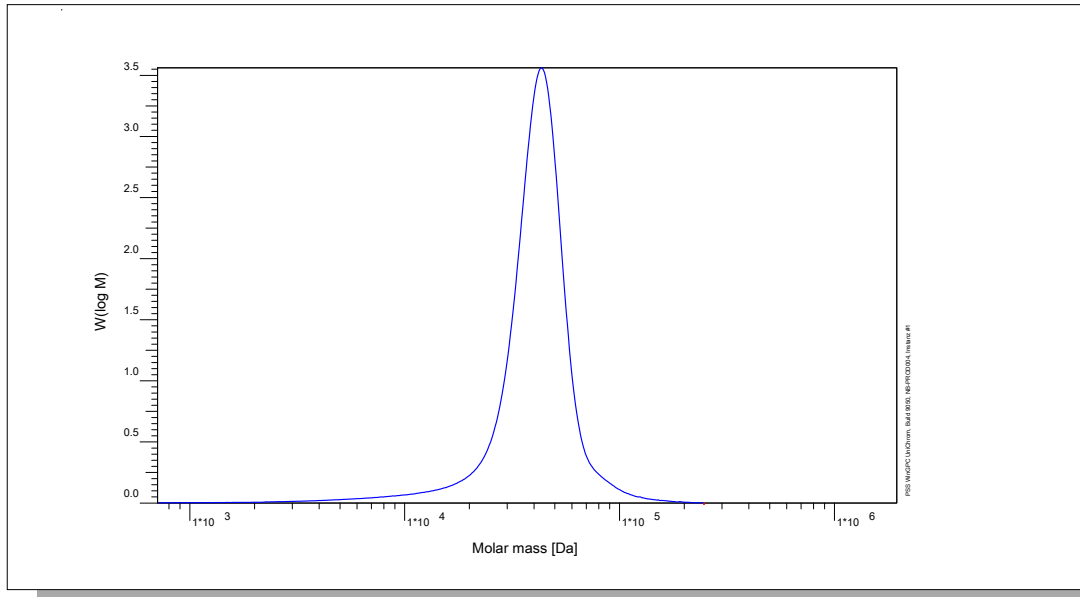


Certificate of Analysis

Polymer type: Poly(styrene sulfonate-d8) sodium salt
 Part No: PSS-pssd44k
 Lot No: pssde271005

Molar Mass Distribution



GPC/SEC - Conditions

Sample concentration	1,00 g/l	Inject volume	20 µl
Flow rate	1,00 ml/min	Temperature	23 °C
Solvent	Water, Disodium hydrogen phosphate 0.067M		
Precolumn [8 x 50 mm]	PSS MCX 10µm		
Columns [analytical, each 8 x 300 mm]	PSS MCX 10µm 10e3Å / 10e5Å / 10e7Å		
Data Acquisition Software	PSS WinGPC	Operator	J.Preis

GPC/SEC - Results

Detector	Mw [Da]	Mn [Da]	Mp [Da]	PDI [Mw/Mn]
PSS SECcurity UV 254nm	43600	-	43600	<1.20

Parent Poly(styrene-d8) Molecular Weight: Mw [Da] = 24100 Mn [Da] = 23300 Mp [Da] = 24100 PDI = 1.04

Note:

Mw = Weight average molecular weight
 Mn = Number average molecular weight
 Mp = Molar mass at the peak maximum
 PDI = Polydispersity Index

The molecular weights are calculated with the factor 1.81 (pssd sodium salt / psd x 0.95). Degree of sulfonation > 90%.
 (For calculation: Assumption: Degree of sulfonation is 95%).

Storage: Store the tightly recapped polymer standard in a dry, dark, cool area; e.g. a refrigerator (4 °C).

Date of expiry: See product label.

Manufacture and control according to PSS method of analysis



Dr. T. Hofe
production director