

Calibrating the Response of the Varian ELSD

Varian ELSD

Advantage Statement: The high sensitivity of the Varian Evaporative Light Scattering Detector is evident from the large response it delivers, even with low column loading.

This note describes the calibration of the Varian ELSD response with a GPC application. The test probe was a polystyrene narrow standard Mp 30,300, also from Varian, Inc., eluting through a single PLgel 5 μ m MIXED-D column with a 100 μ L injection loop. The detector output was set at 10 V. A stock solution of polystyrene narrow standard Mp 30,300 was prepared at 2 mg/mL (2,000 μ g/mL). A series of calibration solutions was prepared with concentrations between 10 and 400 μ g/mL by dilution of the stock solution. With a fixed full 100 μ L injection loop, the calibration solutions represent column loadings between 1 and 40 μ g.

Figure 1 shows overlaid chromatograms of the calibration solutions of polystyrene narrow standard Mp 30,300 with column loadings of 1, 2.5, 5, 10, 20, 30 and 40 μ g, which was the highest column loading that gave a detector response which remained on scale.

Column: PLgel 5 μ m MIXED-D, 300 x 7.5 mm (pn: PL1110-6504)
 Eluent: THF
 Flow Rate: 1.0 mL/min
 Injection Vol: 100 μ L
 Detection: Varian ELSD (evap=80 °C, neb=40 °C, gas=1.0 SLM)

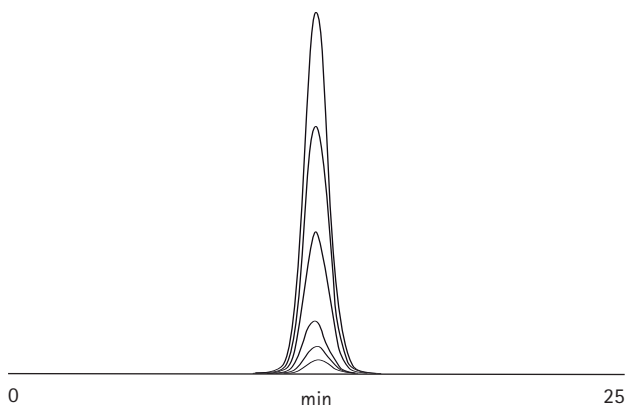


Figure 1. Overlaid chromatograms of the calibration solutions.

The ELS response for each of the calibration solutions was determined from the area of the Mp 30,300 peak in each of the chromatograms. The results were plotted as \log_{10} peak area against the \log_{10} column loading and a linear fit was applied (Figure 2).

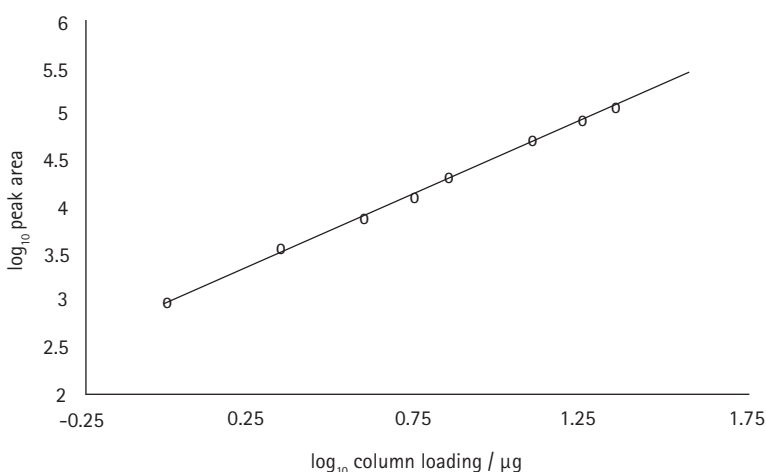


Figure 2. Varian ELSD provides a linear response to column loading.

The high sensitivity of the ELSD was demonstrated by the large responses observed for the low column loading with a 10 V detector output.

These data represent typical results. For further information, contact your local Varian Sales office.

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