

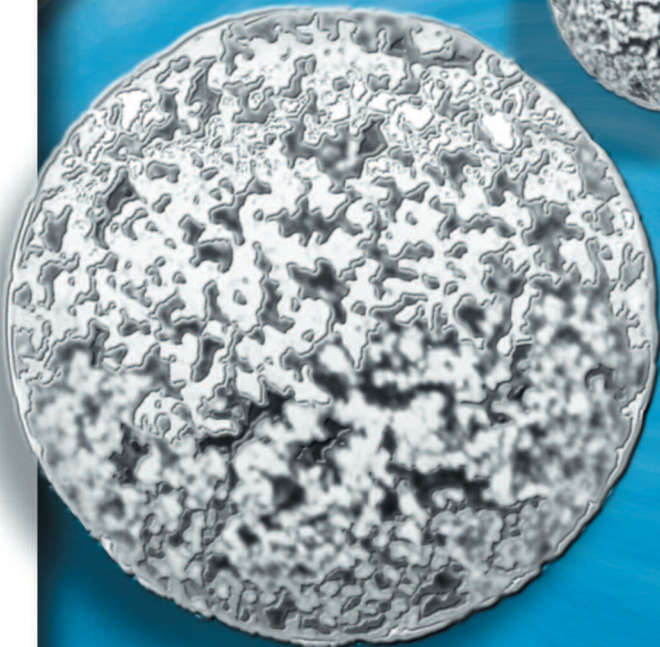
A N A L Y S E N T E C H N I K

# GPC-/SEC-Columns

& accessories

# 2020

**DIRECT FROM  
PRODUCER**



- MZ-Gel SD<sup>plus</sup>
- MZ-Gel SD<sup>plus</sup> LS
- MZ-Super FG

Development • Manufacturing  
Distribution • Consulting

### HPLC-Columns

- New + Refill
- Complete Range of Packings
- Micro • Analytical • Preparative
- PerfectChrom • PerfectBond
- MZ-AquaPerfect • PerfectSil
- PerfectSil Target • Orbit

### Distributor For:

- GRACEVDAC • GL-SCIENCES
- THERMO SCIENTIFIC • MERCK
- Eka-Nobel/KROMASIL • TCI
- Agilent • DAICEL / CHROMTECH
- ES-INDUSTRIES • AMT/HALO
- ACE • SEPAX TECHNOLOGIES
- MACHEREY-NAGEL • HICHROM

### MZ-PAH

- Analytics of PAH's

### MZ-PBM

- Analytics of Pesticides

### MZ-Gel SD<sup>plus</sup>

- SEC-Columns hydrophobic (Styrene-Divinylbenzene)

### MZ-Gel Super FG

- SEC with fluorinated Eluents

### Accessories

- IDEX H&S Valves
- EXMIRE-Syringes
- Guard-Columns
- Capillaries
- Fingertight-Fittings
- etc.



## 30+ YEARS FOR SEPARATION

MZ-Analysentechnik GmbH was founded in 1986. Ever since we are active in the field of research and development of columns and bulk media for high performance liquid chromatography (HPLC), gel permeation chromatography (GPC) and size exclusion chromatography (SEC). Our goal is to provide customers worldwide with LC-columns, packing media and accessories with the highest level of quality – by reasonable pricing.

Columns and packing media made by MZ-Analysentechnik serve chromatographers in obtaining reliable and reproducible separations, very often shipping as OEM-products with other brand names.

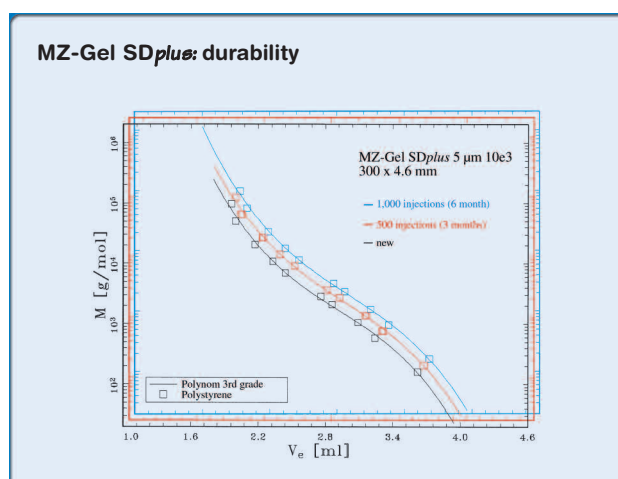
The continuous refinement of the manufacturing process – ISO 9001-certified – improved quality and durability of the columns. This brochure is a short survey of our series of GPC- and SEC-columns highlighting the following specialties:

- ▶▶▶ **MZ-Gel SD<sub>plus</sub> LS** – extra low phase bleeding for detection via light scattering techniques
- ▶▶▶ **MZ-Gel SD<sub>plus</sub> 3 μm** – hydrophobic GPC-columns with guaranteed platenumbers > 100,000 m<sup>-1</sup>
- ▶▶▶ **Narrow bore & Micro bore** GPC-/SEC-columns (saving up to 70 % eluent)

For additional information – please contact us or visit our homepage: <http://www.gpc.biz>

## MZ-Gel SD<sub>plus</sub>

- ▶▶▶ **MZ-Gel SD<sub>plus</sub>** is a proprietary development of MZ-Analysentechnik GmbH based on highly cross-linked styrene / divinylbenzene high-performance copolymer
- ▶▶▶ Narrow pore size distribution and low polydispersity combined with nearly perfect spherical particle shape
- ▶▶▶ Ships in new High-End-hardware, fully compatible with previous columns and with guaranteed Refill-capabilities
- ▶▶▶ High reliability, reproducibility and durability



## TECHNICAL DATA

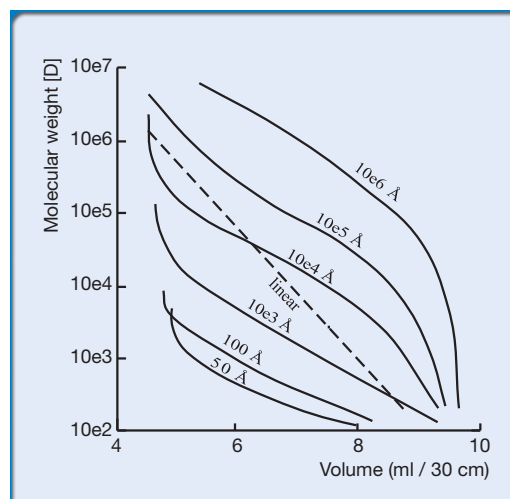
MZ-Gel SD <sub>plus</sub>	3 μm	5 μm	10 μm
particle shape	spherical	spherical	spherical
available porosities [Å]	50-10 <sup>3</sup> Å	50-10 <sup>6</sup> Å + linear	50-10 <sup>6</sup> Å + linear
plate numbers: min. guaranteed [m <sup>-1</sup> ]	100,000	60,000	50,000
plate numbers: typical [m <sup>-1</sup> ]	120,000	80,000	60,000
pressure stability [bar]	160	160	160
backpressure per 30 cm [bar]*	40	25	15
max. flow rate analytical 8 mm ID	1.5 ml/min	1.5 ml/min	3 ml/min
max. flow rate narrow bore 4.6 mm ID	0.6 ml/min	0.6 ml/min	0.6 ml/min
max. flow rate preparative 20 mm ID		10 ml/min	20 ml/min
temperature range	max. 100 °C	max. 100 °C	max. 140 °C

\* based on column 300 x 8 mm, flow rate 1 ml/min, eluent THF

## MZ-Gel SD<sub>plus</sub>

### MOLECULAR MASS RANGE & EXCLUSION LIMIT

POROSITY	MOLECULAR MASS RANGE		EXCLUSION LIMIT
50 Å	<	2,000	3,000
100 Å	<	3,000	5,000
500 Å	<	20,000	20,000
10e3 Å	1,000 -	40,000	70,000
10e4 Å	4,000 -	500,000	700,000
10e5 Å	10,000 -	2,000,000	4,000,000
10e6 Å	200,000 -	10,000,000	> 10,000,000
linear	1,000 -	1,000,000	> 2,000,000

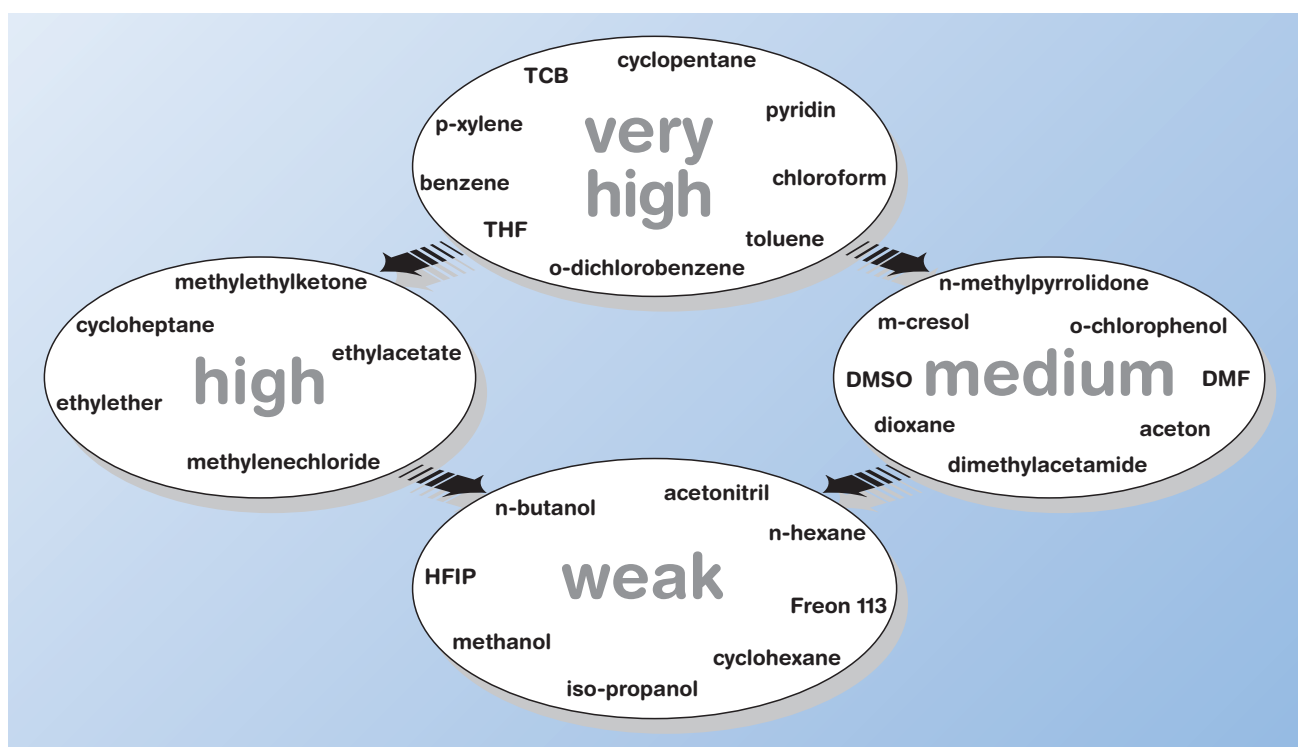
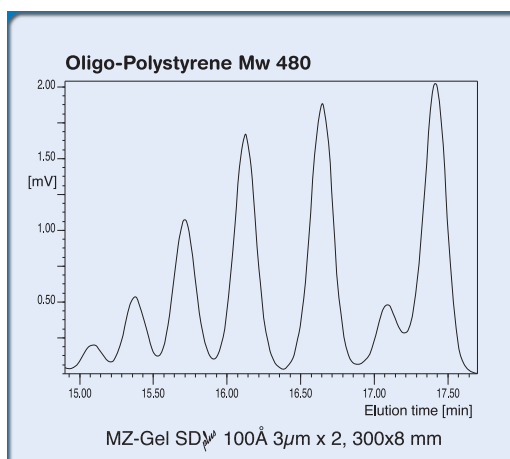


### SOLVENT COMPATIBILITY CHART

**MZ-Gel SD<sub>plus</sub>** GPC-columns are manufactured, tested and shipped by default in THF.

By request we can deliver these columns filled with any other common solvent. Please follow the solvent compatibility chart below if you intend to change the solvent due to the swelling of the polymer.

The swelling capacity of GPC-eluents is classified in four categories from low up to very high. This offers the following possibilities for changing the eluent:



GPC-solvents: swelling capacity and possibilities for changing the eluent



# MZ-Gel SDplus PRICES AND ORDERING INFORMATION



ANALYTICAL 8 MM ID			PRICE/€	
LENGTH x ID	PARTICLE SIZE	POROSITIES	NEW	REFILL
300 x 8 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,023.--	921.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	895.--	793.--
	5 µm	linear	972.--	870.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	665.--	563.--
600 x 8 mm	10 µm	linear	757.--	655.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,279.--	1,125.--
	5 µm	linear	1,468.--	1,315.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	967.--	813.--
50 x 8 mm	10 µm	linear	1,095.--	941.--
	5 µm	all porosities + linear	312.--	271.--
	10 µm	all porosities + linear	312.--	271.--

MICRO BORE				
250 x 3 mm	5 µm	all porosities + linear	614.--	512.--
40 x 3 mm	5 µm	all porosities + linear	214.--	164.--
250 x 2 mm	5 µm	all porosities + linear	614.--	512.--
40 x 2 mm	5 µm	all porosities + linear	214.--	164.--

NARROW BORE 4.6 mm ID (SAVING UP TO 70 % ELUENT)				
300 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,023.--	921.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	767.--	665.--
	5 µm	linear	844.--	742.--
40 x 4.6 mm	3 µm	all porosities + linear	214.--	164.--
	5 µm	all porosities + linear	214.--	164.--
	10 µm	all porosities + linear	214.--	164.--

**CODES**      **MZ-Gel SDplus**

Porosity	3 µm	5 µm	10 µm
50 Å	5553	5555	5530
100 Å	5013	5015	5010
500 Å	5053	5055	5050
1,000 Å	5303	5305	5300
10 <sup>4</sup> Å	-	5405	5400
10 <sup>5</sup> Å	-	5505	5500
10 <sup>6</sup> Å	-	5605	5600
Linear	-	5005	5000

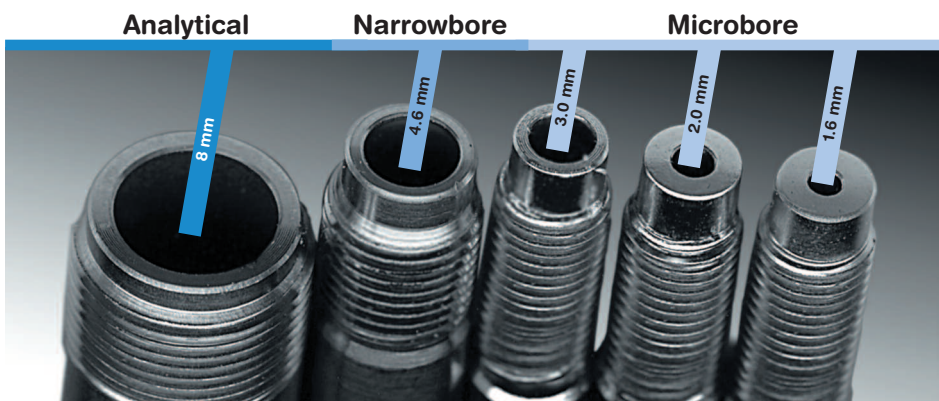
PREPARATIVE 20 mm ID				
300 x 20 mm	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,940.--	1,685.--
	10 µm	linear	2,195.--	1,940.--
50 x 20 mm	10 µm	all porosities + linear	473.--	325.--

**i** PART-NO.

<b>MZ</b>	<b>CODE</b>	<b>LEN</b>	<b>IDØ</b>
four-digit Materialcode	length in mm	ID in 1/10 mm	

**Example:**  
 MZ-Gel SDplus 100 Å 5 µm (5015);  
 SEC-Column 300 x 8,0 mm  
 => Part-No.: **MZ5015-300080**

*Please inquire about details of Refill-Service*



## MZ-Gel SD<sup>plus</sup> LS - for Detection via Light Scattering

Detection via today's Laser-Lightscattering-technique enables direct acquisition of polymeric molecular size information during a GPC/SEC-run. Due to its high sensitivity, this method requires special attention upon the whole chromatographic procedure - sample preparation, purity of the solvent and the stability and quality of the GPC column.

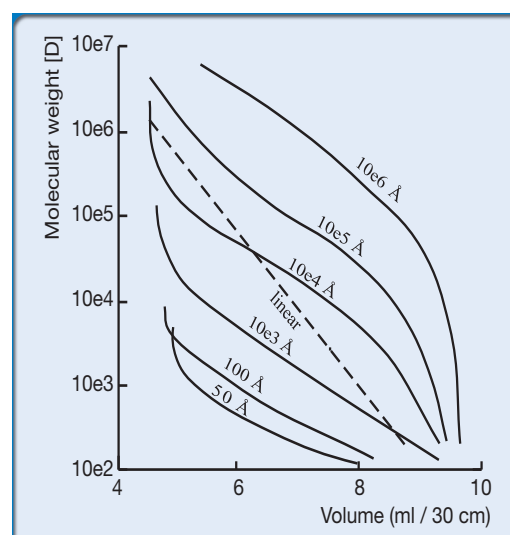
**MZ-Gel SD<sup>plus</sup> LS** is a proprietary development of MZ-Analysentechnik based on highly-crosslinked

and totally porous high-performance styrene-divinylbenzene copolymer. It is derived from the well-known **MZ-Gel SD<sup>plus</sup>** as base material via a special post-treatment to meet the special requirements of detection via light-scattering. Therefore **MZ-Gel SD<sup>plus</sup> LS** features an extremely low phase-bleeding plus the extraordinary capabilities as the HPLC-like separation efficiency of the well-known original material.

### MOLECULAR MASS RANGE &

#### EXCLUSION LIMIT

POROSITY	MOLECULAR MASS RANGE		EXCLUSION LIMIT
50 Å	<	2,000	3,000
100 Å	<	3,000	5,000
500 Å	<	20,000	20,000
10e3 Å	1,000 -	40,000	70,000
10e4 Å	4,000 -	500,000	700,000
10e5 Å	10,000 -	2,000,000	4,000,000
10e6 Å	200,000 -	10,000,000	> 10,000,000
linear	1,000 -	1,000,000	> 2,000,000



### TECHNICAL DATA

MZ-Gel SD <sup>plus</sup>	3 µm	5 µm	10 µm
particle shape	spherical	spherical	spherical
available porosities [Å]	50-10 <sup>3</sup> Å	50-10 <sup>6</sup> Å + linear	50-10 <sup>6</sup> Å + linear
plate numbers: min. guaranteed [m <sup>-1</sup> ]	100,000	60,000	50,000
plate numbers: typical [m <sup>-1</sup> ]	120,000	80,000	60,000
pressure stability [bar]	160	160	160
backpressure per 30 cm [bar]*	40	25	15
max. flow rate analytical 8 mm ID	1.5 ml/min	1.5 ml/min	3 ml/min
max. flow rate narrow bore 4.6 mm ID	0.6 ml/min	0.6 ml/min	0.6 ml/min
max. flow rate preparative 20 mm ID		10 ml/min	20 ml/min
temperature range	max. 100 °C	max. 100 °C	max. 140 °C

\* based on column 300 x 8 mm, flow rate 1 ml/min, eluent THF

## MZ-Gel SD<sup>plus</sup> LS - PRICES AND ORDERING INFORMATION

ANALYTICAL 8 MM ID			Price/€	
LENGTH x ID	PARTICLE SIZE	POROSITY	NEW	REFILL
300 x 8 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,122.--	1,020.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	982.--	880.--
	5 µm	linear	1,068.--	966.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	727.--	625.--
	10 µm	linear	829.--	727.--
600 x 8 mm	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,404.--	1,250.--
	5 µm	linear	1,613.--	1,460.--
	10 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	1,057.--	903.--
	10 µm	linear	1,199.--	1,045.--
50 x 8 mm	5 µm	all porosities + linear	342.--	301.--
	10 µm	all porosities + linear	342.--	301.--

MICROBORE				
250 x 3 mm	5 µm	all porosities + linear	670.--	568.--
40 x 3 mm	5 µm	all porosities + linear	250.--	200.--
250 x 2 mm	5 µm	all porosities + linear	670.--	568.--
40 x 2 mm	5 µm	all porosities + linear	250.--	200.--

NARROW BORE 4.6 mm ID (SAVING UP TO 70 % ELUENT)				
300 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	1,125.--	1,023.--
	5 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å, 10 <sup>4</sup> Å, 10 <sup>5</sup> Å, 10 <sup>6</sup> Å	840.--	738.--
	5 µm	linear	926.--	824.--
40 x 4.6 mm	3 µm	50 Å, 100 Å, 500 Å, 10 <sup>3</sup> Å	250.--	200.--
	5 µm	all porosities + linear	250.--	200.--
	10 µm	all porosities + linear	250.--	200.--

### Codes MZ-Gel SD<sup>plus</sup> LS

Porosity	3 µm	5 µm	10 µm
50	5554	5556	5531
100	5014	5016	5011
500	5054	5056	5051
1,000	5304	5306	5301
10 <sup>4</sup>	-	5406	5401
10 <sup>5</sup>	-	5506	5501
10 <sup>6</sup>	-	5606	5601
Linear	-	5006	5001

**i** PART-No.

<b>MZ</b>	<b>CODE</b>	<b>-</b>	<b>LEN</b>	<b>IDØ</b>
four-digit Materialcode	length in mm		ID in 1/10 mm	

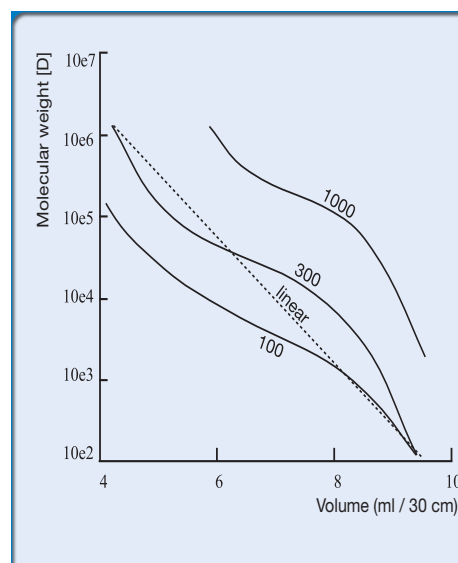
**Example:** MZ-Gel SD<sup>plus</sup> LS linear 5 µm (5006);  
GPC-Column 300 x 8.0 mm  
=> Part-No.: **MZ5006-300080**

*Please inquire about details of Refill-Service*

# MZ Super-FG: GPC-COLUMNS FOR FLUORINATED ELUENTS

**MZ Super-FG** GPC-columns are packed with especially modified silica. The surface chemistry offers optimum interaction between the stationary phase and analytes which require fluorine containing mobile phases like TFE or HFIP.

TECHNICAL DATA	MZ-GEL SUPER FG
particle size	7 µm
pressure stability	max. 300 bar
max. flow rate:	
analytical 8 mm ID	3 ml/min
preparative 20 mm ID	20 ml/min
temperature range	max. 80 °C
pH-stability	2 – 9
pore volume	0.6 – 1.0 ml/g



POROSITY	MOLECULAR WEIGHT RANGE	EXCLUSION LIMIT
100	100 - 30,000	100,000
300	1,000 - 100,000	1,000,000
1000	20,000 - 1,000,000	10,000,000
4000	100,000 - 10,000,000	20,000,000
Linear	100 - 1,000,000	10,000,000

**MZ Super-FG** columns are available as four different porosities & 1 linear mix. The table exhibits the appropriate molecular mass range and exclusion limit.

## Prices and Ordering Information

ANALYTICAL			PRICE/€	NEW	REFILL
300 x 8 mm	7 µm	all porosities		767.--	665.--
	7 µm	linear		870.--	767.--
600 x 8 mm	7 µm	all porosities		1,074.--	921.--
	7 µm	linear		1,222.--	1,069.--
50 x 8 mm	7 µm	all porosities + linear		312.--	271.--
PREPARATIVE					
300 x 20 mm	7 µm	all porosities		2,071.--	1,816.--
	7 µm	linear		2,301.--	2,046.--
50 x 20 mm	7 µm	all porosities + linear		430.--	282.--



### PART-NO.



**Example:** MZ Super-FG linear 7 µm (9000);  
SEC-Column 300 x 8,0 mm  
=> **Part-No.: MZ9000-300080**  
*Please inquire details for Refill-Service*

Porosity	Code
100	9010
300	9030
1,000	9100
4,000	9400
linear	9000

All prices in EUR excluding VAT. Shipping details by request.

## ACCESSORIES

PART-NO.	PRODUCT		AMOUNT	PRICE/€
AS0301	stainless steel tubing	AD 1/16" x 0.13 mm ID	3 m	25.50
AS0325		AD 1/16" x 0.25 mm ID	3 m	25.50
AS0350		AD 1/16" x 0.50 mm ID	3 m	25.50
AS0370		AD 1/16" x 0.75 mm ID	3 m	25.50
AS0310		AD 1/16" x 1.00 mm ID	3 m	25.50
AS1001	stainless steel ferrules	1/16"	10 pieces	19.--
AS1010	stainless steel ferrules	1/16"	100 pieces	152.--
AR1101	stainless steel ferrules	1/16" Rheodyne	10 pieces	19.--
AS2001	fitting screws	stainless steel short	10 pieces	26.--
AS2101	fitting screws	stainless steel long	10 pieces	26.--
AS2201	fitting screws	stainless steel large	10 pieces	39.--
AS3001	ZDV-union stainless steel	1/16"	1 piece	32.50
AS3101	tee-piece stainless steel	1/16"	1 piece	85.--
AS3201	cross stainless steel	1/16"	1 piece	99.--
AP0313	PEEK-tubing	AD 1/16" x 0.13 mm ID	3 m	24.--
AP0317		AD 1/16" x 0.17 mm ID	3 m	24.--
AP0325		AD 1/16" x 0.25 mm ID	3 m	24.--
AP0350		AD 1/16" x 0.50 mm ID	3 m	24.--
AP0375		AD 1/16" x 0.75 mm ID	3 m	24.--
AP5001	fingertight-fittings	PEEK	10 pieces	55.--
AP5101	coupler PEEK universal fingertight		1 piece	19.--
AP5201	union PEEK	1/16" (incl. 2 fingertight-fittings)	1 set	19.--
AP5301	tee-piece PEEK	1/16" (incl. 3 fingertight-fittings)	1 set	60.--
AP5401	cross PEEK	1/16" (incl. 4 fingertight-fittings)	1 set	89.--
AN5501	plug Nylon	1/16"	10 pieces	8.--
AN5510			100 pieces	42.--
AS6000	pliers for stainless steel tubings		1 piece	19.--
AR6100	Rheotool		1 piece	35.--
AP6200	Clean-Cut for cutting polymeric tubings		1 piece	15.--
AP6300	Guillotine-Cutter		1 piece	7.50
AC7000	EasyFlange Kit		1 set	288.00
AS7500	Last-drop mobile phase-filter with 2.0 µm stainless steel frit		1 piece	24.50
AP7500	Last-drop mobile phase-filter with 2.5 µm PAT-frit		1 piece	24.50



## SYRINGES



### EXMIRE® HIGH QUALITY INJECTION SYRINGES

volume	smallest amount	Part-No.	Price/€
5 µl	0.1 µl	MSR 05	on request
10 µl	0.2 µl	MSR 10	on request
25 µl	0.5 µl	MSR 25	on request
50 µl	1.0 µl	MSR 50	on request
100 µl	2.0 µl	MSR 100	on request
250 µl	5.0 µl	MSR 250	on request
500 µl	10.0 µl	MSR 500	on request



All prices in EUR excluding VAT. Shipping details by request.