Isolera™ ELSD-1080

Evaporative Light-Scattering Detection for Flash Chromatography

The ELSD-1080 is a universal detector designed for use with Isolera™ flash purification systems when purifying organic compounds that are undetectable with UV or visible light or those that do not 'fly' by traditional mass spectrometry techniques.

Flash chromatography with detection and fractionation is possible when purifying carbohydrates, steroids, lipids, terpenes and other UV-transparent compounds (Figure 13).

Compounds eluting from a flash cartridge enter the ELSD-1080 where they are mixed with nitrogen to nebulize the sample components creating small droplets. The nebulizer is heated and begins to evaporate the solvent and the nitrogen carries the sample into the Peltier heater, where the remaining solvent is evaporated leaving small sample particles in the nitrogen stream. While migrating through the evaporator, light is shone perpendicular to the "sample flight path" and a sensor measures how many particles are present, triggering fraction collection.

Advanced Design

Organic compounds have different chemical and physical properties that may impact detection, even with an ELSD. The Biotage Isolera ELSD-1080 provides intelligent method design which enables the chemist to independently set nebulizer and evaporator temperatures for a particular compound or compound class. Independent temperature control helps ensure that all compounds are detected.

Incorporated with the independent temperature control is the ability to evaporate solvents at temperatures as low as 10 °C. This is desirable when purifying highly volatile compounds.

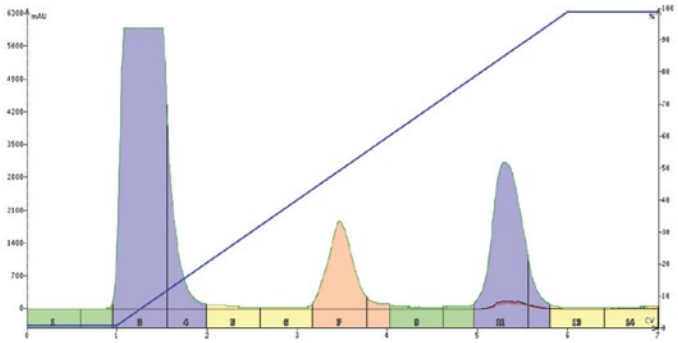

Figure 13. Purification of UV transparent carbohydrates dextrose, maltodextrin, and poorly UV-absorbent aspartame using an Biotage Isolera Four and a 12 g Biotage® SNAP KP-C18-HS cartridge. With low wavelength UV (200 nm) only aspartame is detected.

Specifications

Power	90/120V AC or 220/250V AC, 50/60 Hz 2A max
System Control and Data Management	200 mm (8”) x 415 mm (16”) x 450 mm (18”) diagonal touch screen
Dimensions (W x H x D)	200 mm (8”) x 415 mm (16”) x 450 mm (18”)
Weight	13 kg (28 lbs)
Light Source	LED 480 nm (Class 1 LED Product)
Detector	Photomultiplier tube digital signal processing
Temperature Range	Evaporator OFF, 10 – 80 °C (1 °C increments) Nebulizer OFF, 25 –
Gas Flow Rate	0.9 SLM to 3.25 SLM @ 25 °C with integrated controlled gas shut
Pressure Operating Range	60 – 100 psi (4 – 6.7 bar)
Eluent Flow Rate	0.2 – 5 mL/min
Analogue Output	0 – 5V FSD
Digital Output	24 bit digital data, 10 or 40 Hz.
Instrument Operation	Graphical vacuum fluorescent display with keypad Ten pre-defined
Detector Status	Standby, run
Safety Features	Gas shut off valve, vapor and leak detection
Certifications	CE, CSA

Advantages

- Flexibility – high sensitivity provides superb responses, able to detect virtually any compound
- Sub-ambient operation provides detection capability for highly volatile compounds with operation at temperatures as low as 10 °C up to 80 °C
- Reproducible below 2% with reliable and accurate results
- Independent temperature controls for both nebulizer and evaporator provides optimization capability for normal-phase solvent systems
- Compact size that requires minimal bench space
- Compatible and portable – operates with other Isolera™ systems as a detector to monitor or help direct fraction collection

Figure 14. A light display provides instant information on current progress.