

# Calibrating the response of the Agilent 385-ELSD Evaporative Light Scattering Detector

## Technical Overview

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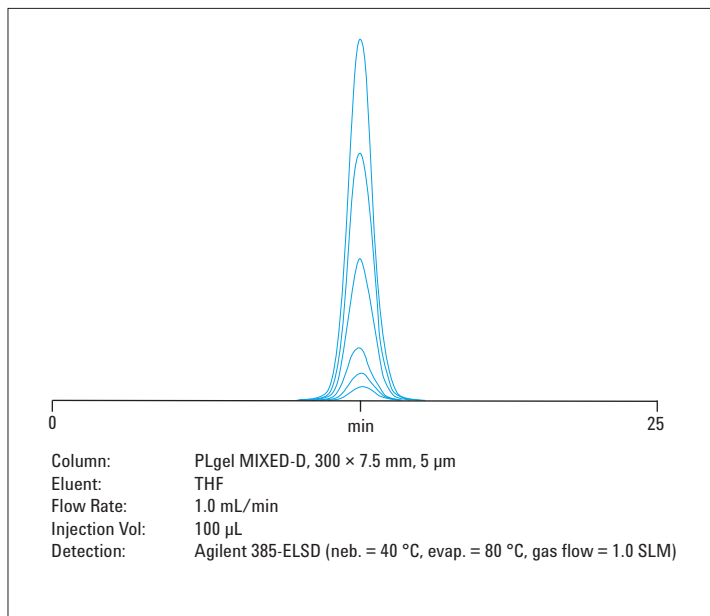
The high sensitivity of the Agilent 385-ELSD Evaporative Light Scattering Detector is evident from the large response it delivers, even with low column loading. This Technical Overview describes the calibration of the Agilent 385-ELSD response with a GPC application. The test probe was a polystyrene narrow standard Mp 30,300, eluting through a single PLgel 5  $\mu\text{m}$  MIXED-D column with a 100  $\mu\text{L}$  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  $\mu\text{g}/\text{mL}$ ). A series of calibration solutions was prepared with concentrations between 10 and 400  $\mu\text{g}/\text{mL}$  by dilution of the stock solution. With a fixed full 100  $\mu\text{L}$  injection loop, the calibration solutions represent column loadings between 1 and 40  $\mu\text{g}$ .



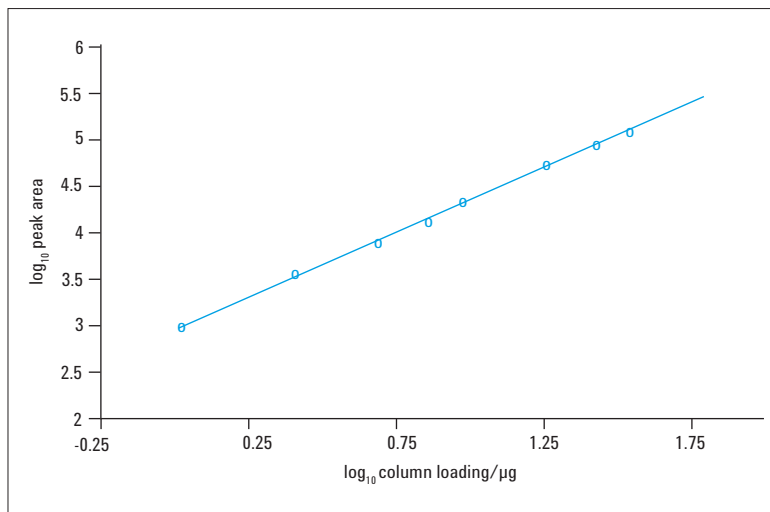
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Figure 1 shows overlaid chromatograms of the calibration solutions of polystyrene narrow standard Mp 30,300 with column loadings of 1, 2.5, 5, 10, 20, 30 and 40  $\mu\text{g}$ , which was the highest column loading that gave a detector response which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

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



**Figure 1**  
Overlaid chromatograms of the calibration solutions.



**Figure 2**  
The Agilent 385-ELSD provides a linear response to column loading.

[www.agilent.com/chem/elsd](http://www.agilent.com/chem/elsd)

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Published in the USA, March 1, 2012  
5990-9158EN



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