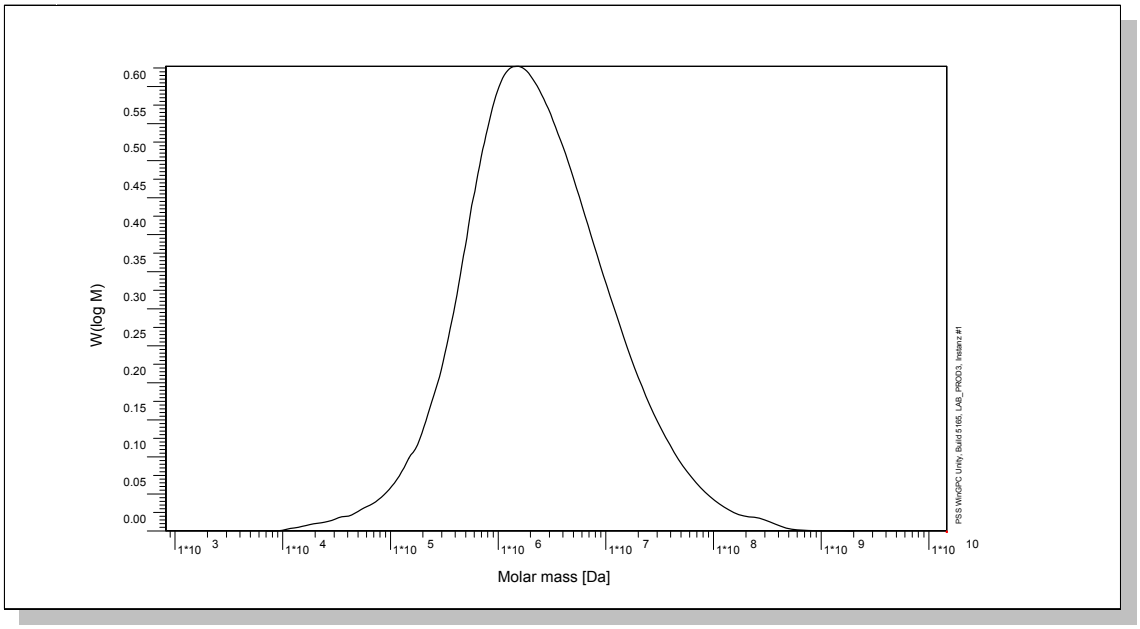
Certificate of Analysis

Polymer type: Poly(2-vinylpyridinium bromide)
Part No: PSS-pvpq3.3m
Lot No: vpq17043

Molar Mass Distribution



GPC/SEC - Conditions

Sample concentration	1,00 g/l	Inject volume	20 µl
Solvent	Formic acid 0.3M	Flow rate	1,00 ml/min
Precolumn [8 x 50 mm]	PSS NOVEMA 10µm	Temperature	25,0° C
Columns [analytical, each 8 x 300 mm]	PSS NOVEMA 10µm 3 000Å		
Data Acquisition Software	PSS WinGPC	Operator	R. Leinweber

GPC/SEC - Results

Detector	Mw [Da]	Mn [Da]	Mp [Da]	PDI [Mw/Mn]
HP UV 254 nm	3350000	-	4600000	< 1,40

Parent Poly(2-vinylpyridine) Molecular Weight: Mw [Da] = 1 260 000 Mn [Da] = 920 000 Mp [Da] = 1 730 000 PDI = 1.37

Molecular Weights are calculated with factor 2.66. (Factor 2.66 = M (pvpq) / M (pvp)).
Note:
Mw = Weight average molecular weight
Mn = Number average molecular weight
Mp = Molar mass at the peak maximum
PDI = Polydispersity Index

Degree of quaternisation with benzylbromide > 98 % / M (pvp)

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 control according to PSS method of analysis

Dr. T. Hofe
production director

PSS Polymer Standards Service GmbH
In der Dalheimer Wiese 5
55120 Mainz | Germany
Phone +49 6131 96239-0
Fax +49 6131 96239-11
E-Mail info@pss-polymer.com
Web www.pss-polymer.com

Polymer Standards Service-USA, Inc.
160 Old Farm Rd, Suite A
Amherst | MA 01002 | USA
Phone +1 413 835-0265
Fax +1 413 835-0354
E-Mail usa@pss-polymer.com
Web www.pss-polymer.com