

# Certificate of Analysis



Agilent Technologies, Inc. acquired Polymer Standards Service GmbH (PSS) on August 01<sup>st</sup>, 2022.

The Quality Certificate / Certificate of Analysis generated by PSS attached to this Letter is valid for the Product stated in the Certificate sold to You by Agilent Technologies, Inc or its subsidiaries.

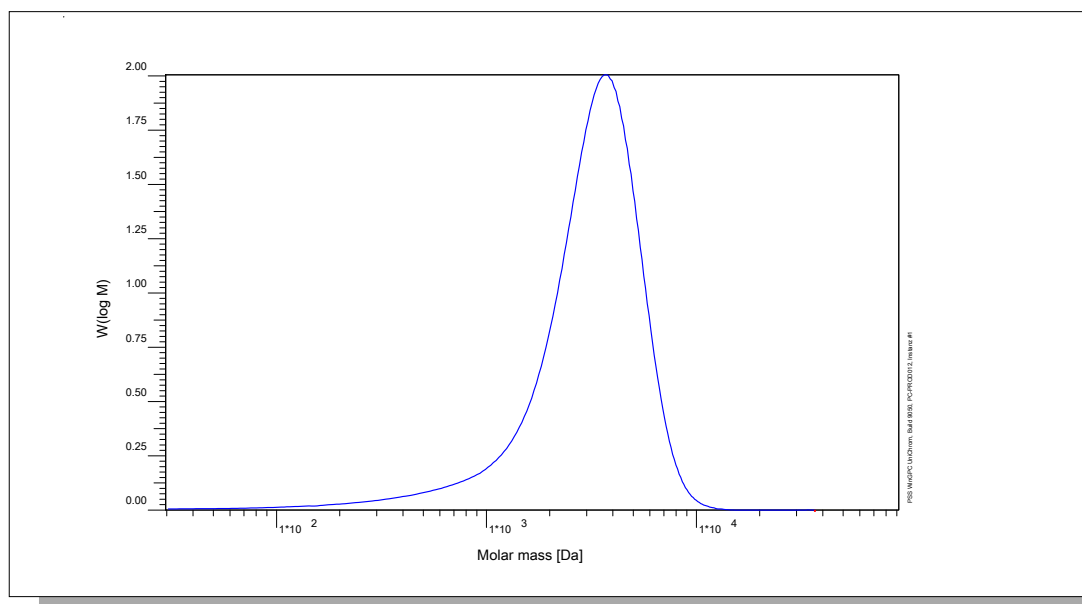
Patrick Kunzweiler

Quality Manager  
Liquid Phase Separation Division

# Certificate of Analysis

Polymer type: Poly(styrene sulfonate) sodium salt  
 Part No: PSS-PSS4.2K  
 Lot No: PSS260219

## 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	A.Klein

## GPC/SEC - Results

Detector	Mw [Da]	Mn [Da]	Mp [Da]	PDI [Mw/Mn]
PSS SECcurity UV 254nm	3930	-	3970	<1.20

Parent Poly(styrene) Molecular Weight: Mw [Da] = 2090 Mn [Da] = 1970 Mp [Da] = 2110 PDI = 1.06


**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 1.88. Degree of sulfonation > 90%.  
 (For calculation: Assumption: Degree of sulfonation is 90%).

**Storage:** Store the tightly recapped polymer standard in a dry, dark, cool area; e.g. a refrigerator (4 °C).  
**Date of expiry:** 2028/02/29 (See also product label.)  
**Date of approval:** 2023/02/24

Manufacture and control according to PSS method of analysis

  
 Dr. J. Preis  
 production manager

