## Waters Alliance<sup>®</sup> System

## **GPC** Calibration Curve Reproducibility

9 replicate injections of 13 polystyrene narrow standards demonstrates the new level of flow precision delivered by the Waters Alliance Separations Module.



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Flow precision, or reproducibility, is important in all areas of liquid chromatography. The GPC calibration curve shown above contains 9 data points (injections) for each narrow standard - no point averaging is used. This high level of performance allows chromatographers to have more confidence in their results.

## **Minutes**

Waters Alliance System consisting of: Waters Alliance Separations Module (2) Styragel<sup>®</sup> HR5E, (1) HR2 columns THF at 1.0 mL/min 300 mL injection 40° C 5th Order Calibration Correlation Coefficient = 0.9996

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Performance PerSPECtives

Gel Permeation Chromatography places more stringent precision requirements on an HPLC system than most applications. In GPC, retention time is plotted against log molecular weight, so any variation in flow rate becomes exponentially magnified in calculated molecular weight distributions. A 1% change in flow rate will result in a 10% difference in calculated molecular weight. For the most accurate results, it is necessary for polymer analysts to have the flow precision performance offered only by the Waters Alliance Systems.

## GPC Reproducibility Broad Standard Polystyrene % RSD values, n=9

System	RT	Mn	Mw	Mz	Dispersity
Alliance	0.058	0.668	0.164	0.182	0.619
Traditional	0.099	1.442	1.435	2.394	0.775

Even when compared to excellent results from a traditional HPLC system, Waters Alliance Systems show dramatic increases in system performance. Performance by Design engineering incorporates new solvent management technology to achieve a new level of flow precision, which provides a new level of confidence in results.