Enantiomers Analysis

Cyclodextrin Columns for Analyzing Many Chiral Compounds

By adding β or γ cyclodextrin to our bonded Rtx®-1701 stationary phase, we greatly enhance overall utility and column lifetime for our chiral columns, compared to columns that have pure cyclodextrin stationary phases. Separations of more than one hundred chiral compounds have been achieved using our unique DEX columns, and our columns continue to demonstrate stability after hundreds of temperature program cycles. Refer to the applications section of this catalog for examples, or call our Technical Service chemists or your Restek representative for assistance in matching a column to your chiral analysis.

Rt™-βDEXm Columns (fused silica)

(permethylated beta cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13100
0.32mm	0.25	40 to 230°C	13101

Uses: General purpose chiral phase with many published applications.

Rt™-βDEXsm Columns (fused silica)

(2,3-di-O-methyl-6-O-*tert*-butyl dimethylsilyl beta cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13105
0.32mm	0.25	40 to 230°C	13104

Uses: Excellent column for most chiral compounds in essential oils.

Rt™-βDEXse Columns (fused silica)

(2,3-di-O-ethyl-6-O-*tert*-butyl dimethylsilyl beta cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13107
0.32mm	0.25	40 to 230°C	13106

Uses: Similar in performance to Rt™-βDEXsm but provides better resolution for limonene, linalool, linalyl acetate, ethyl-2-methylbutyrate, 2,3-butane diol, and styrene oxides.

Rt™-βDEXsp Columns (fused silica)

(2,3-di-O-propyl-6-O-*tert*-butyl dimethylsilyl beta cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13111
0.32mm	0.25	40 to 230°C	13110

Uses: Often useful in dual-column configurations, with the Rt™-βDEXsm column, for complex enantiomeric separations.

Rt™-βDEXsa Columns (fused silica)

(2,3-di-acetoxy-6-O-*tert*-butyl dimethylsilyl beta cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13109
0.32mm	0.25	40 to 230°C	13108

Uses: Unique selectivity for esters, lactones, and other fruit flavor components.

Rt™-βDEXcst Columns (fused silica)

(Proprietary cyclodextrin material doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13103
0.32mm	0.25	40 to 230°C	13102

Uses: Proprietary stationary phase, developed specifically for the fragrance industry. Also used for pharmaceutical applications.

Rt™-γDEXsa Columns (fused silica)

(2,3-di-acetoxy-6-O-*tert*-butyl dimethylsilyl gamma cyclodextrin doped into 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter
0.25mm	0.25	40 to 230°C	13113
0.32mm	0.25	40 to 230°C	13112

Uses: Larger organic molecules. Also useful for flavor compounds in fruit juices.

free literature

A Guide to the Analysis of Chiral Compounds by GC

Many example chromatograms in our 24-page chiral analysis guide will help you find the best chiral columns for your applications.

Download your free copy from www.restek.com

Technical Guide
lit. cat.# 59889

please note

Application-specific chiral column kits are available! See **page 62**.

free literature

Grape Flavor Analysis, Using an Rt™-γDEXsa GC Column

Download your free copy from www.restek.com.

Applications Note
lit. cat.# 59553

GC Analysis of Chiral Flavor Compounds in Apple Juices, Using Rt™-βDEXsm and Rt™-βDEXse Columns

Download your free copy from www.restek.com.

Applications Note
lit. cat.# 59546

Doug Smith
R&D Technician
10+ years of service!

Enantiomers Analysis

Convenient chiral column kits, based on sample type. Enantiomeric profile and confirmational identification of individual chiral compounds.

- Broad range of columns and selectivities.
- Rugged, highly stable columns.
- Extended column lifetime.
- Convenience and cost savings.

For phase descriptions, or to order columns separately, see page 61.

Pharmaceutical Chiral Column Kits

(fused silica)

Dimensions & Columns	cat.#
30m, 0.25mm ID, 0.25µm Rt™-βDEXcst & Rt™-βDEXsm columns	13190
30m, 0.32mm ID, 0.25µm Rt™-βDEXcst & Rt™-βDEXsm columns	13191

Environmental Chiral Column Kits

(fused silica)

Dimensions & Columns	cat.#
30m, 0.25mm ID, 0.25µm Rt™-βDEXcst & Rt™-βDEXsm columns	13192
30m, 0.32mm ID, 0.25µm Rt™-βDEXcst & Rt™-βDEXsm columns	13193

Juices Chiral Column Kits

(fused silica)

Dimensions & Columns	cat.#
30m, 0.25mm ID, 0.25µm Rt™-βDEXse, Rt™-βDEXsm & Rt™-γDEXsa columns	13194
30m, 0.32mm ID, 0.25µm Rt™-βDEXse, Rt™-βDEXsm & Rt™-γDEXsa columns	13195

Essential Oils Chiral Column Kits

(fused silica)

Dimensions & Columns	cat.#
30m, 0.25mm ID, 0.25µm Rt™-βDEXsm, Rt™-βDEXse, Rt™-βDEXsa, & Rt™-βDEXsp columns	13196
30m, 0.32mm ID, 0.25µm Rt™-βDEXsm, Rt™-βDEXse, Rt™-βDEXsa, & Rt™-βDEXsp columns	13197

please **note**

Application-specific chiral column kits offer convenience and cost savings.

tech tip

Chiral selectivity improves significantly by realizing lower elution temperatures. This can be achieved by:
Faster linear velocities (80cm/sec.) with hydrogen carrier gas.

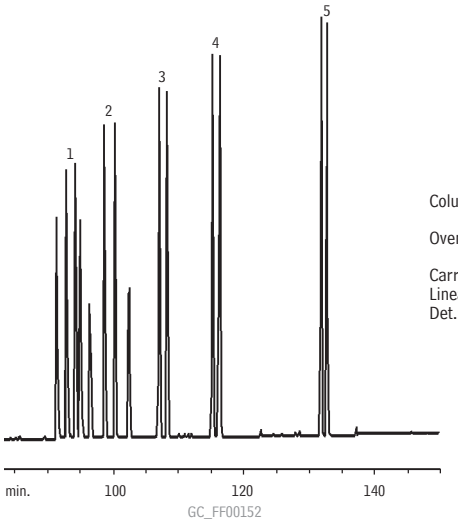
Slower temperature ramp rates (1–2°C/min.).

Appropriate minimum operating temperature (40 or 60°C).

On-column concentrations of 50ng or less.

Table of Contents for
Applications
see **pages 518-519**

Complex γ-lactones mix resolved on an Rt™-βDEXcst column.



1. (+/-)γ-heptalactone
2. (+/-)γ-octalactone
3. (+/-)γ-nonalactone
4. (+/-)γ-decalactone
5. (+/-)γ-dodecalactone

Column:	Rt™-βDEXcst, 30m, 0.32mm ID, 0.25µm (cat.# 13102)
Oven temp.:	60°C (hold 1 min.) to 200°C @ 1°C/min.
Carrier gas:	hydrogen
Linear velocity:	40cm/sec. set @ 60°C
Det.:	FID @ 220°C