ACHIEVE RICHER ANALYSIS

The Waters® 2424 Evaporative Light Scattering (ELS) Detector, with its compact and innovative design, offers near universal detection of non-volatile and semi-volatile sample components. The 2424 ELS Detector is compatible with both isocratic and gradient separations and has nebulizer options to cover a wide range of analytical and microbore flow rates. By adding the orthogonality of ELS to your detection strategy, you increase peak detection confidence across a wide application space. The 2424 ELS Detector can be used as part of an Alliance® HPLC or LC/MS system under the control of either Empower® or MassLynx® software, or can be operated as a stand-alone detector.

Quantification for your entire sample

Finding the right balance in a detector designed for evaporative light scattering detection can be the difference between good sensitivity of semi-volatile components and high peak dispersion. The 2424 ELS Detector was designed with this critical balance in mind and delivers reproducible quantification for semi-volatile components without adding high dispersion to fast LC separations. Sample components that elute in the column void volume can be difficult to detect with many techniques, creating an issue of particular concern for strong UV absorbing diluents such as DMSO. The desolvation characteristics of the 2424 ELS Detector can remove the sample diluent interference to give visibility to unretained components in your sample.

The 2424 ELS Detector allows you to reproducibly detect semi-volatile components as demonstrated by this chromatographic test mix of semi-volatile and non-volatile components. Excellent detection is achieved across the range of components without interference from the DMSO sample diluent.
APPLICATION SOLUTIONS FOR THE LABORATORY

Laboratories around the world rely on the proven performance of Waters ELS detectors for superior results across a vast range of applications, including the analysis of carbohydrates, fatty acids, lipids, surfactants, and pharmaceuticals.

Complex applications with gradient analysis

Whether trying to monitor a complex process such as the consistent production of food oils or verifying their authenticity to prevent adulteration, the use of gradient analysis is important for providing a wider separation range of your samples. The 2424 ELS Detector is entirely compatible with gradient analysis, and with significantly reduced stabilization times as compared to other ELS detectors, you can get consistent answers, faster.

Enhance your existing detection capabilities

For applications where not all components have a UV chromophore, adding ELS detection expands the visibility of your sample by providing a complementary detection capability.

Simple food sugars lack a UV chromophore, but they are easily detected and quantified in complex matrices using the 2424 ELS Detector.

The gradient analysis of triglycerides in edible oils, overlay of safflower oil (blue) and olive oil (green).

While some artificial sweeteners can be analyzed by UV, several lack UV chromophores. In this example, all these artificial sweeteners can be quantified by adding ELS detection.
ALL THIS TECHNOLOGY, WITHOUT ALL THE BENCHSPACE

The 2424 ELS Detector hosts a multitude of innovative design features for detection of your non-UV samples, but with simple integration into your system and your laboratory environment.

**Designed for your laboratory**
- Compact footprint for system stacking and reduced laboratory space requirement
- Front-mounted, user-installable lamp
- Easily accessible nebulizers covering wide flow rate range
- Open access ready with accelerated nebulizer stabilization

**Maximize your method performance**
- Sampling rates up to 80 points/sec
- Independent optimization of digital filtering
- Active nebulizer heating and cooling
- Auto-optimize gain function
- Optional external column heater control

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**Detection technology**
- Reference energy monitoring for consistent long-term signal
- 60° scatter angle detection to minimize stray light and optics polarization for long-term optimal sensitivity
- Normalized energy output for improved bench-to-bench repeatability

**Nebulization technology**
- Concentric flow nebulizer designed for consistent droplet formation
- Heating for method optimization
- Cooling for rapid stabilization

**Desolvation technology**
- Temperature controlled and monitored to provide optimal conditions for desolvating semi-volatile components
- Optimized geometry for analytical HPLC peak volumes and flow rates
- Desolvation of interfering sample diluent peaks to expose unretained sample components
COMPLETE THE CHROMATOGRAPHIC PICTURE AND BUILD HIGHER CONFIDENCE IN YOUR RESULTS

Pair a 2424 ELS Detector with a Waters 2489 UV/Vis Detector and SQ Detector 2 single quadrupole mass detector, and achieve the capability to:

- Derive more complete peak information in one chromatographic run,
- Detect molecules that lack a UV/Vis chromophore, complementing absorbance detector information, and
- Analyze compounds that don’t ionize well by MS.

Supported in both Empower and Masslynx software, you can select the right chromatographic data system for your laboratory’s needs. The 2424 ELS Detector is also compliance-ready as part of the Alliance HPLC family of systems supported within the Systems Qualification Tool (SystemsQT™) technology.