

Polymer Standards

Individual Standards and Calibration kits: Manufactured by Polymer Standards Service GMBH, under **ISO 9001 certification**, these high quality reference materials are accompanied by a **Quality Certificate** with **Mw distribution and GPC traces (Mp, Mn, Mw)**. For stringent **DIN ISO and GLP** data requirements, the **DIN Certified Standards** fulfill all requirements of **DIN 55672** and **ISO/EN 13885** standards, providing GPC (relative method) and Light Scattering and/or Viscometry data (absolute methods). All calibration kits are carefully designed to provide equally distributed data points on a calibration curve based on the Mp (using the column specified).

Call for ordering information on individual Standards

Calibration Kits- Organics	Molecular Weight Range (Mp)	Quantity	Cat. No.
Poly(alpha methylstyrene)	1,500- 1,000,000	10 x 1g	PSS-amskit
Poly(butadiene-1,4)	1,000 - 1,000,000	10 x 1g	PSS-bdkit
Poly(t-butyl vinylketone)	10,000 - 450,000	5 x 0.1g	PSS-bvkkkit
Poly(ethyl methacrylate)	2,000 - 500,000	10 x 1g	PSS-emkit
Poly(iso-butylene)	100 - 1,000,000	10 x 0.5g	PSS-pibkit
Poly(methyl methacrylate) DIN	100 - 1,000,000	12 x 1g	PSS-mmkitd
Poly(methyl methacrylate)	100 - 1,000,000	12 x 1g	PSS-mmkitd
Poly(methyl methacrylate)	100 - 30,000	6 x 1g	PSS-mmkitl
Poly(n-butylacrylate)	700 - 80,000	8 x 0.1g	PSS-nbakit
Poly(n-butyl methacrylate)	1,500 - 800,000	9 x 1g	PSS-nbkit
Nylon 6,6 (broad MWD)	18,000 - 70,000	7 x 0.25g	PSS-nsskit
Oligo(ethylene), linear	112 - 2,200	8 x 0.5g	PSS-oeokit
Poly(carbonate)	500 - 180,000	8 x 0.5g	PSS-pckit
Poly(dimethylsiloxane)	400 - 300,000	8 x 0.5g	PSS-pdmkit
Poly(ethylene)	100 - 170,000	10 x 0.25g	PSS-pekit
Poly(isoprene -1,4)	1,000 - 800,000	10 x 1g	PSS-piokit
Poly(styrene) Din Certified	200 - 2,000,000	12 x 1g	PSS-pskitd
Poly(styrene)	400 - 3,000,000	12 x 1g	PSS-pskitd
Poly(styrene)	100 - 20,000	8 x 1g	PSS-pskitl
Poly(vinylpyridine)	1,000 - 300,000	8 x 1g	PSS-pvpkit
Poly(t-butyl methacrylate)	600 - 1,000,000	10 x 1g	PSS-tbkit

Calibration Kits -Water Soluble Polymers

Poly(methacryl. acid) Na salt	1,000 - 1,000,000	10 x 1g	PSS-pmakit
Poly(vinyl alcohol) (broad)	5,000 - 140,000	8 x 1g	PSS-pvokit
Poly(styrene sulfonate) Na salt	4,000 - 1,000,000	10 x 1g	PSS-psskit
Poly(acrylic acid) Na salt	1,700 - 1,100,000	10 x 0.25g	PSS-paakit
Poly(ethylene glycol)	100 - 40,000	10 x 1g	PSS-pegkit
Poly(ethylene glycol) DIN	100 - 40,000	10 x 1g	PSS-pegkitd
Poly(ethylene oxide)	20,000 - 1,700,000	8 x 0.5g	PSS-peokit
Poly(propylene glycol)	80 - 5,000	7 x 1g	PSS-ppgkit
Dextran (Polysaccharide)	180 - 300,000	10 x 0.5g	PSS-dxtkit
Dextran DIN Certified	180 - 300,000	10x 0.5g	PSS-dxtkitd
Pullulan	5,000 - 800,000	8 x 0.2g	PSS-pulkitl
Pullulan	300 - 800,000	10 x 0.2g	PSS-pulkith

ReadyCal Kits: Complete 12 point calibration curves (four std. per vial) already weighed in 1.5 ml or 4ml autosampler vials

Poly(styrene) ReadyCal 1.5ml	400 - 3,000,000	10x3 vials	PSS-pskitr1
Poly(styrene) ReadyCal 1.5 Low	162 - 70,000	10x3 vials	PSS-pskitr1l
Poly(styrene) ReadyCal ^{1.5} High	1,500 - 6,500,000	10x3 vials	PSS-pskitr1h
PMMA ReadyCal™ 1.5	500 - 3,000,000	10x3 vials	PSS-mmkitr1
PEO/PEG ReadyCal™	200 - 1,200,000	10x3 vials	PSS-peokitr1

Light Scattering/Viscometry Validation Kits

Poly(styrene)	9,000 - 800,000	4 x 0.5g	PSS-pskitv
Poly(methyl methacrylate)	8,000 - 1,100,000	4x 0.5g	PSS-mmkitv
Dextrane	10,000 - 230,000	4x 0.5g	PSS-dxtkitv

MALDI-Validation Kits: Different molecular weights to determine resolution and polarities for matrix-sample compatibility

Poly(styrene)	500 - 70,000	6 x 0.5g	PSS-pskitm
Poly(methyl methacrylate)	500- 70,000	6x 0.5g	PSS-mmkitm
Poly(ethylene glycol)	500- 20,000	6x 0.5g	PSS-pegkitm
Mix (PS,PMMA,PDMS,PEG,PSS)	5,000- 20,000	5x 0.5g	PSS-mixkitm
Poly(styrene)	9,000 - 800,000	4 x 0.5g	PSS-pskitv

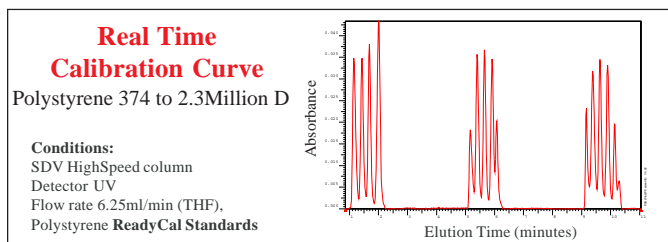
PSS High Speed GPC Columns

- ASTM D5296-97 compliant
- Rapid sample throughput (up to 10 times faster)
- Rapid product screening
- “Just in time” process control
- Rapid 2D-chromatography

The PSS HighSpeed family of columns permits dramatic **reductions in GPC analysis time** for polymers > 2000D, without loss in resolution, accuracy or reproducibility. PSS HighSpeed columns (20mmx50mm) have a larger diameter and a shorter length than their typical analytical counterparts (8mm x 300mm), and the ability to operate at higher **flow rates up to 6.5 ml/min** while keeping same linear flow, equal resolution and polymer information: **Mw, Mn, Mp and PDI**. They have unparalleled ability to produce a **12 point calibration curve in just ten minutes; (Polystyrene 374 to 2.3 Million D)**. Optimum column design helps expedite product screening, process control, and rapid sample throughput.

Durability: PSS HighSpeed Columns contain a very stable material modification that allows long term use without observable loss of efficiency.

Stability: PSS HighSpeed Columns are stable at pressures up to 150 bar for small pore HighSpeed and up to 45 bar for large pore HighSpeed. They can be used at room temperature or up to 80° C (Avoid boiling of eluent in the column). Aqueous columns are stable at pH 1.5 - 12. Organic columns are long term stable in the solvent they are shipped in.



High Speed Column Separation Range				
Porosity	SDV	Suprema	Novema	Gram
30Å	-	100 - 2 x 10e4 D	100 - 3 x 10e4	100 - 1 x 10e4 D
50Å	100 - 3 x 10e3 D	-	-	-
100Å	100 - 6 x 10e3 D	100 - 6 x 10e4 D	100 - 2 x 10e5	300 - 6 x 10e4 D
500Å	100 - 2.5 x 10e4 D	-	-	-
1000Å	100 - 6 x 10e4 D	10e3 - 1 x 10e6 D	10e3 - 1 x 10e6 D	10e3 - 1 x 10e6 D
3000Å	-	10e3 - 1.6 x 10e6 D	10e3 - > 1.6 x 10e6 D	-
10e4Å	500 - 0.7 x 10e6 D	10e3 - > 5 x 10e6 D	5 x 10e3 - > 5 x 10e6 D	10e3 - > 1 x 10e7
3 x 10e4Å	-	5 x 10e3 - > 10e7 D	-	-
10e5Å	10e3 - 1.5 x 10e6 D	-	-	-
10e6Å	10e3 - 4 x 10e6 D	-	-	-
10e7Å	5 x 10e3 - 6 x 10e6 D	-	-	-
10e8Å	10e4 - > 3 x 10e7 D	-	-	-
linear S	100 - 1.5 x 10e5 D	-	-	-
linear M	100 - 1 x 10e6 D	-	-	-
linear XL	10e3 - 3 x 10e6 D	-	-	-

PSS High Speed GPC Columns (20 x 50mm)

Phase Type	Cat. No.	Particle size (µm)	Porosity (Å)
SDV	sds2005031e3	3	1,000
	sds2005031e4	3	10,000
	sds2005031e5	3	100,000
	sds200503lis	3	linear S
	sds200503lim	3	linear M
SDV	sds2005051e3	5	1,000
	sds2005051e4	5	10,000
	sds2005051e5	5	100,000
	sds2005051e6	5	1,000,000
	sds200505lis	5	linear S
	sds200505lim	5	linear M
SDV	sds2005051xl	5	linear XL
	sds2005101e3	10	1000
	sds2005101e4	10	10,000
	sds2005101e5	10	100,000
	sds2005101e6	10	1,000,000
	sds2005101e7	10	10,000,000
	sds2005101e8	10	100,000,000
	sds200510lis	10	linear S
	sds200510lim	10	linear M
	sds2005101xl	10	linear XL
SDV	sds2005201e3	20	1000
	sds2005201e4	20	10,000
	sds2005201e5	20	100,000
	sds2005201e6	20	1,000,000
	sds2005201e7	20	10,000,000
	sds2005201e8	20	100,000,000
	sds200520lim	20	linear M
	sds2005201xl	20	linear XL
Suprema	sus2005101e2	10	100
	sus2005101e3	10	1,000
	sus2005101e4	10	10,000
	sus2005103e3	10	3000
	sus2005103e4	10	3,0000
	sus200510lim	10	linear M
Suprema	sus2005101xl	10	linear XL
	sus2005201e2	20	100
	sus2005201e3	20	1,000
	sus2005201e4	20	10,000
	sus2005203e3	20	3,000
	sus2005203e4	20	30,000
Novema	sus2005201xl	20	linear XL
	nos2005101e2	10	300
	nos2005101e3	10	1,000
	nos2005101e4	10	10,000
	nos2005103e3	10	3,000
	nos200510lin	10	linear
GRAM	ams2005101e2	10	100
	ams2005101e3	10	1,000
	ams2005101e4	10	10,000
	ams2005103e3	10	3,000

HighSpeed Columns	Applicability Example	Eluent
GRAL/GRAM	PMMA, Dextran, Cellulose nitrate	DMF, DMAc, NMP, DMSO
NOVEMA	Polycations, Proteins PolyDADMAC	Aqueous
SDV 3µm	Oligomers	THF, Toluene, CHCl ₃
SDV 5, 10, 20µm	Most organic soluble polymers and co-polymers; PS, PMMA	THF, Toluene, CHCl ₃
SUPREMA	Gelatin, Biopolymers Hyaluronic Acid, Pullulan Xanthane	Aqueous