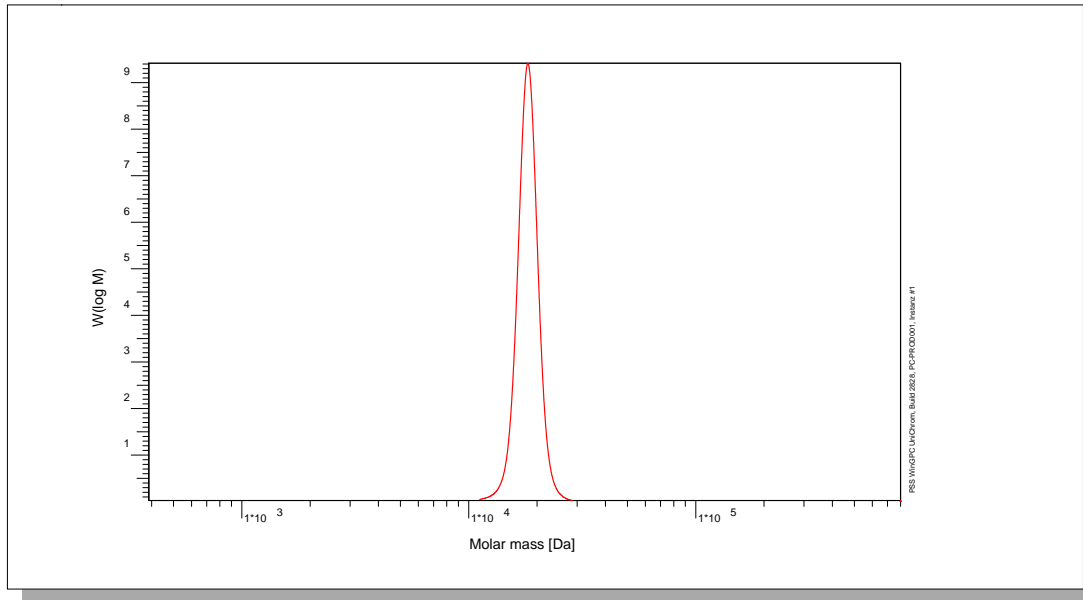


Certificate of Analysis

Polymer type: Poly(butadiene-1.2)
 Part No: PSS-bdt20k
 Lot No: bdt201103n

Molar Mass Distribution



GPC/SEC - Conditions

| | | | |
|---------------------------------------|-----------------------------------|---------------|-------------|
| Sample concentration | 1,00 g/l | Inject volume | 20 µl |
| Solvent | Tetrahydrofuran | Flow rate | 1,00 ml/min |
| Precolumn [8 x 50 mm] | PSS SDV 5µm | Temperature | 23 °C |
| Columns [analytical, each 8 x 300 mm] | PSS SDV 5µm 10e3Å / 10e5Å / 10e6Å | Operator | S. Fugmann |
| Data Acquisition Software | PSS WinGPC | | |

GPC/SEC - Results

| Detector | Mw [Da] | Mn [Da] | Mp [Da] | PDI [Mw/Mn] |
|-------------|---------|---------|---------|-------------|
| Agilent RID | 17800 | 17500 | 18200 | 1,02 |

Additional Methods - Results

| Method | Mw [Da] |
|-------------------------------------|---------|
| Light Scattering, on-line (SLD7x00) | 17400 |

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

Light Scattering run on-line, based on Toluene Rayleigh Ratio $R = 1.404 \cdot 10^{-5} \text{ cm}^{-1}$ at 633 nm.
 System and instrument validation based on Certified Reference Materials Poly(styrene) Lot No: ERM-FA001.

Sample concentration 4.9587 g/L
 Inject volume 100µL

Microstructure of the polymer (estimated uncertainty: +/- 5%):

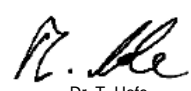
Poly(butadiene-1.2) 87%
 Poly(butadiene-1.4) 13%

Polymer stabilized with 0.1% BHT.

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

Date of expiry: yyyy/mm/dd (See also product label.)

Date of approval: yyyy/mm/dd

Manufacture and control according to PSS method of analysis

 Dr. T. Hofe
 production director

