BROCHURE

Evaporative Light Scattering Detector

ABOUT US

Unimicro (Shanghai) Technologies Co., Ltd. (Unimicro for short) is the subsidiary of Unimicro Technologies, Inc. located in the USA. Unimicro has focused its efforts on chemical and biological separation and analysis with micro separation technology since its inception in 2002, including CEC, ELSD, HPLC, semipre-HPLC along with columns and consumables. The vision of Unimicro is to be the leader of micro separation field in China and the core values are innovation, quality, and customer service. Possessing a nationwide marketing network system, Unimicro will always be committed to offer you the best solutions and assist you experience the maximum efficiency.

Unimicro Technologies, Inc.

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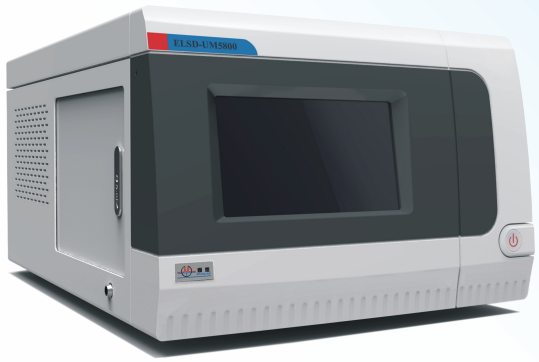
UM5800 Evaporative Light Scattering Detector



- **10 years experiences in ELSD, excellent reputation in the field of analytical instrumentation.**
- **Wide applications in pharmac-uetical, biological,environmental and food analysis.**
- **Best performance with reasonable price.**
- **Easy operation and maintanence.**
- **High Sensitivity and accuracy.**

About ELSD

Evaporation light scatting detector (ELSD) is a kind of universal detector, which can detect any sample with lower volatility than the mobile phase. ELSD has a stable baseline and is much more sensitive than RI. Besides, ELSD is not sensitive to temperature changes and can be coupled to gradient HPLC without baseline drift.

ELSD has been widely used to detect the carbohydrate, lipoid, fatty acid, amino acid, medicine and polymer, specially to detect those active traditional Chinese medicine ingredients without UV absorption.

» Universal detector

Can detect any sample with lower volatility than mobile phase. There is no need for any chromophore

» Mass sensitive detector

The signal response is related to the sample mass, there-fore, unknown mass information can be obtained.

» Compatible with various HPLC solvent and gradients

Stable baseline and no solvent peak interference, not sensitive to temperature changes

» modifier can be added

When separate a complex sample, modifier can be added to the mobile phase, e.g, ammonium acetate, glacial acetic acid, formic acid, TFA, ammonia, triethylamine.

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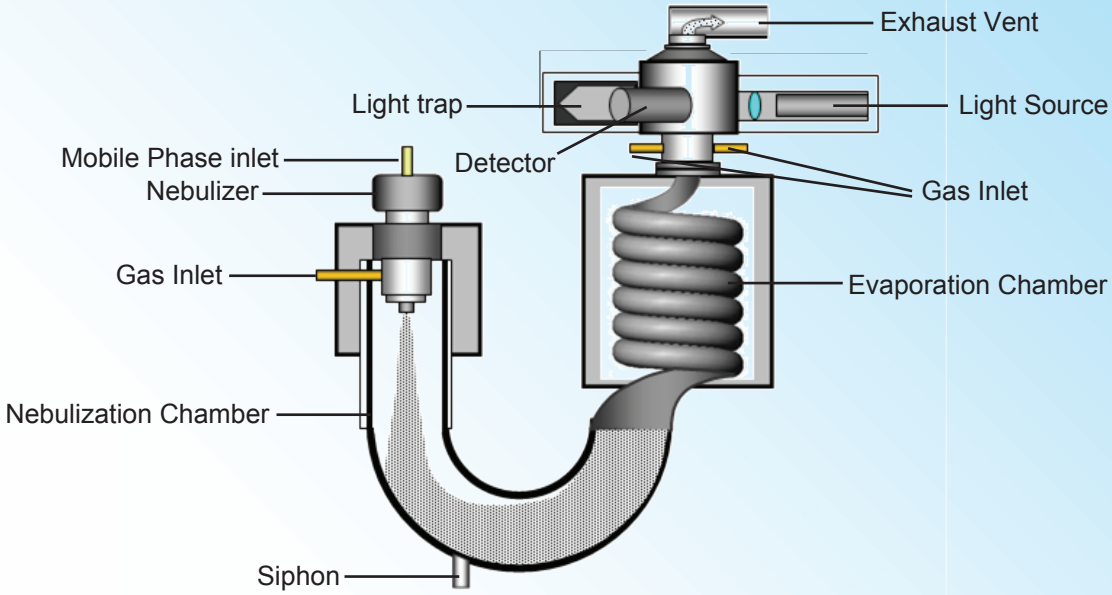
Principle



Nebulization

The mobile phase is pressured into small drops by the pressured carrier gas in the nebulization chamber. The size and homogeneity of the drops play an important role for the detection sensitivity and repeatability.

Evaporation

The carrier gas carries the small drops from nebulization chamber into the drift tube, where the solvent is evaporated and the solute drop is reserved.

Detection

The solute drops are then carried into detecting cell， where the laser beam (650nm) is scattered by the solute drops and collected by PMT.

Comparison between ELSD and other common detectors

	ELSD	UV	RID	MS
Application range	universal	compounds with UV absorption	universal	universal
Signal response	mass related	chemical related	refractive index related	Mass related
sensitivity	high	high	low	high
Unknown	yes	no	yes	yes
Mobile phase	no	background	yes	no
Baseline stability	good	good	bad	good

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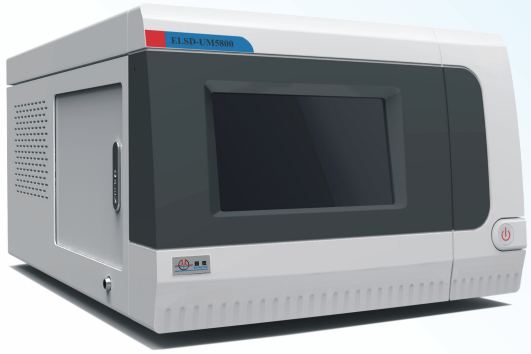

Key Specifications

environmental requirements	ambient temp. 15-40℃ relative humidity <90%
evaporation temperature	embient temp. -130℃
temperature	1℃
temperature	±1℃
carrier gas	nitrogen or air
gas pressure	2 bar -5 bar
gas pressure	0.01bar
gas flow range	1 L/min -4L/min
gas flow accuracy	0.02 L/min or ≤1%
liquid flow range	10μL/min-3mL/min
light source	650 nm solid laser
detection module	PMT
baseline noise	<0.03 mV
baseline drift	<0. 3 mV/h
minimum detection limit	<1 ng
typical quantitative range	0.1 μg ~30μg
RSD_6	<2%
signal output	0~1 VDC
computer	RS232

Major Advantages

- Can be coupled to any HPLC system.
- Can detect any sample with lower volatility than the mobile phase.
- Can used on both low and high temperature conditions.
- Nebulize and evaporate at lower temperature, sensitive to the thermally instable and semi-volatile compounds.
- Compatible with various HPLC solvent and gradients, no solvent peak interference.
- The auxiliary gas improves the detection sensitivity and helps to prevent the detection cell from pollution.
- Combination of laser and PMT offers the best performance and higher sensitivity.
- Accurate temperature control
- Accurate gas flow control

Features

- Optimized circuit design reduces the noise level
- Wide dynamic range of mass detection Lower chromatographic peak broadening, improve separation resolution
- Nebulization unit is easy to remove and clean
- Compact and fashionable design to decrease the electromagnetic interference and improve the comprehensive performance
- This ELSD is equipped with large and color touch screen, which makes the ELSD easy to use
- New temperature, flow and pressure alarm functions to guarantee the instrument stability, reliability and safety

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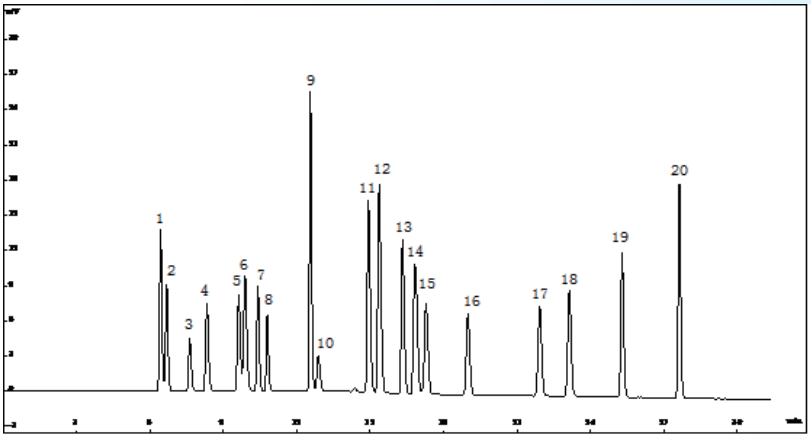
Applications

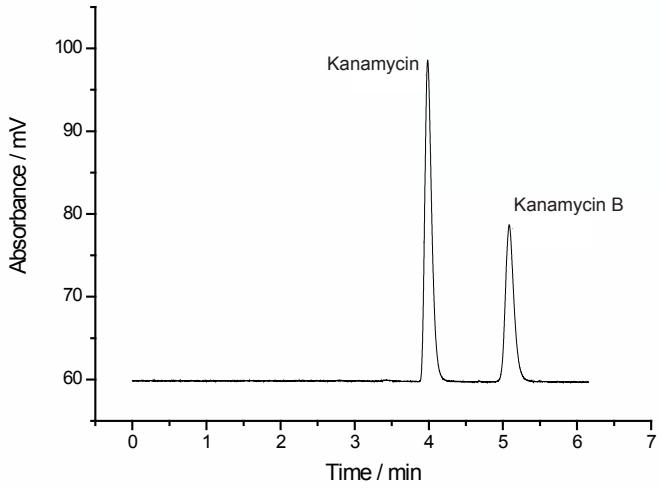
Fig.1 Chromatogram of 20 non-derivatized amino acids



1. Gly 2. Ser 3. Asp 4. Gln 5. Thr
6. Ala 7. Glu 8. Cys 9. Cys 10.Pro
11. Lys 12. His 13.Val 14.Arg 15. Met
16.Tyr 17. Ile 18. Leu 19. Phe 20. Trp

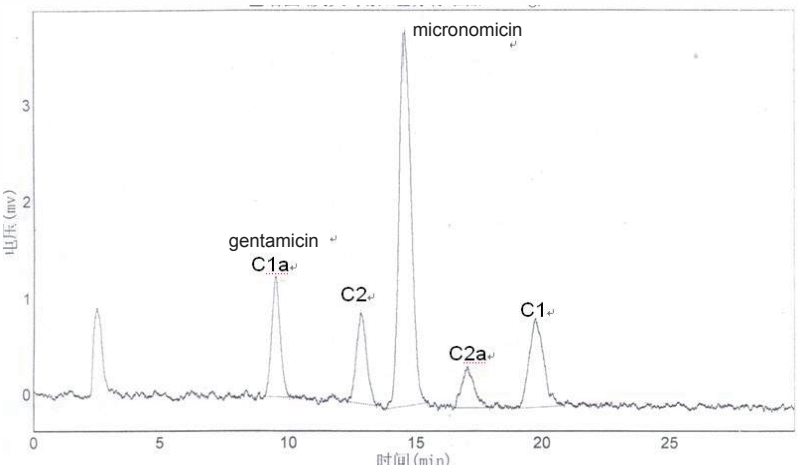
Column: Globalsil C18
Mobile phase:
A Seven fluorine butyric acid/trifluoroacetic acid/water=1.0/0.5/500
B Methanol
Flow rate: 0.8 mL/min
Evaporation temperature: 40℃
Gas flow rate: 2.5 L/min

Fig.2 Chromatogram of kanamycin



Column: Globalsil C18
Mobile phase: 0.2mol/L Trifluoroacetic acid - methanol solution（95:5）
Flow rate: 1 mL/min
Evaporation temperature : 110℃
Gas flow rate: 3 L/min

Fig.3 Determination of gentamicin sulphate



Column: ProntoSIL silica gel column
Mobile phase: Methanol:water = 8：92（include 0.15%TFA）
Flow rate: 0.6 mL/min
Evaporation temperature : 90℃
Gas flow rate: 2.8L/min

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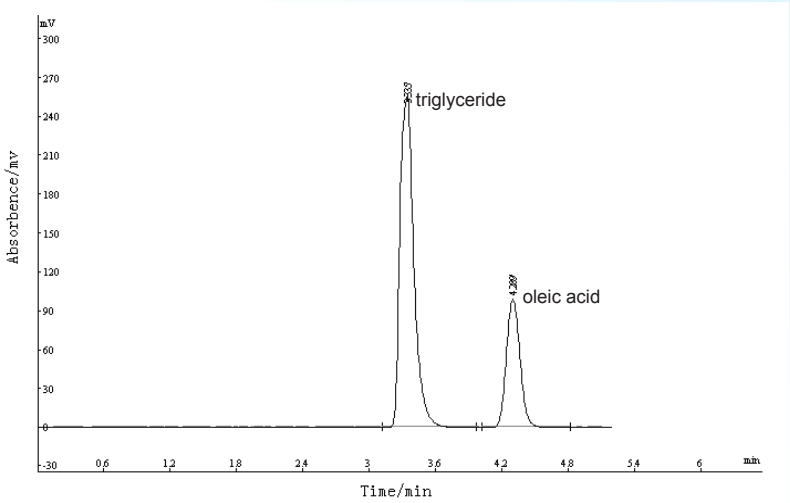
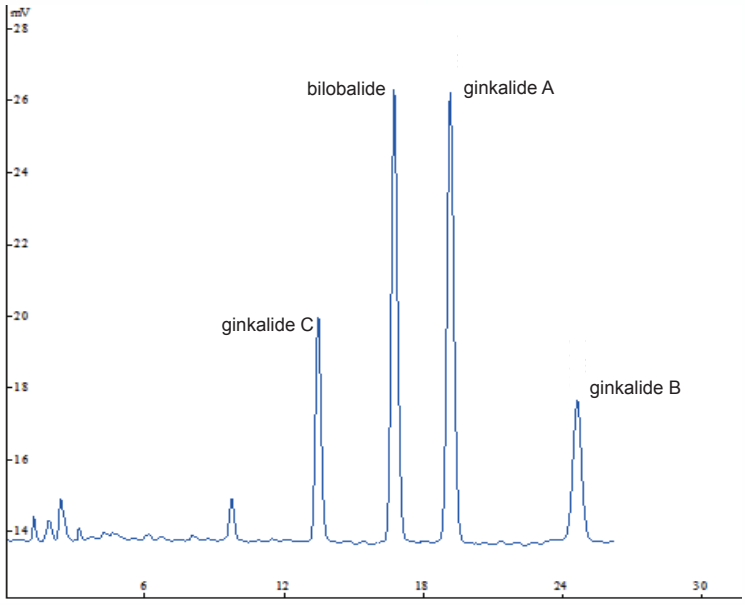
Fig.4 Chromatogram of grease compound



Column: ProntoSIL silica gel column
Mobile phase: N-hexane, isopropyl alcohol, acetic acid =98.9: 1: 0.1
Flow rate: 1 mL/min
Evaporation temperature: 60℃
Gas flow rate: 2.5 L/min

Fig.5 Determination of Ginkgo Biloba extract



Column: Globalsil C18
Mobile phase:
propanol: tetrahydrofura:water=1: 25: 74
Flow rate: 1 mL/min
Column temperature: 30℃
Evaporation temperature: 100℃
Gas flow rate: 2.5 L/min

Contact us or visit our website for more applications
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