Agilent 1260 Infinity Evaporative Light Scattering Detector

Features, Technical Details, Specifications and Ordering Details

Sensitive and universal detection in isocratic and gradient analysis

The Agilent 1260 Infinity Evaporative Light Scattering Detector (ELSD) is a powerful tool for sensitive detection of any compound that is less volatile than the mobile phase. It provides an essentially universal measurement under isocratic and gradient conditions independent of a compound's absorbance, fluorescence or electro-activity. Low temperature evaporation technology enables detection of semi-volatile and thermally-sensitive compounds at low levels.

Features

- Advanced technology for highest sensitivity, efficiency and reproducibility.
- Excellent sensitivity for low limits of detection through low temperature evaporation and gas supported focusing within the optical head. Applicable to semi-volatile and thermally sensitive compounds through low temperature technology.
- Limits of detection of 2 ng for glucose (typical non-volatile analyte), and 1 ng for caffeine (typical semi-volatile analyte)
- Enhanced signal processing for lowest background noise and excellent signal to noise ratio.
- Data rates of up to 60 Hz provides full compatibility with fast separations.
- Four nebulizers for flow rates from 5 µL/min - 5 mL/min cater for all important (U)HPLC techniques.
- Nebulizer and optical head designed for optimized peak shape and peak width.
- Convenient front access for inspection and maintenance of tubing and valves.
- Operation from built-in local user interface and Agilent LC ChemStation or Agilent EZChrom.

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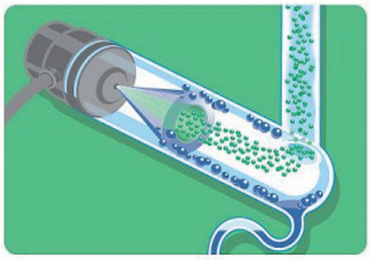
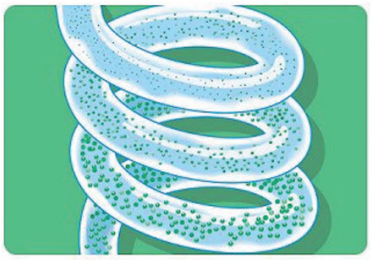
Technical Details – Agilent 1260 Evaporative Light Scattering Detector

How the 1260 Evaporative Light Scattering Detector works



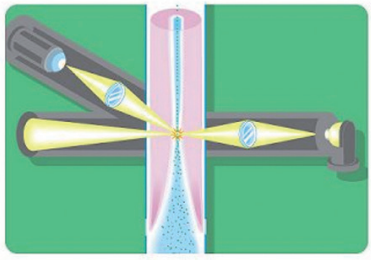
Step 1: Nebulize eluent and select small droplets to minimize background noise

The nebulizer transforms the eluent from the HPLC column into a fine vapor of droplets. The technology in the Agilent 1260 Infinity ELSD provides for the selection of droplets as a function of their size, preventing larger droplets from entering the evaporation or drift tube. Large droplets cause increased background noise because they are more difficult to evaporate. This selection of droplets makes detection at low evaporation temperatures possible, resulting in low baseline noise and excellent sensitivity, even for semivolatile solutes.



Step 2: Evaporate at low temperature to avoid loss of compounds

Solute molecules are obtained from the vapor using low temperature technology in the heated evaporation or drift tube. The Agilent 1260 Infinity ELSD is designed to evaporate high boiling mobile phases, such as those with high aqueous concentrations, at very low temperatures. The low temperatures used in the standard operating mode minimize the potential of thermal decomposition of the compound of interest, and makes the Agilent 1260 Infinity ELSD a more reliable way to detect everything in the sample.

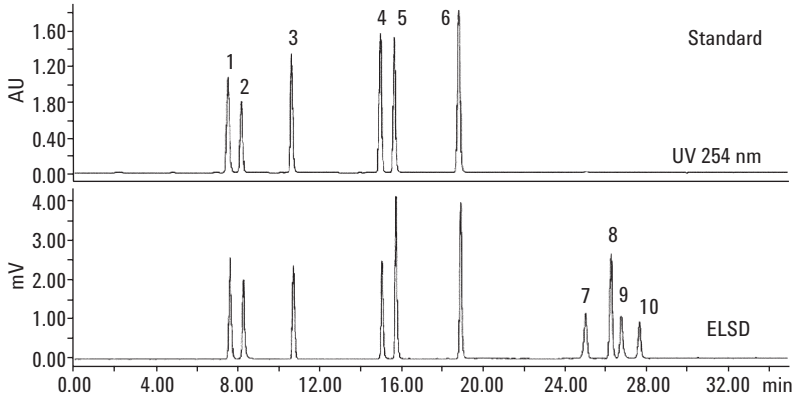


Step 3: Focus the solute particles, using patented gas-supported focusing (GSF) for enhanced signal-to-noise ratios andless maintenance, and detect the light scattering

Assisted by gas-supported focusing, the solute molecules from the vapor pass through an optical head that is designed to measure light scattering. Gas-supported focusing involves the addition of gas to focus the solute particles within the optical head for enhanced detection. The gas surrounding the solute particles also protects the optical head from contamination. The magnitude of the resulting scattered light is related to the concentration of the compounds in the sample.

Evaporative light scattering for detection of all peaks

In contrast to other types of detection such as UV or fluorescence, evaporative light scattering detectors are universal, being capable of detecting any compound that has a lower volatility than the mobile phase. With UV or fluorescence detection the user can never be sure that all compounds in the sample are detected.



Isoflavones – LOD = 5 ng:
1. Daidzin
2. Glycitin
3. Genistin
4. Daidzein
5. Glycitein
6. Genistein

Saponins – LOD = 100 ng:
7. Soyasaponin I
8. Soyasaponin II
9. Soyasaponin III
10. Soyasaponin IV

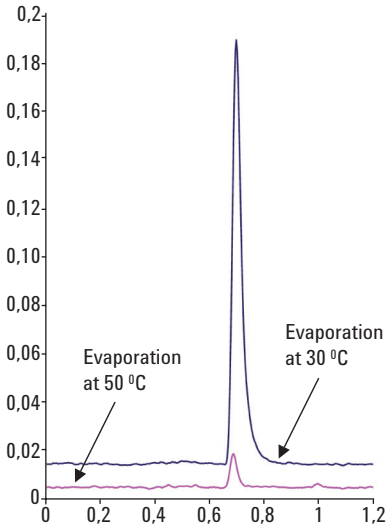
Conditions:

Column:	C18, 5 µm, 150 x 4.6 mm
Solvents:	Water + 0.05% TFA / ACN
Flow:	1 mL/min
Pressure:	3.5 bar
Temperature:	35 °C

Analysis of biologically-active compounds in Soya with UV and evaporative light scattering detection – the Agilent 1260 Infinity ELSD detects all compounds.

Why low temperature evaporation?

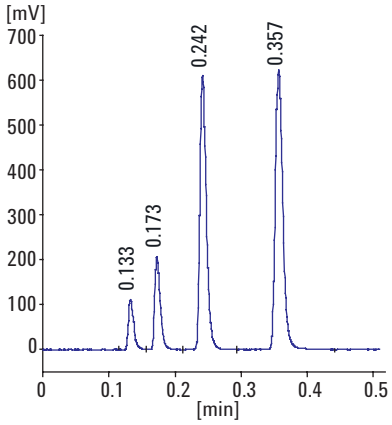
The low temperature technology in the Agilent 1260 Infinity ELSD minimizes volatilization and is the key to significantly better sensitivity.



Analysis of semi-volatile caffeine with low temperature evaporation, showing better sensitivity than with high temperature evaporation.

Fully compatibility with RRLC and UHPLC

Fast LC analyses can generates sharp and narrow peaks with peak widths smaller than 1 second. The 1260 Infinity ELSD with 60 Hz data rates and the patented gas supported focusing, which focuses the sample molecules, and an improved optical head design make the detector ready for fast chromatography.

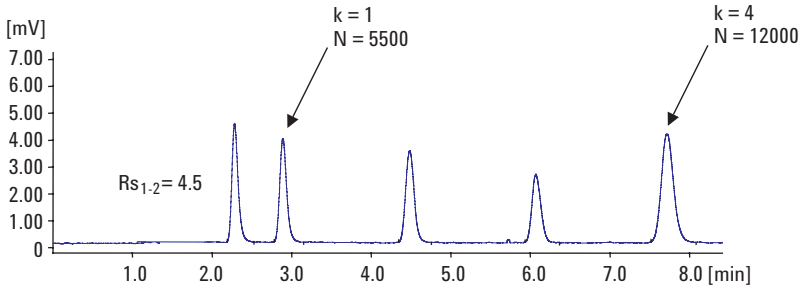


Column: ZORBAX SB-C18, 2.1 x 50 mm, 1.8 µm
Solvents: Water +0.1 % TFA/ACN +0.1 % TFA
Flowrate: 1 mL/min
Column temperature: 40 °C
Detector pressure: 5 bar
Evaporation temperature: 26 °C

Fast LC of semi-volatile parabens at 40 °C column temperature with the Agilent 1260 Infinity ELSD.

Ready for all modes of LC

The Agilent 1260 Infinity Evaporative Light Scattering Detector has four nebulizers, which allows it to be used with flow rates from 5 ÌL/min to 5 mL/min.



Column:	ZORBAX SB 150 mm x 500 µm, 3.5 µm
Solvents:	45 % ACN / 55 % aqueous buffer (formic acid 0.1%, pH 2.5)
Flow:	45 µL/min
Column temperature:	90 °C
Elution order:	Nitrazepam, flunitrazepam, diazepam, ibuprofen, mefenamic acid (40–400 ng injected)
Nebulizer:	Micro-flow

Analysis of pharmaceutical drugs with microliter flow and micro-flow nebulizer. Using the micro-flow nebulizer results in excellent peak shapes and plate numbers.

Specifications – Agilent 1260 Infinity Evaporative Light Scattering Detector

Specifications 1260 Infinity Evaporative Light Scattering Detector	
Light source	High efficiency Blue LED (470 nm)
Temperature range (evaporator)	Ambient to 100 °C
Flow rate	5 µL/min – 5 mL/min
Nebulizers	*Useable flow ranges* Large flow: 1 – 5 mL/min (useable flow rate) Standard flow: 0.2 – 2.0 mL/min (included) Fast analysis with flow : 0.2 - 1.4 mL/min Semi-micro flow: 0.04 – 1.0 mL/min Micro-flow: 0.005 – 0.04 mL/min *High sensitivity and repeatability flow ranges* Large flow: 2 – 3 mL/min Standard flow: 0.5 – 1.2 mL/min (included) Fast analysis with flow: 0.4 - 1.0 mL/min Semi-micro flow: 0.1 – 0.3 mL/min Micro-flow: 0.015 – 0.025 mL/min
Short-term noise	< 2 mV
Drift	< 1 mV/h
Signal output	0 – 1 V (analog), RS 232 (digital)
Gain settings	2^{11} (2048)
Communications	RS-232, Contact closure for ready, auto-zero, APG remote start/stop.
Data rates	60 Hz
Control and data evaluation	Built-in local controller, Agilent ChemStation, Agilent EZChrom Elite.
Gas flow control	Manual and computer controlled (power down) nebulization gas flow and patented auxiliary gas flow.
Environment	5 – 40° C; maximum humidity of 80 % for temperatures under 31° C, with linear decrease to 50 % at 40 °C.
Dimensions	250 mm (10") width x 450 mm (18") height x 550 mm (22") depth
Weight	18.5 kg (40 lb.)

Ordering Details – Agilent 1260 Infinity Evaporative Light Scattering Detector

Description	Product Number
Agilent 1260 Infinity Evaporative Light Scattering Detector Includes standard nebulizer for flow rates 0.2 - 2.5 mL/min.	G4218A
Micro flow nebulizer (0.005 - 0.04 mL/min)	#010
Fast analysis (0.2 - 1.4 mL/min)	#014
Semi-micro flow nebulizer (0.04 - 1.0 mL/min	#016
Large flow nebulizer (1 - 5 mL/min)	#020
Gas regulator w/ 0.01 µm filter (0 - 5 mL/min)	#030

www.agilent.com/chem/1200

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