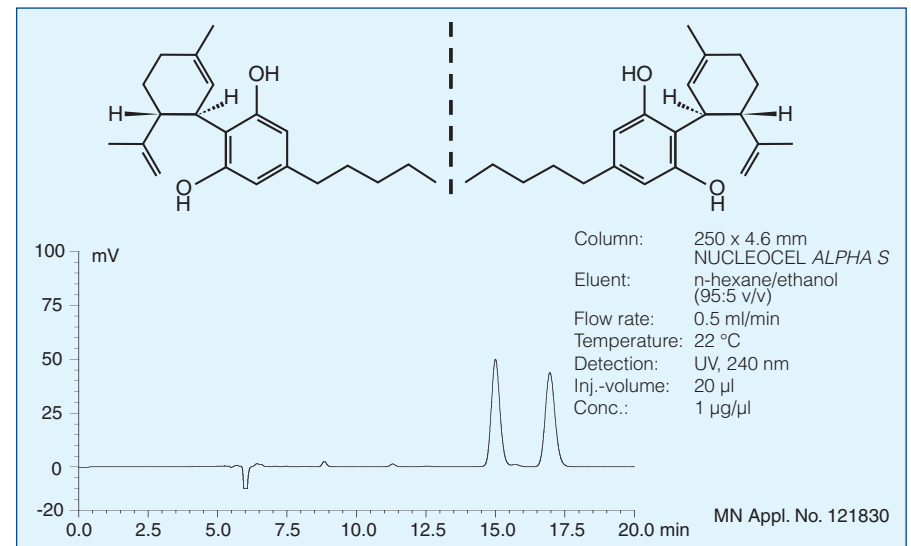


Fig. 8 cannabidiol



Applications

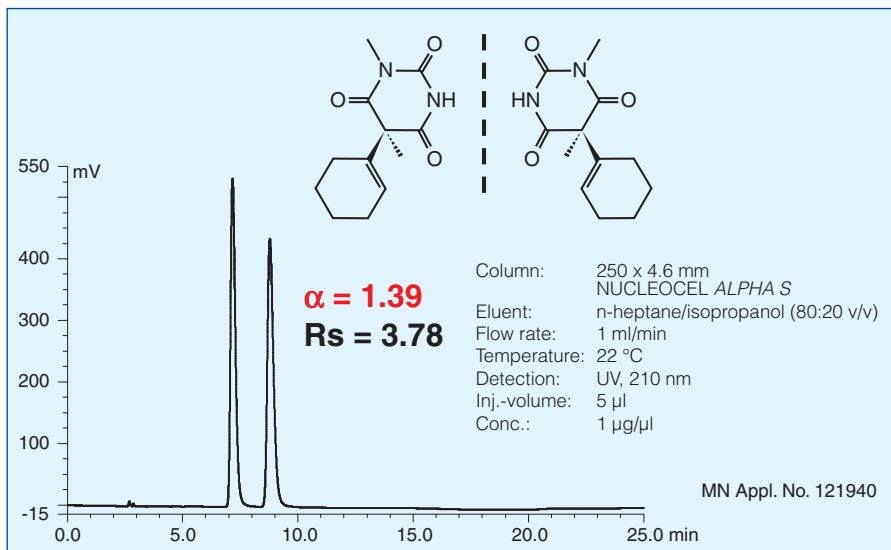


Fig. 9 hexobarbital

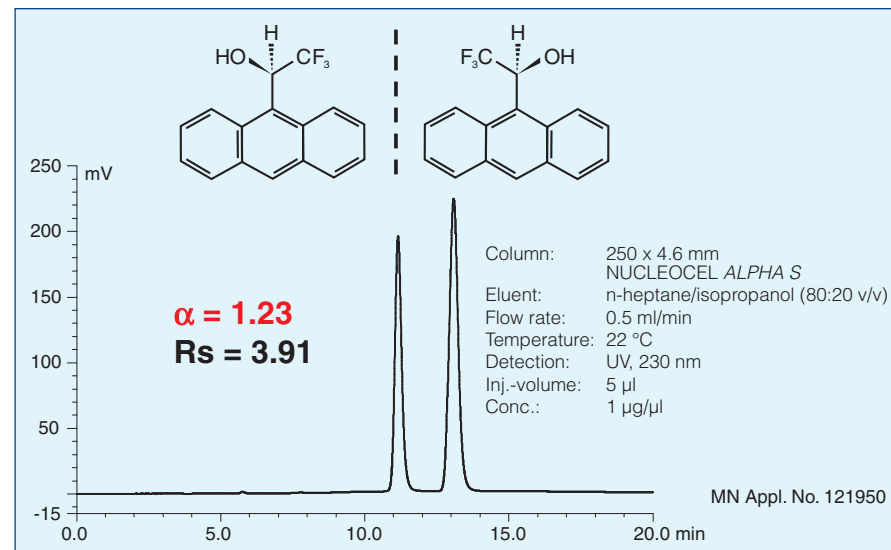


Fig. 11 2,2,2-trifluor-(9-anthryl)ethanol

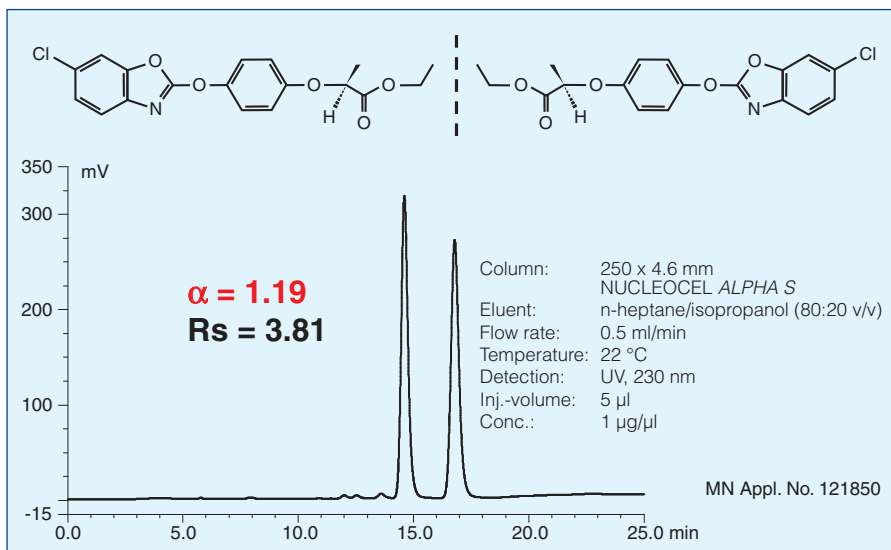


Fig. 10 fenoxprop-ethyl

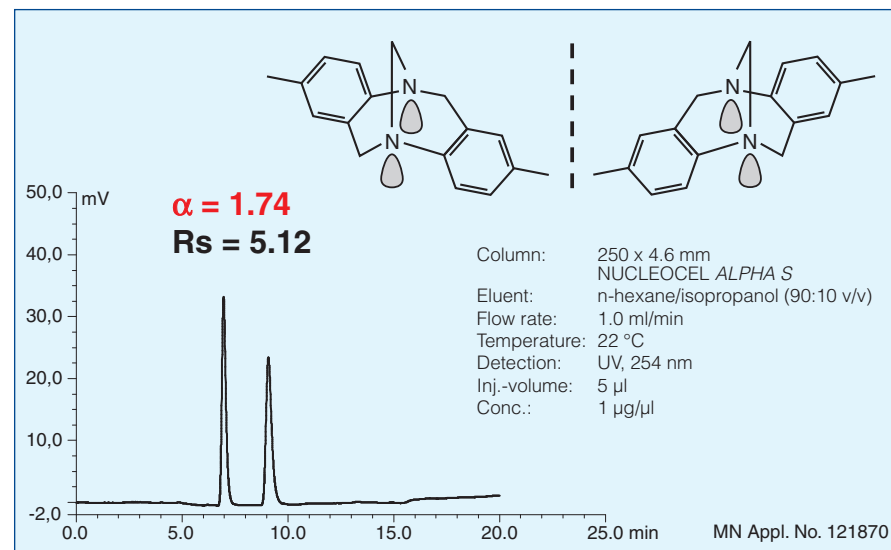


Fig. 12 Troeger's base



Applications

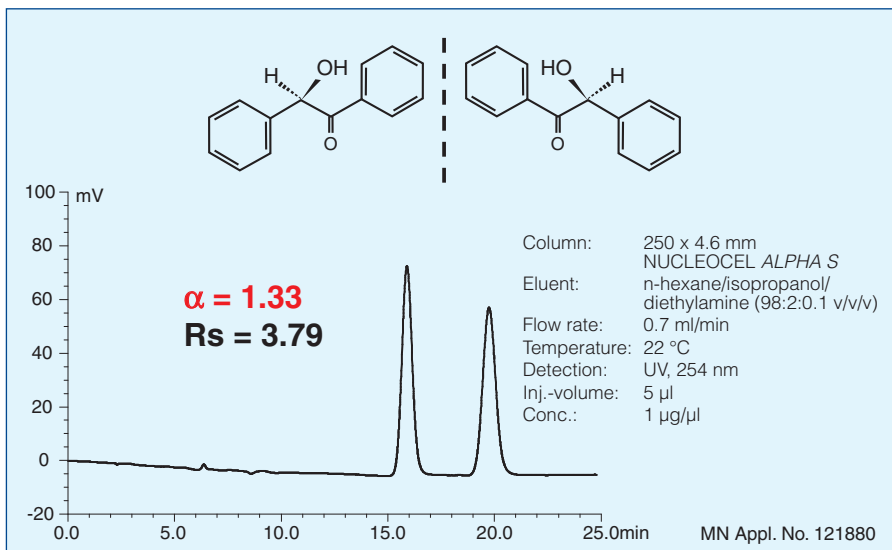


Fig. 13 benzoine

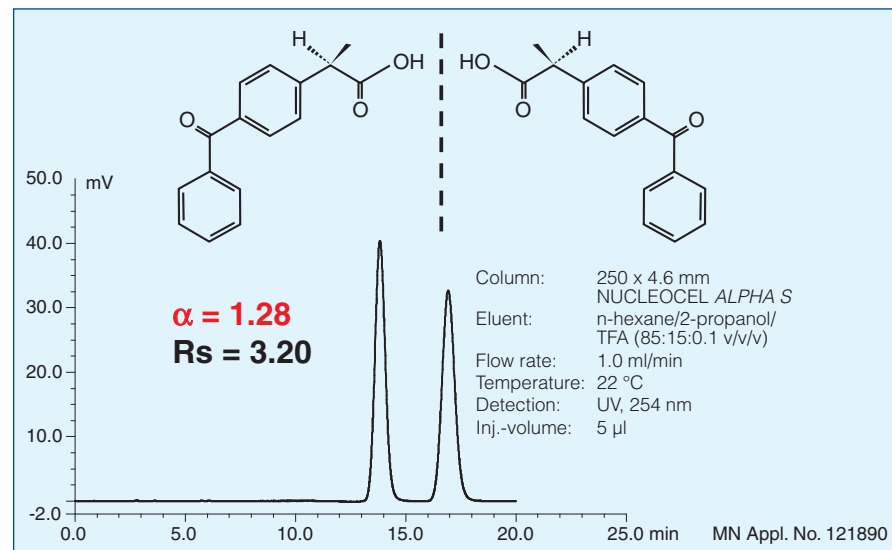


Fig. 15 ketoprofen

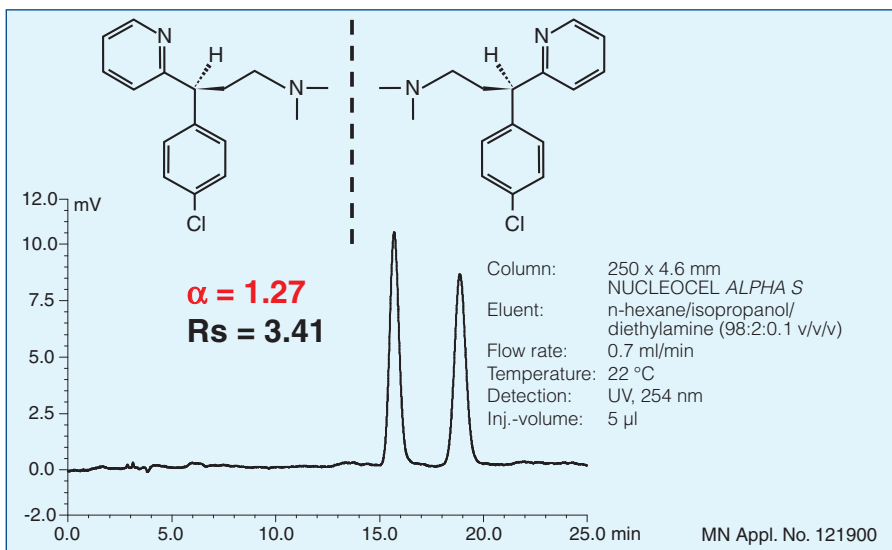


Fig. 14 chlorpheniramine

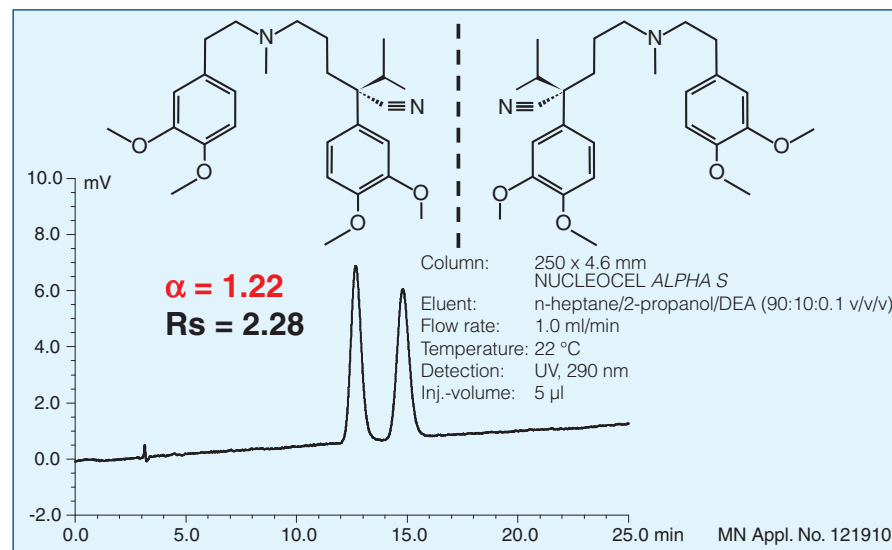


Fig. 16 verapamil

Applications

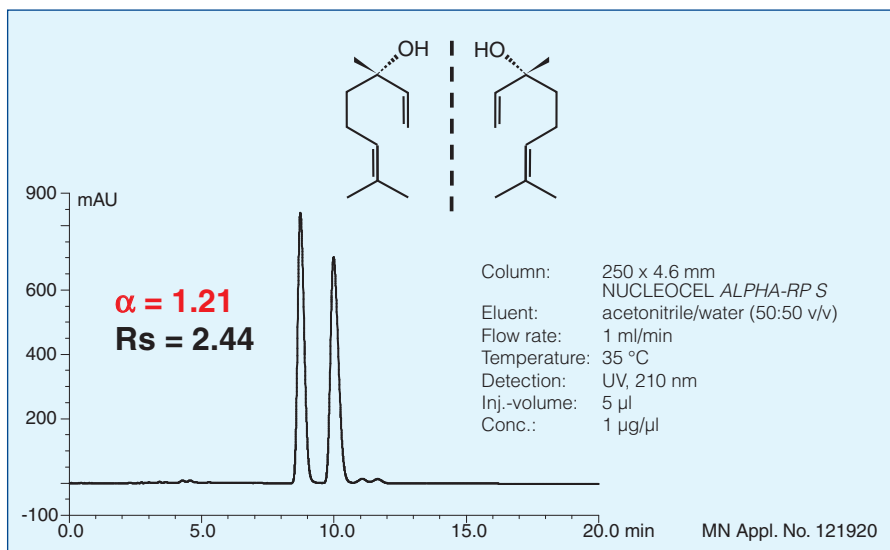


Fig. 17 linalool

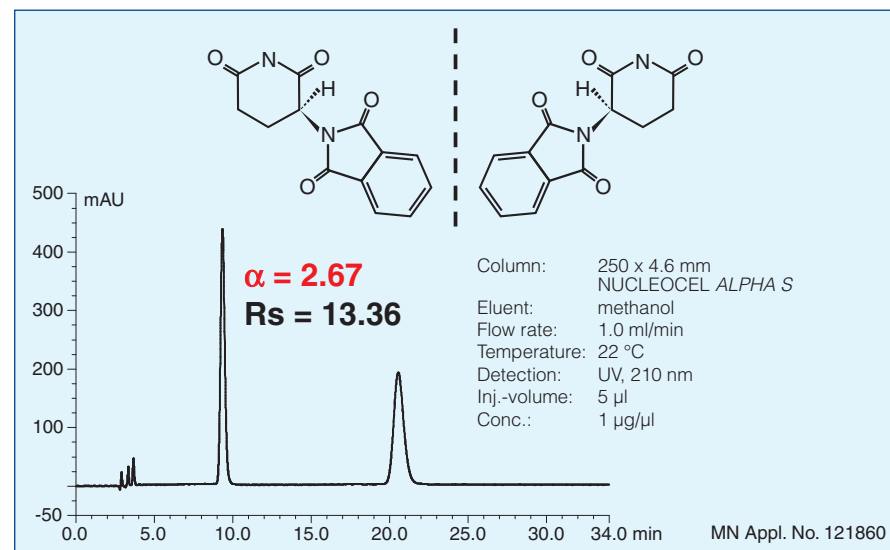


Fig. 19 thalidomid

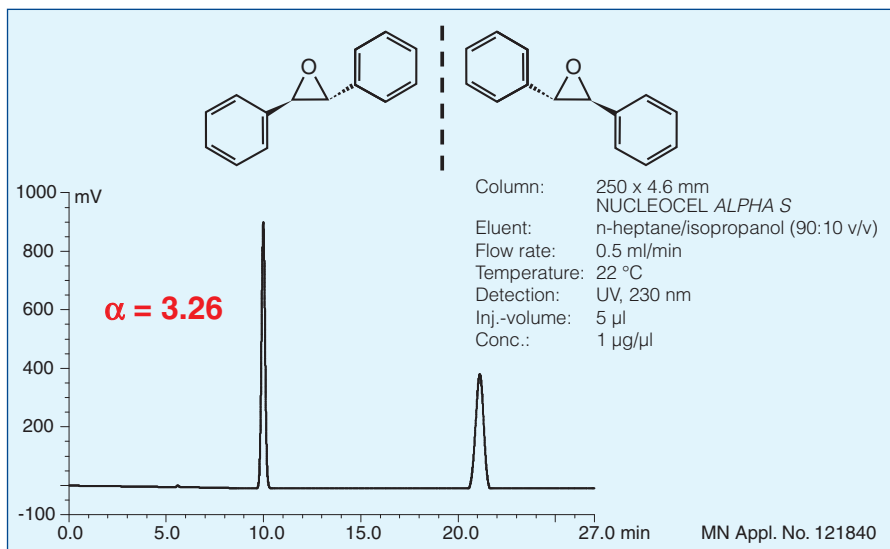


Fig. 18 trans-stilben oxide

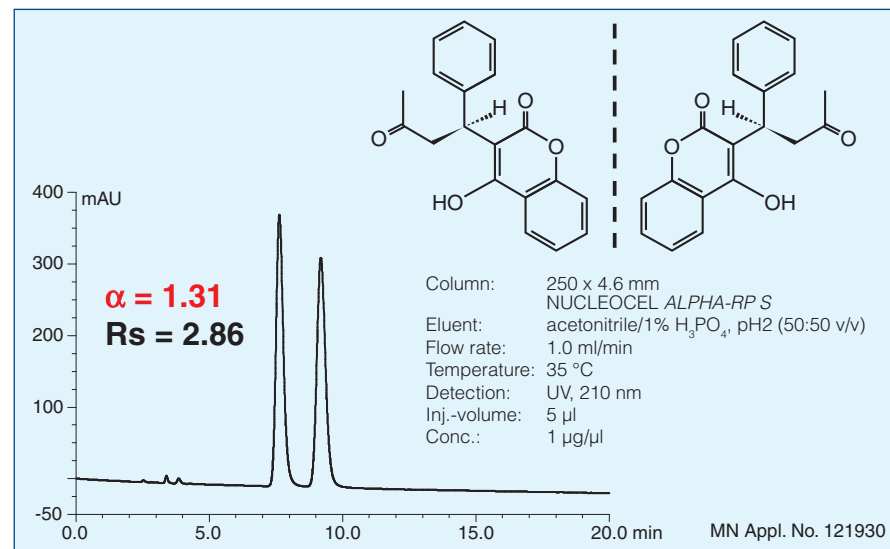


Fig. 20 wafarin

Ordering information

Length	Cat. No. 250 mm	Cat. No. 150 mm	Cat. No. Guard columns ¹⁾
NUCLEOCEL ALPHA S (5 µm)			
Eluent in column: n-heptane/isopropanol 90/10, EC columns (standard columns)			
4.6 mm ID	720 645.46	720 644.46	
Guard columns ¹⁾			
4 mm ID			721 000.40
NUCLEOCEL ALPHA-RP S (5 µm)			
Eluent in column: acetonitrile/water 50/50, EC columns (standard columns)			
4.6 mm ID	720 655.46	720 654.46	
Guard columns ¹⁾			
4 mm ID			721 001.40
NUCLEOCEL DELTA S (5 µm)			
Eluent in column: n-heptane/2-propanol 90/10, EC columns (standard columns)			
4.6 mm ID	720 445.46	720 446.46	
Guard columns ¹⁾			
4 mm ID			721 002.40
NUCLEOCEL DELTA (10 µm)			
Eluent in column: n-heptane/2-propanol 90/10, EC columns (standard columns)			
4.6 mm ID	720 444.46		
Guard columns ¹⁾			
4 mm ID			721 007.40
NUCLEOCEL DELTA-RP S (5 µm)			
Eluent in column: acetonitrile/water 40/60, EC columns (standard columns)			
4.6 mm ID	720 450.46	720 451.46	
Guard columns ¹⁾			
4 mm ID			721 003.40
NUCLEOCEL DELTA-RP (10 µm)			
Eluent in column: acetonitrile/water 40/60, EC columns (standard columns)			
4.6 mm ID	720 449.46		
Guard columns ¹⁾			
4 mm ID			721 008.40

¹⁾ EC guard column adaptor (cat. no. 721 359) required.

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MACHEREY-NAGEL

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6-8 · D-52355 Düren · Germany

Germany
and international:
Tel.: +49 (0) 24 21 96 90
Fax: +49 (0) 24 21 96 91 99
e-mail: sales-de@mn-net.com

Switzerland:
MACHEREY-NAGEL AG
Tel.: +41 (0) 62 388 55 00
Fax: +41 (0) 62 388 55 05
e-mail: sales-ch@mn-net.com

France:
MACHEREY-NAGEL EURL
Tel.: +33 (0) 3 88 68 22 68
Fax: +33 (0) 3 88 51 76 88
e-mail: sales-fr@mn-net.com

USA:
MACHEREY-NAGEL Inc.
Tel.: +1 484 821 0984
Fax: +1 484 821 1272
e-mail: sales-us@mn-net.com

