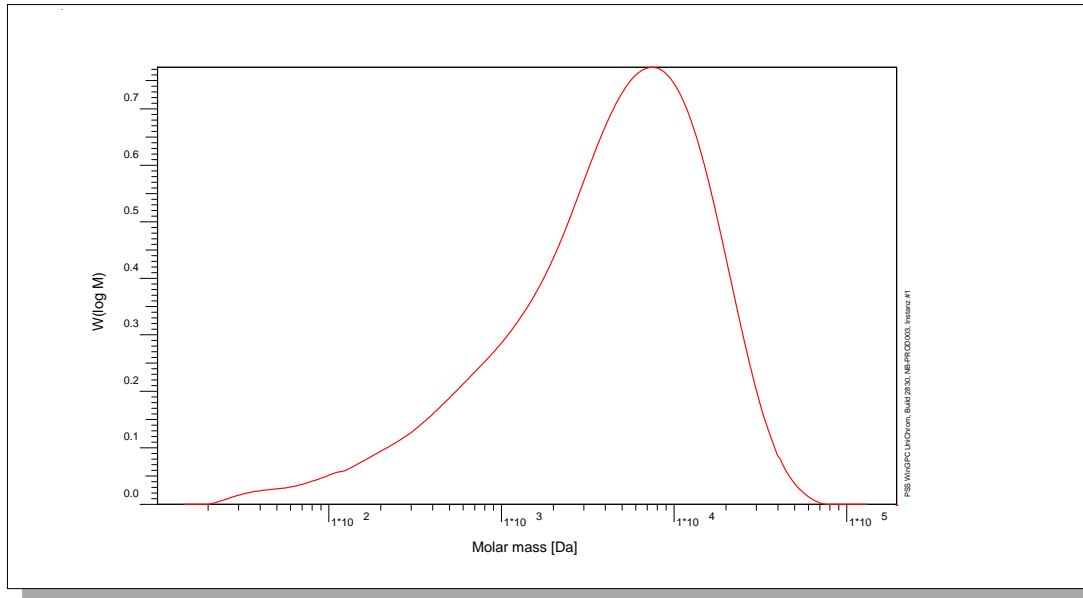


Certificate of Analysis

Polymer type: Poly(vinyl pyrrolidone) broad
 Part No: PSS-vprb8k
 Lot No: vpr210515

Molar Mass Distribution



GPC/SEC - Conditions

| | | | |
|---------------------------------------|--|---------------|---------|
| Sample concentration | 3,00 g/l | Inject volume | 50 µl |
| Flow rate | 1,00 ml/min | Temperature | 23 °C |
| Solvent | 0.1M NaNO ₃ , 20Vol% MeOH | | |
| Precolumn [8 x 50 mm] | PSS SUPREMA 10µm | | |
| Columns [analytical, each 8 x 300 mm] | PSS SUPREMA 10µm ultrahigh / ultrahigh / ultrahigh | | |
| Data Acquisition Software | PSS WinGPC | Operator | J.Preis |

GPC/SEC - Results

| Detector | Mw [Da] | Mn [Da] | Mp [Da] | PDI [Mw/Mn] |
|-------------|---------|---------|---------|-------------|
| Agilent RID | 8050 | 1220 | - | 6,60 |

Note:

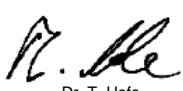
Mw = Weight average molecular weight
 Mn = Number average molecular weight
 Mp = Molar mass at the peak maximum
 PDI = Polydispersity Index

Light Scattering - Result: Mw [Da] = 7720

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

