GPC Application Note #1

Advanced GPC Analysis of Polystyrene

Polystyrene (PS) is a synthetic organic polymer from the polymerization of styrene monomers. Applications include insulation sheets, construction supplies, shipping peanuts, food containers and disposable tableware. Molecular weight distribution (MWD) is a key property control parameter in the manufacturing process as well as product diagnostics. The purpose of this App Note is to demonstrate the repeatability of the HMJ Advanced GPC Method. The samples were analyzed using a Malvern Triple Detector GPC system. The analysis conditions are listed below.

Solvent	THF		Sample Conc	2 mg/mL
Columns	2 X Shodex KF-806M		Dissolution Temp	25C
Flow Rate	1 mL/min		Dissolution Time	60 Minutes
Column Temp	30C		Sample Filtration	0.2 um Teflon

Figure: Triple Chromatogram of a PS245K Sample

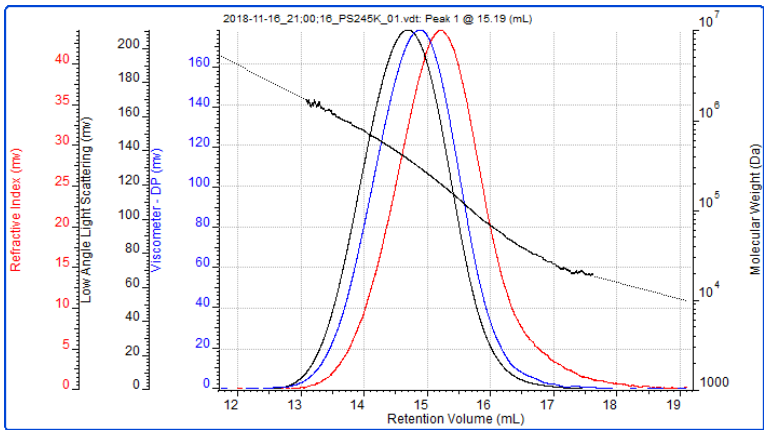

Table: Summary of Analysis for a PS245K sample

PS245K Results	Runs	dn/dc	Mw	Mn	IV
Average	6	0.185	245,380	107,773	0.838
SD			1,169	3,334	0.004
RSD			0.48%	3.09%	0.42%

The results show consistent MWD and IV data for the PS245K sample.