

Food Testing Solutions

for GC and HPLC/UHPLC

- Repeatable
- Faster Separations
- Accurate Results

See Inside!

- Sugars, Vitamins, & Fats
- On-demand Webinars
- Technical & Application Library

 **phenomenex**[®]
...breaking with traditionSM

 www.phenomenex.com/Food

Sugars, Carbohydrates, and Organic Acids

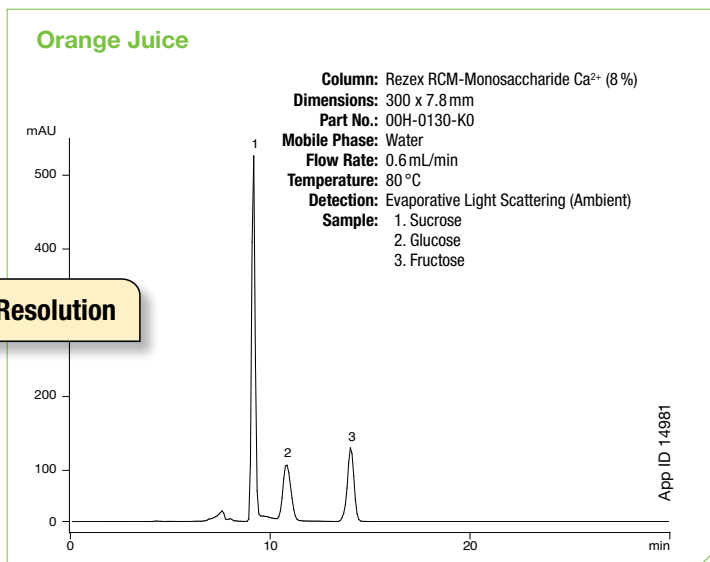
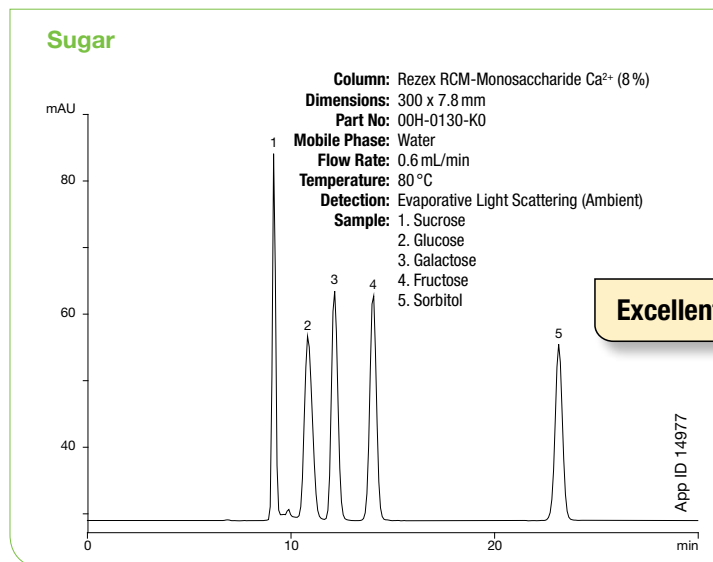
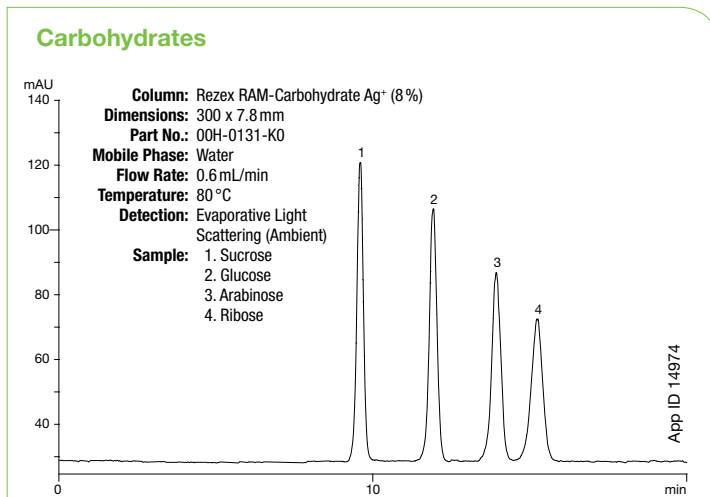
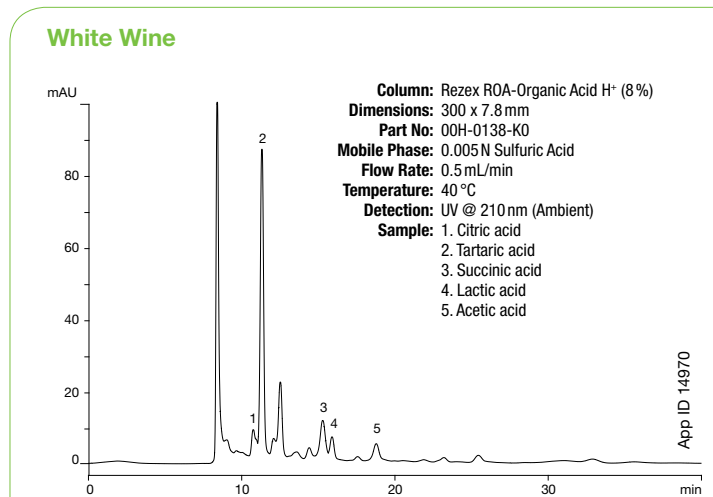


REZEX™

HPLC Ion-Exclusion Columns

Experience the Performance Advantage

Rezex HPLC ion-exclusion columns achieve reproducible and accurate separations based on multiple modes of interaction.



Excellent Resolution

Column for your Application

Utilize different ionic forms to achieve the best resolution.

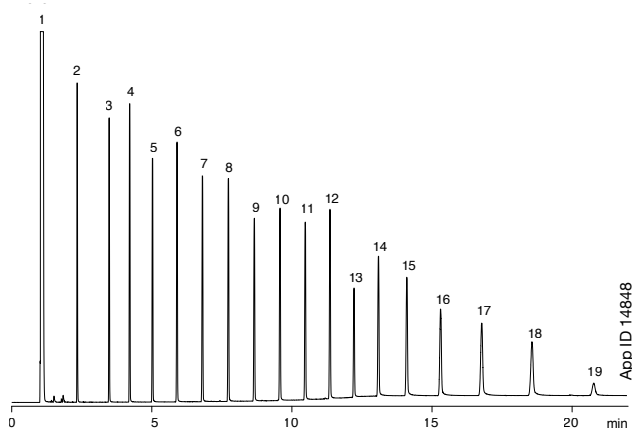
	Description	Applications
(L19 packing)*	8% cross-linked resin CALCIUM ionic form	Monosaccharides and sugar alcohols from sweeteners and corn and cane sugars. Di, tri, and tetra saccharides
(L17 packing)*	8% cross-linked resin HYDROGEN ionic form	Monosaccharides in combination with organic acids, fatty acids, alcohols, ketones, neutral compounds, or inorganic salts
	8% cross-linked resin SILVER ionic form	Selectivity complementary to other Rezex column types
	4% cross-linked resin SILVER ionic form	High resolution of oligosaccharides up to 18 degrees of polymerization (Dp)
	4% cross-linked resin SODIUM ionic form	High resolution of oligosaccharides
(L34 packing)*	8% cross-linked resin LEAD ionic form	Monosaccharides and sugar alcohol analysis. Cellobiose, glucose, xylose, arabinose, mannose and other cellulose products
(58 packing)*	8% cross-linked resin SODIUM ionic form	For matrices which contain high concentration of inorganic sodium, i.e. molasses
(2 packing)*	8% cross-linked resin HYDROGEN ionic form	Organic acids alone or in combination with carbohydrates, alcohols, fatty acids, or neutral compounds; Amino sugars; ethanol, acetic acid, glycerol, and standard alcohol mixtures
	8% cross-linked resin HYDROGEN ionic form	Rapid screening of fruit quality; ethanol, acetic acid, glycerol, and standard alcohol mixtures
ols (L19 packing)*	8% cross-linked resin CALCIUM ionic form	For sugar analysis according to the USP procedures



Engineered for Superior GC Performance

Zebtron GC columns are INDIVIDUALLY QC tested, provide low bleed performance, and long column lifetimes for challenging food and beverage applications.

Free Fatty Acids

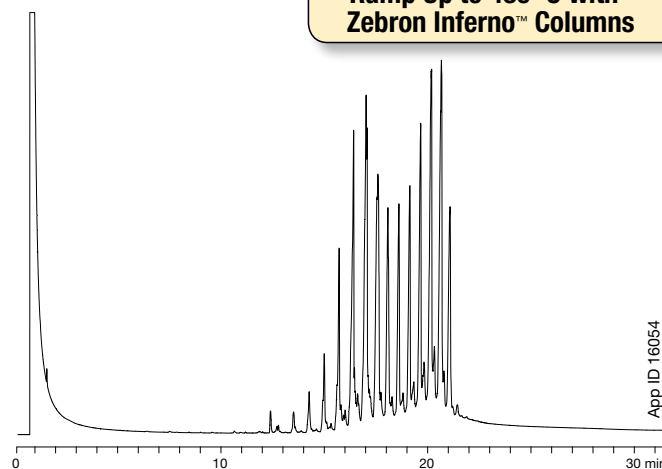


App ID 14848

Column: Zebtron ZB-FFAP
Phase: Nitroterephthalic Acid Modified Polyethylene Glycol
Dimensions: 30 meters x 0.25 mm x 0.25 μ m
Part No: 7HG-G009-11
Injection: Split 10:1 @ 280 $^{\circ}$ C, 1 μ L
Carrier Gas: Helium @ 2.4 mL/min (constant flow)
Oven Program: 160 $^{\circ}$ C to 260 $^{\circ}$ C at 8 $^{\circ}$ C/min for 15 min
Detector: FID @ 280 $^{\circ}$ C
Sample: See full compound list at www.phenomenex.com/GC

Butter Triglycerides

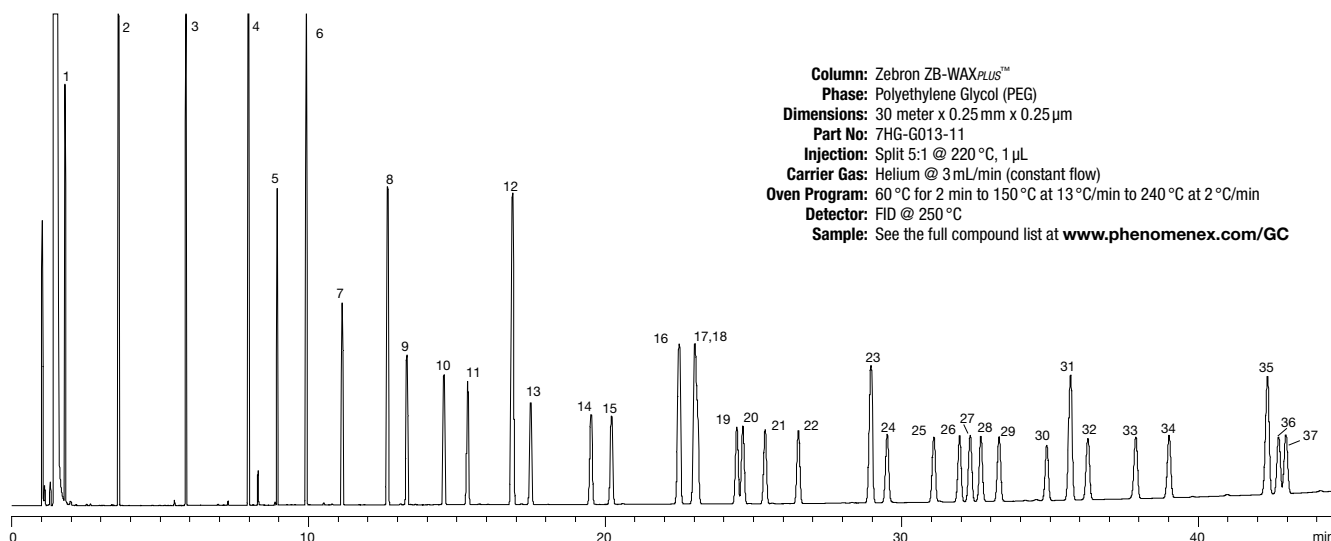
Ramp Up to 430 $^{\circ}$ C with Zebtron Inferno™ Columns



App ID 16054

Column: Zebtron ZB-5HT Inferno
Phase: 5% Phenyl 95% Dimethylpolysiloxane
Dimensions: 15 meters x 0.32 mm x 0.1 μ m
Part No: 7EM-G015-02
Injection: On-Column @ 103 $^{\circ}$ C, 2 μ L
Carrier Gas: Helium @ 1.8 mL/min (Constant Flow)
Oven Program: 100 $^{\circ}$ C to 400 $^{\circ}$ C at 14 $^{\circ}$ C/min. for 10 min
Detector: FID @ 400 $^{\circ}$ C
Sample: Butter

Food Industry FAMES



App ID 16321

Column: Zebtron ZB-WAXPLUS™
Phase: Polyethylene Glycol (PEG)
Dimensions: 30 meter x 0.25 mm x 0.25 μ m
Part No: 7HG-G013-11
Injection: Split 5:1 @ 220 $^{\circ}$ C, 1 μ L
Carrier Gas: Helium @ 3 mL/min (constant flow)
Oven Program: 60 $^{\circ}$ C for 2 min to 150 $^{\circ}$ C at 13 $^{\circ}$ C/min to 240 $^{\circ}$ C at 2 $^{\circ}$ C/min
Detector: FID @ 250 $^{\circ}$ C
Sample: See the full compound list at www.phenomenex.com/GC

Vitamins and Dietary Supplements



Shockingly Better HPLC/UHPLC Performance

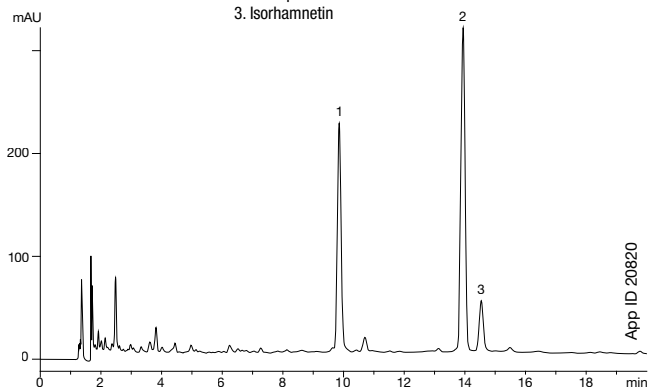
Kinetex Core-Shell Technology produces increased efficiencies over traditional fully porous columns, yielding remarkable chromatographic resolution, higher peak capacities, and greater sensitivity, so you can get the most out of every HPLC/UHPLC analysis.

Flavonoids from Ginkgo Biloba

Column: Kinetex 5 µm C18
Dimensions: 150 x 4.6 mm
Part No: 00F-4601-E0
Mobile Phase: A: 0.1 % Trifluoroacetic acid in Water
 B: 0.1 % Trifluoroacetic acid in Acetonitrile
Gradient:

Time (min)	% B
0	20
20	40

Flow Rate: 1 mL/min
Temperature: 40 °C
Detection: UV @ 270 nm (ambient)
Sample: 1. Quercetin
 2. Kaempferol
 3. Isorhamnetin

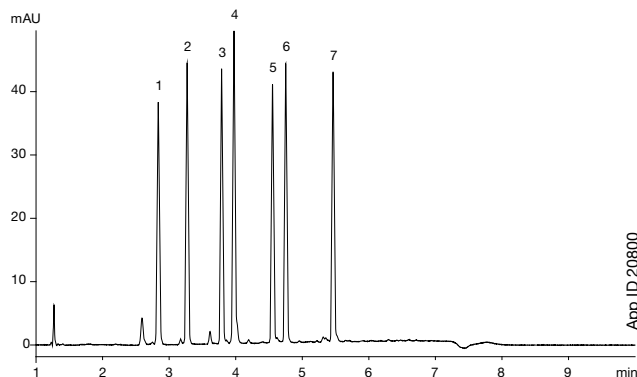


Gingerol

Column: Kinetex 5 µm C18
Dimensions: 50 x 4.6 mm
Part No: 00B-4601-E0
Mobile Phase: A: Milli-Q® Water
 B: Acetonitrile
Gradient:

Time (min)	% B
0	35
0.5	35
5	95
5.5	95
6	35
7	35

Flow Rate: 2 mL/min
Temperature: 30 °C
Detection: UV @ 282 nm (Ambient)
Sample: 1. 6-Gingerol
 2. Capsaicin
 3. 8-Gingerol
 4. 6-Shogaol
 5. 10-Gingerol
 6. 8-Shogaol
 7. 10-Shogaol

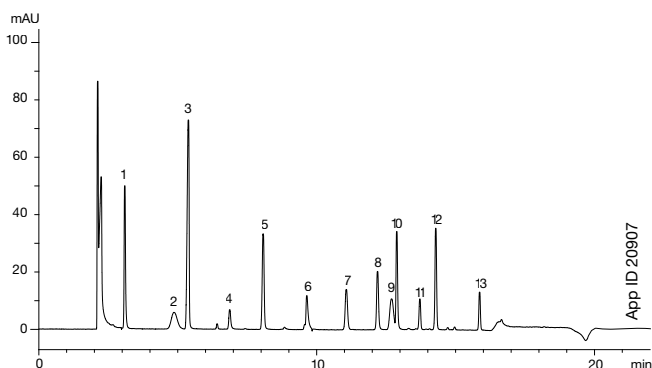


Water Soluble Vitamins

Column: Kinetex 2.6 µm C18
Dimensions: 150 x 4.6 mm
Part No: 00F-4462-E0
Mobile Phase: A: 3 g Sodium 1-hexanesulfonate monohydrate/0.4 mL Triethylamine/15 mL Acetic acid in 1985 mL Water
 B: Methanol
Gradient:

Time (min)	% B
0	5
12	47
12.1	98
15	98
15.1	5
22	5

Flow Rate: 0.5 mL/min
Temperature: 25 °C
Detection: UV @ 270 nm (Ambient)
Sample: 1. Ascorbic acid
 2. Pyridoxal 5'-phosphate (PLP)
 3. Nicotinic acid
 4. 4-Pyridoxic acid (4-PA)
 5. Nicotinamide
 6. Riboflavin 5'-phosphate
 7. Pyridoxal (PL)
 8. Pyridoxine (PN)
 9. Cobalamine
 10. Folic Acid
 11. Pyridoxamine (PM)
 12. Riboflavin (Vitamin B2)
 13. Thiamine (Vitamin B1)

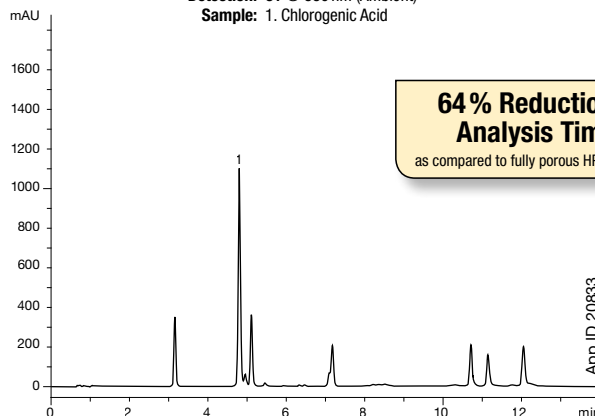


Chlorogenic Acids from Green Coffee

Column: Kinetex 5 µm C18
Dimensions: 100 x 4.6 mm
Part No: 00D-4601-E0
Mobile Phase: A: 0.1 % Formic Acid in Milli-Q® Water
 B: Acetonitrile
Gradient:

Time (min)	% B
0	5
10	20
11	20
11.5	5
14	5

Flow Rate: 1.5 mL/min
Temperature: 25 °C
Detection: UV @ 330 nm (Ambient)
Sample: 1. Chlorogenic Acid



64% Reduction in Analysis Time*
 as compared to fully porous HPLC columns

* Technical note TN-1134 (found on www.phenomenex.com) displays reduction of analysis time by 64% using a Kinetex 5 µm core-shell column vs. traditional 5 µm fully porous column

Ordering Information

Kinetex®

Instantly improve the performance, productivity, and sensitivity of HPLC/UHPLC fully porous methods with Kinetex Core-Shell Technology

2.6 µm Analytical Columns (mm)						SecurityGuard™ ULTRA Cartridges [‡]
Phases	30 x 4.6	50 x 4.6	75 x 4.6	100 x 4.6	150 x 4.6	3/pk
XB-C18	—	00B-4496-E0	00C-4496-E0	00D-4496-E0	00F-4496-E0	AJO-8768
C18	00A-4462-E0	00B-4462-E0	00C-4462-E0	00D-4462-E0	00F-4462-E0	AJO-8768
C8	—	00B-4497-E0	00C-4497-E0	00D-4497-E0	00F-4497-E0	AJO-8770
HILIC	—	00B-4461-E0	00C-4461-E0	00D-4461-E0	00F-4461-E0	AJO-8772
Phenyl-Hexyl	—	00B-4495-E0	00C-4495-E0	00D-4495-E0	00F-4495-E0	AJO-8774

for 4.6 mm ID



5 µm Columns (mm)		SecurityGuard™ ULTRA Cartridges [‡]				SecurityGuard ULTRA Cartridges [‡]	
Phases	50 x 2.1	3/pk	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
XB-C18	00B-4605-AN	AJO-8782	00B-4605-E0	00D-4605-E0	00F-4605-E0	00G-4605-E0	AJO-8768
C18	00B-4601-AN	AJO-8782	00B-4601-E0	00D-4601-E0	00F-4601-E0	00G-4601-E0	AJO-8768
C8	00B-4608-AN	AJO-8784	00B-4608-E0	00D-4608-E0	00F-4608-E0	00G-4608-E0	AJO-8770
Phenyl-Hexyl	00B-4603-AN	AJO-8788	00B-4603-E0	00D-4603-E0	00F-4603-E0	00G-4603-E0	AJO-8774

for 2.1 mm ID

for 4.6 mm ID

[‡]SecurityGuard ULTRA cartridges require holder, Part No. AJO-9000



Rezex™

Accurate and reproducible ion exclusion columns

Description	Part No.	Ionic Form	Size (mm)	SecurityGuard™ Cartridges 4 x 3.0 mm*
RCM-Monosaccharide	00F-0130-K0	Calcium	150 x 7.8	AJO-4493
RCM-Monosaccharide	00H-0130-K0	Calcium	300 x 7.8	AJO-4493
RHM-Monosaccharide	00H-0132-K0	Hydrogen	300 x 7.8	AJO-4490
RAM-Carbohydrate	00H-0131-K0	Silver	300 x 7.8	AJO-4491
RSO-Oligosaccharide	00P-0133-N0	Silver	200 x 10.0	—
RNO-Oligosaccharide	00P-0137-N0	Sodium	200 x 10.0	—
RPM-Monosaccharide (for USP procedure)	00H-0135-K0	Lead	300 x 7.8	AJO-4492
	00D-0135-K0	Lead	100 x 7.8	AJO-4492
RNM-Carbohydrate	00H-0136-K0	Sodium	300 x 7.8	—
ROA-Organic Acid	00F-0138-E0	Hydrogen	150 x 4.6	AJO-4490
ROA-Organic Acid	00G-0138-E0	Hydrogen	250 x 4.6	AJO-4490
ROA-Organic Acid	00F-0138-K0	Hydrogen	150 x 7.8	AJO-4490
ROA-Organic Acid	00H-0138-K0	Hydrogen	300 x 7.8	AJO-4490
RFQ-Fast Acid	00D-0223-K0	Hydrogen	100 x 7.8	AJO-4490
RCU-USP Sugar Alcohols	00G-0130-D0	Calcium	250 x 4.0	AJO-4493

*SecurityGuard Analytical Cartridges require universal holder Part No.: KJO-4282

Zebron™



ZB-5HT Inferno™

Robust fused silica phase stable to 430 °C; excellent for testing of triglycerides and sterols

ZB-WAXPLUS™

100 % aqueous stable with high retention of alcohols; recommended for FAMES, alcoholic beverages, and flavors

ZB-FFAP

High polarity nitrorephthalic acid modified PEG phase especially suited for organic acids, underivatized or free fatty acids, and alcohols

ID (mm)	df (µm)	10 meter	15 meter	30 meter	60 meter
0.25	0.10		7EG-G015-02	7HG-G015-02	
0.25	0.25		7EG-G015-11	7HG-G015-11	7KG-G015-11
0.32	0.10		7EM-G015-02	7HM-G015-02	
0.32	0.25		7EM-G015-11	7HM-G015-11	
0.53	0.15		7EK-G015-05	7HK-G015-05	
0.10	0.10	7CB-G013-02			
0.25	0.25		7EG-G013-11	7HG-G013-11	7KG-G013-11
0.32	0.25			7HM-G013-11	7KM-G013-11
0.32	0.50			7HM-G013-17	7KM-G013-17
0.53	1.00		7EK-G013-11	7HK-G013-22	7KK-G013-22
0.25	0.25		7EG-G009-11	7EG-G009-11	7KG-G009-11
0.32	0.25		7EM-G009-11	7HM-G009-11	
0.32	0.50		7EM-G009-17	7HM-G009-17	
0.32	1.00			7HM-G009-22	
0.53	1.00		7EK-G009-22	7HK-G009-22	

ChromaDex®

Phytochemical reference standards



Description	Part No.
Chlorogenic Acid (P)	ASB-00003450
6-Gingerol (P)	ASB-00007164
8-Gingerol (P)	ASB-00007163
10-Gingerol (P)	ASB-00007162
6-Shogaol (P)	ASB-00019211
8-Shogaol (P)	ASB-00019212
10-Shogaol (P)	ASB-00019214
Capsaicin(methyl-n-vanillyl-6-Noneneamide) (P)	ASB-00003135
Ginger Standards Kit (P)	KIT-00007615
Isorhamnetin (P)	ASB-00009520
Kaempferol (AHP)	ASB-00011020
Quercetin (P)	ASB-00017030
Ginkgo Flavonoids Standards Kit (P)	KIT-00007184

Botanical Reference Materials

Description	Part No.
Ginger (Zingiber officinale) Root (BRM)	ASB-00030290
Ginger (Zingiber officinale) Root (RGBRM)	ASB-00030863
Ginger (Zingiber officinale) Root peeled (VBRM)	ASB-00030956
Ginkgo (Ginkgo biloba) Leaf (AHP-BRM)	ASB-00030298
Ginkgo (Ginkgo biloba) Leaf (XRM)	ASB-00030299
Ginkgo (Ginkgo biloba) Leaf (BRM)	ASB-00030831
Ginkgo (Ginkgo biloba) Leaf (GBRM)	ASB-00030996



Easily find the dietary supplement reference standards you need at www.chromadex.com

Explore Your Options for Food Testing

HPLC/UHPLC

- HPLC/UHPLC/PREP Core-Shell Products
- Extensive Range of Stationary Phases
- ISO Certified Quality Management



www.phenomenex.com/HPLC

GC and GC/MS

- Wide Selection of Phases
- High Temperature Limits
- Low Bleed Performance
- Enhanced Aqueous Stability



www.phenomenex.com/GC

Sample Prep

- Filtration, SPE, and Vials
- Solutions for All Matrices
- Extensive Method Development Support
- Easily Accessible Web Tools



www.phenomenex.com/SamplePrep

Access the Latest Food Testing Resources



www.phenomenex.com/Food

- Applications
- Technical Notes
- Online Method Development Tools
- On-Demand Webinars
- News and Events



If Phenomenex products in this guide do not provide at least an equivalent separation as compared to other products of the same phase and dimensions, return the product with comparative data within 45 days for a FULL REFUND.

Food Testing Solutions

for GC and HPLC/UHPLC

- Repeatable
- Faster Separations
- Accurate Results

Australia

t: 02-9428-6444
f: 02-9428-6445
auiinfo@phenomenex.com

Austria

t: 01-319-1301
f: 01-319-1300
anfrage@phenomenex.com

Belgium

t: 02 503 4015 (French)
t: 02 511 8666 (Dutch)
f: +31 (0)30-2383749
beinfo@phenomenex.com

Canada

t: (800) 543-3681
f: (310) 328-7768
info@phenomenex.com

Denmark

t: 4824 8048
f: +45 4810 6265
nordicinfo@phenomenex.com

Finland

t: 09 4789 0063
f: +45 4810 6265
nordicinfo@phenomenex.com

France

t: 01 30 09 21 10
f: 01 30 09 21 11
franceinfo@phenomenex.com

Germany

t: 06021-58830-0
f: 06021-58830-11
anfrage@phenomenex.com

India

t: 040-3012 2400
f: 040-3012 2411
indiainfo@phenomenex.com

Ireland

t: 01 247 5405
f: +44 1625-501796
eireinfo@phenomenex.com

Italy

t: 051 6327511
f: 051 6327555
italiainfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
f: +31 (0)30-2383749
nlinfo@phenomenex.com

Mexico

t: 001-800-844-5226
f: 001-310-328-7768
tecnicomx@phenomenex.com

The Netherlands

t: 030-2418700
f: 030-2383749
nlinfo@phenomenex.com

New Zealand

t: 09-4780951
f: 09-4780952
nzinfo@phenomenex.com

Norway

t: 810 02 005
f: +45 4810 6265
nordicinfo@phenomenex.com

Puerto Rico

t: (800) 541-HPLC
f: (310) 328-7768
info@phenomenex.com

Sweden

t: 08 611 6950
f: +45 4810 6265
nordicinfo@phenomenex.com

United Kingdom

t: 01625-501367
f: 01625-501796
ukinfo@phenomenex.com

United States

t: (310) 212-0555
f: (310) 328-7768
info@phenomenex.com

All other countries: Corporate Office USA

t: (310) 212-0555
f: (310) 328-7768
info@phenomenex.com



www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com

Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at www.phenomenex.com/TermsAndConditions

Trademarks

Kinetex is a registered trademark and Rezex, Zebtron, Inferno, WAX_{PLUS}, and SecurityGuard are trademarks of Phenomenex. Chromadex is a registered trademark of Chromadex Corp. Milli-Q is a registered trademark of Merck KGaA, Darmstadt, Germany.

© 2014 Phenomenex, Inc. All rights reserved.

BR17551113_W