



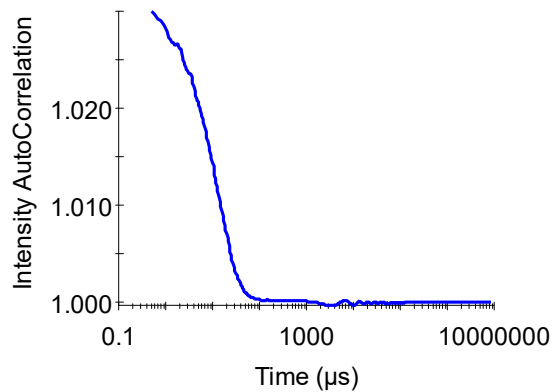
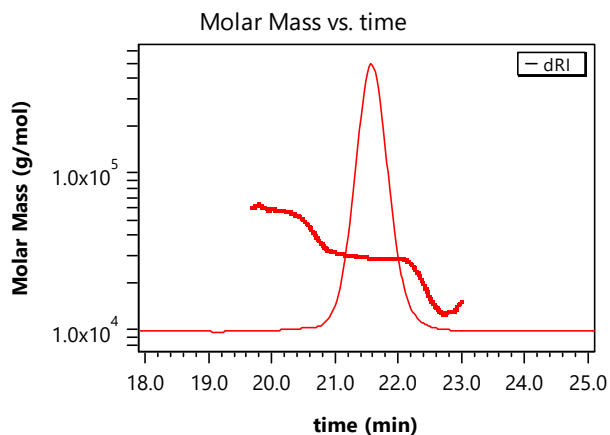
Certificate of Analysis

Polystyrene Standard (30 kDa)

Polystyrene in toluene: $dn/dc = 0.110 \text{ mL/g}$; $A_2 = 4.4 \times 10^{-4} \text{ (mol mL)/g}^2$

Wyatt p/n: P8402-03001
Lot Number: J-1143-000-1

Manufactured by: Pressure Chemical Company
Expires: 03 Dec 2024
Storage: Room temperature



Standard characterization data by Wyatt MALS and ViscoStar® detectors following SEC separation (MZ-Gel SDplus linear 5 μm, 300 mm x 8.0 mm column):

Solvent and SEC mobile phase were toluene. Solution was prepared at 1.6 mg/mL.

Molar Mass (monomer)	$M_w = (28.7 \pm 0.6) \text{ kDa}$	$M_w/M_n = 1.00 \pm 0.01$
Molar Mass (entire eluted mass)	$M_w = (29.0 \pm 0.6) \text{ kDa}$	$M_w/M_n = 1.02 \pm 0.03$

Intrinsic Viscosity (monomer)	$[\eta]_w = (20.3 \pm 0.2) \text{ mL/g}$	$[\eta]_z = (20.3 \pm 0.2) \text{ mL/g}$
Intrinsic Viscosity (entire eluted mass)	$[\eta]_w = (20.6 \pm 0.2) \text{ mL/g}$	$[\eta]_z = (20.9 \pm 0.2) \text{ mL/g}$

Standard characterization data by Wyatt DynaPro® NanoStar®:

Solvent was toluene. Solution was prepared at 1.6 mg/mL.

R_h (Cumulants) = $(4.2 \pm 0.1) \text{ nm}$ R_h (Regularization) = $(4.1 \pm 0.2) \text{ nm}$

Certification: Sophia Kenrick
Sophia Kenrick
Director of Analytical Sciences

Date: 03 Dec 2020