

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Grace Davison / Alltech ELSD 2000ES* at our website: ***Click HERE***

NEW ELSD 2000ES

ENHANCED SENSITIVITY

More Sensitive – Lower detection limits
Two Operating Modes – Get optimum performance for all applications
Universal – Detect compounds missed by other detectors
Advanced Features – Increase productivity and decrease downtime
Low Temperature Operation – Detect semi-volatile compounds



The Most Advanced ELSD Is Now Even MORE SENSITIVE

Alltech *Specialists in Chromatography*

Brochure #497

UNP

Contact your Alltech office or distributor for current or local prices.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com
© Copyright 2004 Alltech Associates, Inc.

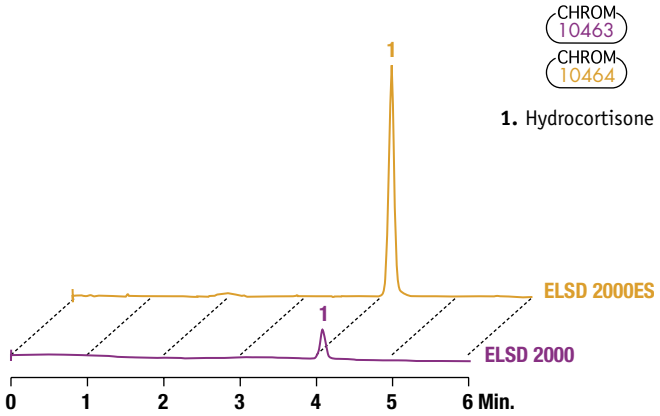
FROM THE LEADER IN EVAPORATIVE LIGHT SCATTERING DETECTION

The Most Advanced ELSD Is Now Even More Sensitive



The ELSD 2000ES has all the benefits of the ELSD 2000 plus even greater sensitivity! The optical and electronic components have been redesigned to minimize background noise and increase sensitivity. The result of this new, patent pending technology is lower detection limits and greater signal-to-noise ratios.

The ELSD 2000ES Increases Sensitivity for Equal Concentrations of Hydrocortisone



1. Hydrocortisone (100ng on column)

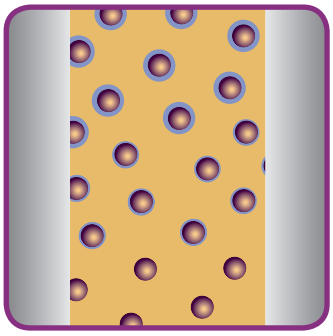
Column:	Alltima™ C18, 5µm, 250 x 4.6mm (Part No. **88056**)
Mobile Phase:	Water:Acetonitrile (55:45)
Flow Rate:	1.0mL/min
Column Temp:	Ambient

Evaporative Light Scattering Detection in Three Simple Steps



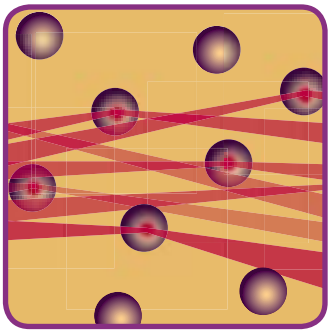
1. Nebulization

Column effluent passes through a needle and mixes with nitrogen gas to form a dispersion of droplets.



2. Evaporation

Droplets pass through a heated 'drift tube' where the mobile phase evaporates, leaving a fine mist of dried sample particles in solvent vapor.



3. Detection

The sample particles pass through a cell and scatter light from a laser beam. The scattered light is detected, generating a signal.

Alltech

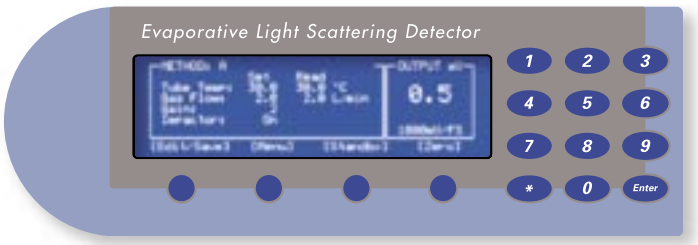
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Contact your Alltech office or distributor for current or local prices.

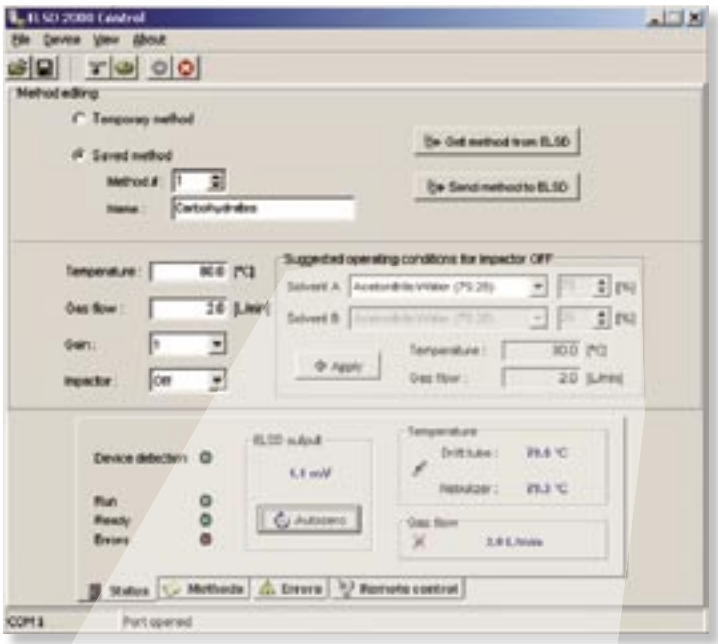
© Copyright 2004 Alltech Associates, Inc.

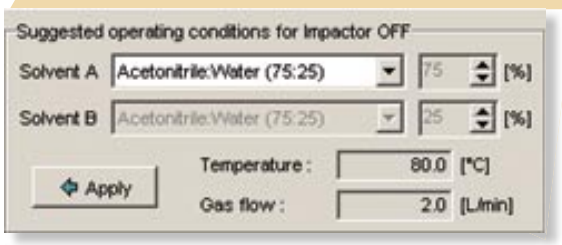
ADVANCED INSTRUMENT CONTROL

The ELSD 2000ES has many features that enhance detector performance, increase productivity, and decrease downtime



Program and view method parameters on the ELSD's menu-driven front panel. Store as many as 10 methods.





Comprehensive PC-based control software makes choosing the critical operating parameters of temperature and gas flow a snap.

Digital Gas Flow Control

Digital gas flow control ensures reproducible results. Changing gas flow is fast and easy from the ELSD's front panel or PC control software. Save gas by automatically shutting off gas flow at the end of an unattended run.

Onboard Diagnostics

Decrease downtime with automated troubleshooting, or use diagnostic tests to verify detector functions on start-up.

Safe, Unattended Operation

Alarm set points ensure tight control of the critical operating parameters. When operating unattended, an output signal can trigger the LC pump to shut down under alarm conditions. Deviations in operating parameters are logged by the type of error at the time it occurs.

ELSD 2000ES* Specifications	
Light Source:	Laser diode with collimating optics, 650nm, 30mW output, class IIIB
Detector Element:	Silicon photodiode
Temperature Range:	Ambient to 120°C in 1°C increments
Nebulizer Gas:	Nitrogen preferred; Calibrated to 4.0L/min
Inlet Pressure:	60-80psig
Typical Operating Range:	1.0–3.0L/min
Flow Control:	Digital mass flow control
Mobile Phase Flow Rate:	To 5.0mL/min
Analog Output:	1V or 10mV full scale
Communications:	Inputs: TTL/contact closure for auto zero and gas shutoff Outputs: Contact closure for pump shutdown in error conditions
User Interface:	Graphical LCD with alphanumeric keypad and/or Windows® based PC control via serial I/O
Power Requirements:	120/240V, 50/60Hz
Dimensions:	23.0" H x 12.5" W x 21.6" D (58.4cm H x 31.8cm W x 54.8cm D)
Weight:	35lbs (16Kg)
IEC/FDA Classification:	Class 1 laser product
Warranty:	1 year parts and labor

*Patent pending

Contact your Alltech office or distributor for current or local prices.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Copyright 2004 Alltech Associates, Inc.

OPTIMUM PERFORMANCE WITH ANY APPLICATION

Why Two Operating Modes?

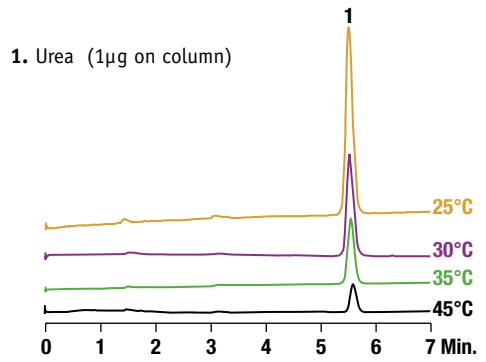
- **Splitting** – Best for semi-volatiles at low temperatures
- **Not Splitting** – Best for non-volatiles at high temperatures

Since an ELSD's response is based on the amount of particles passing through the optical cell, it makes sense that sending 100% of the column effluent would net the highest responses. In most, but not all cases, this is true. Some samples such as semi-volatiles may benefit from lower operating temperatures and gas flows achieved by splitting a portion of the aerosol stream to waste. Only the ELSD 2000ES offers the choice of splitting or not splitting, giving you optimum sensitivity for every application.

Splitting Allows Near Ambient Temperature Evaporation, Maximizing Sensitivity for Semi-Volatiles

Low Temperature Analysis of Urea

CHROM 10307

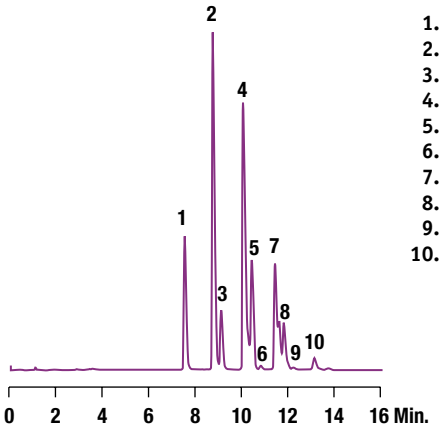


Column: Prevail™ Carbohydrate ES, 5µm, 250 x 4.6mm (Part No. **35101**)
Mobile Phase: Acetonitrile:Water (85:15)
Flow Rate: 1.0mL/min
Column Temp: Ambient

Not Splitting is Best for Non-Volatile Samples and/or Organic Mobile Phases

Triglycerides in Sesame Seed Oil

CHROM 9517



Column: Alltima™ C18, 3µm, 150 x 4.6mm (Part No. **91387**)
Mobile Phase: **A:** Dichloromethane **B:** Acetonitrile
Gradient:

Time:	0	10	18	20
%B:	70	55	70	70

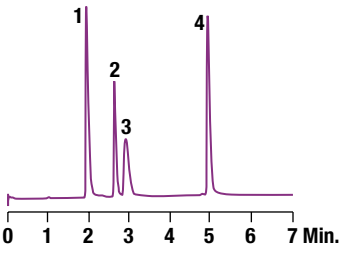
Flow Rate: 1.5mL/min
Column Temp: Ambient

Splitting Maintains Stable Baselines with Rapid, Extreme Gradients

LC/MS Screening Performance Test Mix

CHROM 10273

1. Aspartame
2. Cortisone
3. Reserpine
4. Dioctyl Phthalate



Column: Platinum™ C18, 3µm, 20 x 4.6mm (Part No. **43804**)
Mobile Phase: **A:** 0.05% Formic Acid in Water
B: 0.05% Formic Acid in Acetonitrile
Gradient:

Time:	0	3	7	10
%B:	5	90	90	5

Flow Rate: 1.0mL/min
Column Temp: 40°C

Alltech
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com
Contact your Alltech office or distributor for current or local prices.
© Copyright 2004 Alltech Associates, Inc.

REPLACE OR COMPLEMENT YOUR EXISTING DETECTOR

ELSD Advantages Compared to Other LC Detectors

	ELSD	RI	UV	MS
Sensitivity	●	○	●	●
Gradient Capability	●	○	◒	●
Baseline Stability	●	○	◒	●
Solvent Interference	●	○	○	●
Mass Balance	●	●	○	○

Chart Key

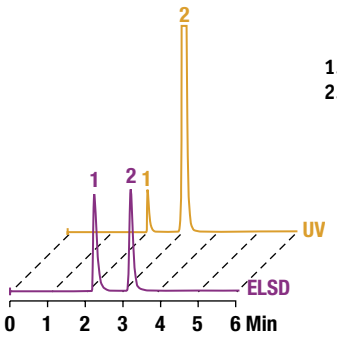
Excellent: ●
Good: ◒
Poor: ○

ELSD Obtains a More Accurate Representation of Sample Mass than UV

1:1 Mixture

CHROM 10450
CHROM 10449

1. Ephedrine
2. Caffeine



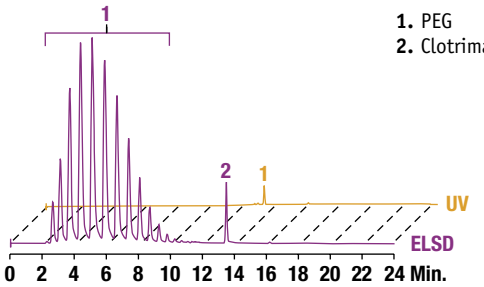
Column: Alltima™ HP EPS C18, 5µm, 150 x 4.6mm (Part No. **87715**)
Mobile Phase: 1% Acetic Acid:Methanol:Acetonitrile (70:20:10)
Flow Rate 1.0mL/min
Column Temp: Ambient

ELSD Shows What May Be Missing From Your UV Chromatogram

Lotrimin® AF Topical Solution

CHROM 10446
CHROM 10447

1. PEG
2. Clotrimazole



Column: Alltima™ C18, 5µm, 150 x 4.6mm (Part No. **88302**)
Mobile Phase: **A:** Water **B:** Methanol
Gradient:

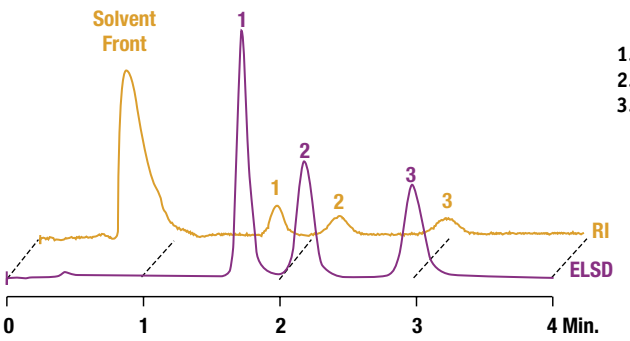
Time	0	8	10	20	25
%B	30	50	100	100	30

Flow Rate: 1.0mL/min
Column Temp: 40°C

ELSD Replaces RI with Higher Sensitivity and Stable Baselines

CHROM 10278
CHROM 10277

1. Fructose
2. Glucose
3. Sucrose



Column: Prevail™ Carbohydrate ES, 5µm, 53 x 7mm Rocket™ (Part No. **35104**)
Mobile Phase: Acetonitrile:Water (75:25)
Flow Rate: 2.0mL/min
Column Temp: 30°C

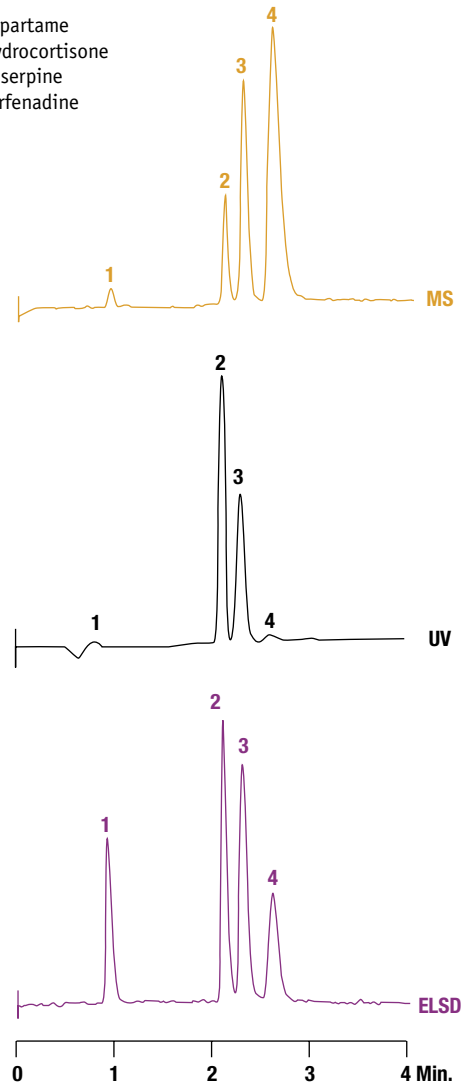
Contact your Alltech office or distributor for current or local prices.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com
© Copyright 2004 Alltech Associates, Inc.

IDEAL FOR PHARMACEUTICAL AND NUTRACEUTICAL ANALYSIS

Use ELSD In Parallel with UV/Vis and MS for Maximum Structural and Concentration Information

CHROM 10456
CHROM 10458
CHROM 10457

1. Aspartame
2. Hydrocortisone
3. Reserpine
4. Terfenadine



Column: ZORBAX® StableBond C18, 3.5µm, 50 x 4.6mm (Part No. **835975-902**)
Mobile Phase: **A:** 0.025% Formic Acid in Water
B: 0.025% Formic Acid in Acetonitrile
Gradient:

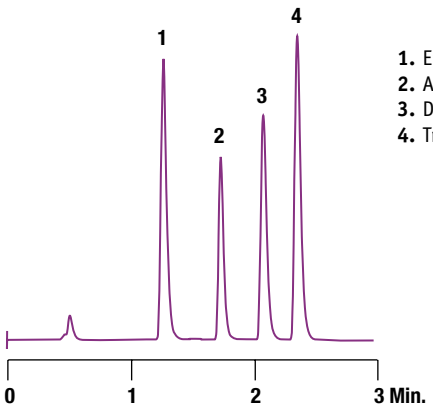
Time:	0.0	1.0	5.0	5.1
%B:	25	70	70	25

Flow Rate: 1.0mL/min
Column Temp: 30°C

Chromatograms courtesy of Agilent Technologies

Stable Baselines with Rapid, Extreme Gradients

CHROM 10451



1. Ephedrine
2. Acetylsalicylic Acid
3. Diphenhydramine
4. Trimipramine

Column: Alltima™ HP C18, 3µm, 33 x 7mm Rocket™ (Part No. **87671**)
Mobile Phase: **A:** 0.1% TFA in Water **B:** 0.1% TFA in Acetonitrile
Gradient:

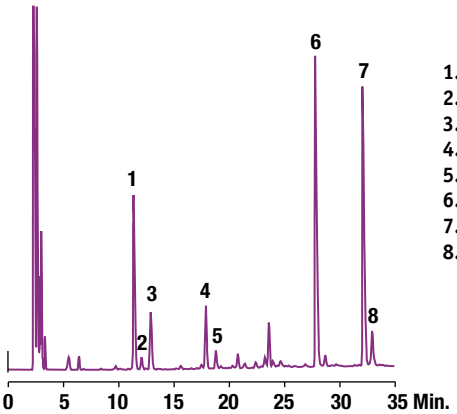
Time:	0	3
%B:	10	90

Flow Rate: 2.5mL/min
Column Temp: 30°C

Use Gradient Elution and Detect Non-Chromophoric Nutraceuticals

Ginkgo Biloba Standardized Extract

CHROM 10241



1. Bilobalide
2. Ginkgolide J
3. Ginkgolide C
4. Ginkgolide A
5. Ginkgolide B
6. Quercetin
7. Kaempferol
8. Isorhamnetin

Column: Alltima™ C18, 5µm, 250 x 4.6mm (Part No. **88056**)
Mobile Phase: **A:** 0.05% TFA in Water:Methanol (95:5)
B: 0.05% TFA in Methanol
Gradient:

Time:	0	35
%B:	25	75

Flow Rate: 1.0mL/min
Column Temp: Ambient

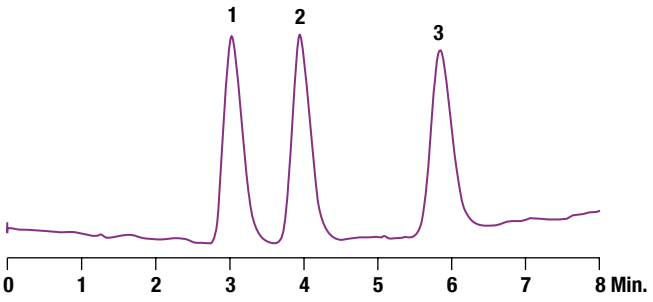
Alltech
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com
Contact your Alltech office or distributor for current or local prices.
© Copyright 2004 Alltech Associates, Inc.

VERSATILE DETECTION FOR A BROAD RANGE OF APPLICATIONS

Use ELSD with Microbore Columns without Modifying the Detector

Glucopyranosides

CHROM 10310



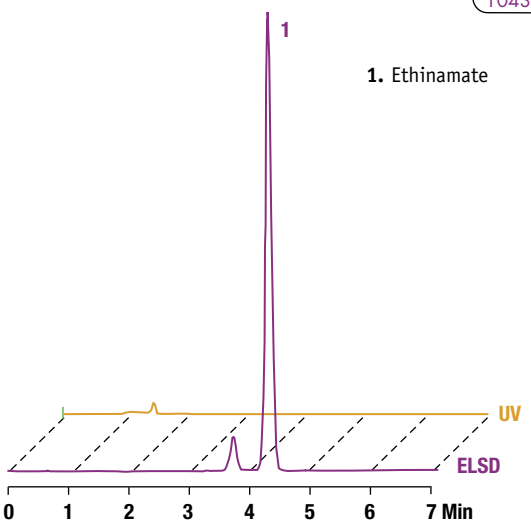
1. n-Octyl Glucopyranoside (50ng on column)
2. n-Decyl Glucopyranoside (50ng on column)
3. n-Dodecyl Glucopyranoside (50ng on column)

Column: Alltima™ C18, 3µm, 150 x 1mm (Part No. **43864**)
Mobile Phase: Methanol:Water (90:10)
Flow Rate: 50µL/min
Column Temp: Ambient

Use ELSD for Triggering Fraction Collection of UV/Vis Transparent Compounds in Preparative Applications

Ethinamate

CHROM 10438



1. Ethinamate

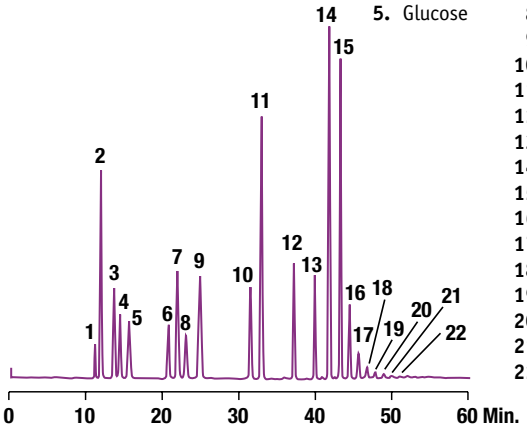
Column: Alltima™ C18, 5µm, 150 x 10mm (Part No. **81102**)
Mobile Phase: Water:Acetonitrile (55:45)
Flow Rate: 5.0mL/min
Column Temp: 25°C

ELSD Simplifies Detection of Difficult Samples

Mono-, Di-, Tri-Saccharides

CHROM 10009

1. *iso*-Erythritol
2. Fructose
3. Sorbitol
4. Mannitol
5. Glucose
6. Inositol
7. Sucrose
8. Maltitol
9. Maltose
10. Raffinose
11. Maltotriose
12. DP4
13. DP5
14. DP6
15. DP7
16. DP8
17. DP9
18. DP10
19. DP11
20. DP12
21. DP13
22. DP14



Column: Prevail™ Carbohydrate ES, 5µm, 250 x 4.6mm (Part No. **35101**)
Mobile Phase: **A:** Acetonitrile
B: 0.04% Ammonium Hydroxide in Water
Gradient:

Time:	0	25	40	60
%B:	17	27	45	55

Flow Rate: 1.0mL/min
Column Temp: Ambient

Contact your Alltech office or distributor for current or local prices.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com
© Copyright 2004 Alltech Associates, Inc.

PRODUCT DETAILS AND SERVICES

The ELSD 2000ES has been designed and manufactured in accordance with the following standards: EN6101-1 + A2:95, EN555011: 1998, FCC CFR 47 Part 15: 2001, EN 61326: 1998, EN 6100-3-2: 1995 + A14:2000 and EN61000-3-3: 1995

ELSD 2000ES*	
Description	Part No.
120V	**600100ES**
240V	**600200ES**

* Patent Pending

Full IQ/OQ/PQ Protocols Included With Each ELSD

Alltech makes it easy for you to integrate the ELSD into a qualified HPLC system. The ELSD 2000ES is thoroughly tested before shipment and calibration and performance documents are included with each instrument. Detailed IQ/OQ/PQ procedures are included with the detector to help you perform your own qualification. We also provide the option of onsite qualification performed by an Alltech service engineer.

Instrument Services	
Description	Part No.
Qualification Services	
IQ/OQ performed by Alltech	**Q60010ES**
PQ performed by Alltech	**Q60020ES**
IQ/OQ/PQ performed by Alltech	**Q60030ES**
Re-OQ performed by Alltech	**Q60040ES**
Re-OQ/PQ performed by Alltech	**Q60050ES**
Installation and Training	
Installation and familiarization	**INSTALL**



Experience the benefits of increased sensitivity today!

Call and ask for a quote or information on sample analysis or a product demonstration in your lab.

The trademarks referred to herein are the property of their respective owners.

Contact your Alltech office or distributor for current or local prices.

Visit www.alltechWEB.com for product information and online ordering.
Visit www.chromatography.com for the latest in technical information and applications.

Alltech Corporate Headquarters:
2051 Waukegan Road • Deerfield, IL 60015
Phone: 847-948-8600 • Fax: 847-948-0477
Email: alltech@alltechemail.com
Web Site: http://www.alltechWEB.com

Your Local Source for Alltech Products:

06/04 #497

© Copyright 2004 Alltech Associates, Inc.
Alltech reserves the right to change prices and/or specifications without prior notification.

Use of Our Products: Alltech Associates, Inc., supplies chromatographic equipment reagents and accessories for non-medical laboratory use only. This means our products: ... may **NOT** be used as drugs, ...may **NOT** be used as cosmetics, ...may **NOT** be used as medical devices or as in vitro diagnostic devices.

Printed in the USA.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP