Gel Permeation Chromatography

chrozen GPC System

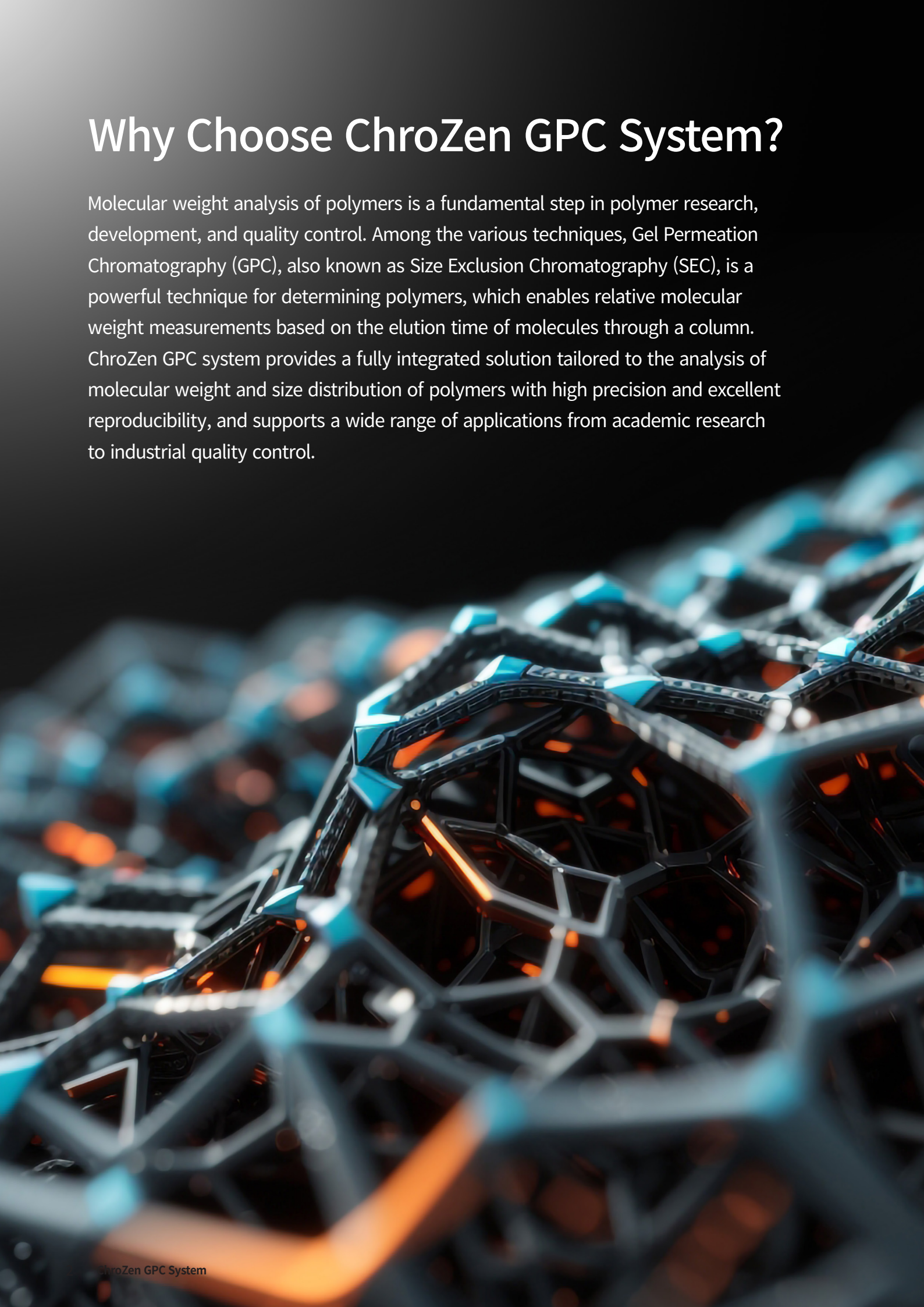
for Advanced Polymer Characterization



YOUNG IN Chromass

Why Choose ChroZen GPC System?

Molecular weight analysis of polymers is a fundamental step in polymer research, development, and quality control. Among the various techniques, Gel Permeation Chromatography (GPC), also known as Size Exclusion Chromatography (SEC), is a powerful technique for determining polymers, which enables relative molecular weight measurements based on the elution time of molecules through a column. ChroZen GPC system provides a fully integrated solution tailored to the analysis of molecular weight and size distribution of polymers with high precision and excellent reproducibility, and supports a wide range of applications from academic research to industrial quality control.



Engineered for Precision.
Designed for Polymer Analysis.

Superior Reproducibility

Ensures consistent retention time and peak area across repeated injections for reliable molecular weight determination.

Baseline Stability for Long-Term Runs

Pulse-free isocratic pump and efficient degassing system maintain a stable baseline, minimizing drift during extended sequences.

Modular & Scalable Configuration

Flexible system setup can be tailored to meet the demands of both R&D and high-throughput QA/QC operations.

Robust Hardware Design

High-precision components (e.g., oven with accurate thermal control, minimized dead-volume flow path) enhance chromatographic performance and system durability.

User-Friendly Chromatography Software

Intuitive interface with advanced features such as GPC calibration curve, integration and calculation management.

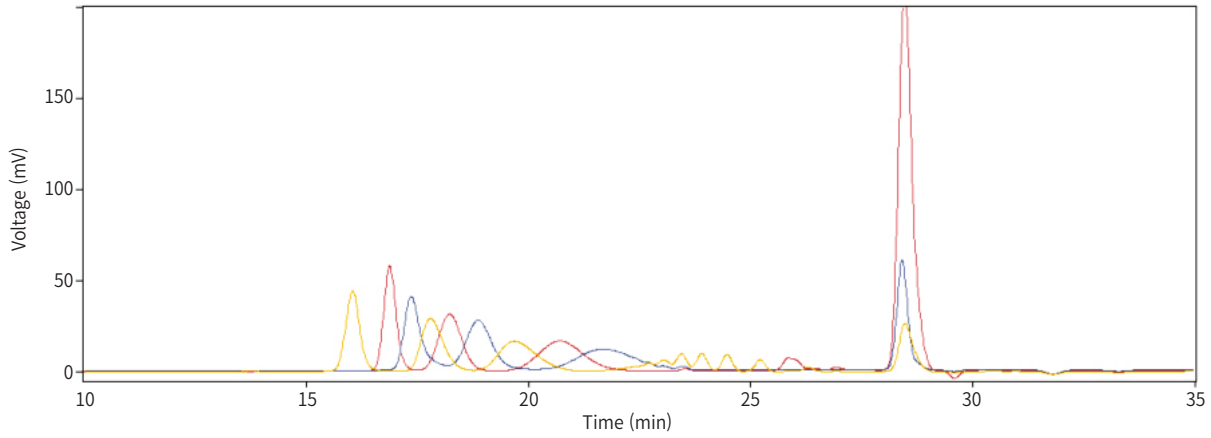
Wide Application Compatibility

Supports analysis of both hydrophobic and hydrophilic polymers with compatibility for organic and aqueous GPC/SEC columns.



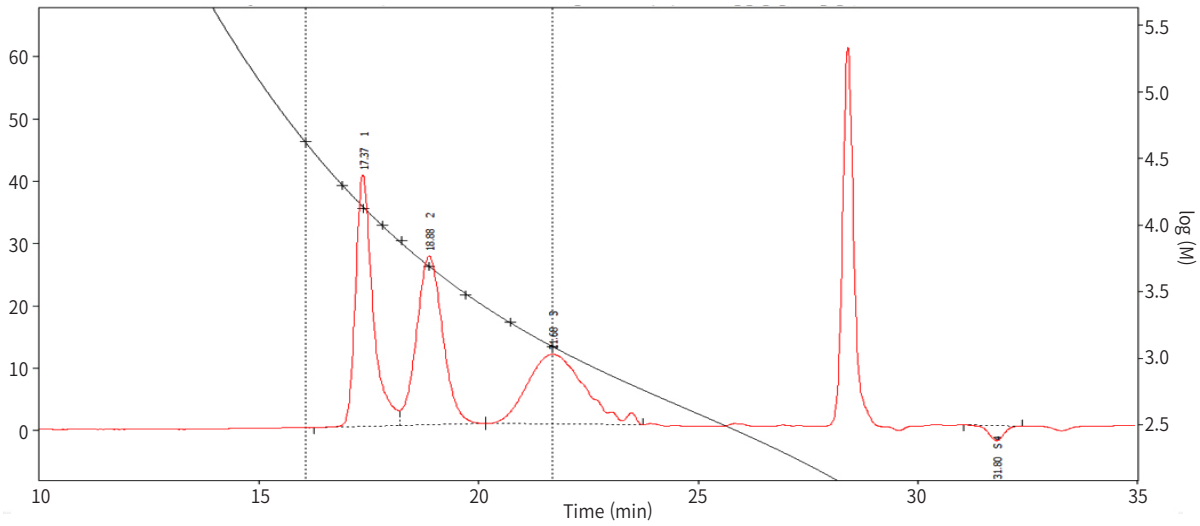
High-Resolution Results Across Polymer Analysis

Retention time in GPC correlates inversely with molecular weight: Larger molecules elute more quickly due to limited penetration into the porous stationary phase, resulting in shorter retention times, while smaller molecules interact more with the pores and elute later. As a result, an inverse correlation is observed between molecular weight and retention time in the calibration curve.



[Polystyrene Standard Chromatogram]

Through the retention time, key parameters such as average molecular weight, molecular weight distribution, and polydispersity can be estimated. In GPC analysis, a calibration curve is created based on the relationship between the retention times and molecular weights of known standards, allowing for the determination of the relative molecular weight distribution of unknown samples.



Calibration Table (Narrow Universal Flow Rate Corr. - C:₩USERS₩HJ₩DESKTOP₩D₩2)
Equation: Y = - 0.001183*X^3 + 0.08771*X^2 - 2.309*X + 23.99
Correlation Factor: 0.9998348

	Std. No.	Used	M	Log M Adjusted	Max RT [min]	FR Correction	RT Corrected [min]	Source Chromatogram	K [dL/g*10^5]	Alpha	Deviation [%]
1	1	☑	42400	4.6274	16.05	1.0000	16.05	Data₩STD_A_07_03_201	14.10	0.70	0.94
2	1	☑	9960	3.9983	17.80	1.0000	17.80	Data₩STD_A_07_03_201	14.10	0.70	0.45
3	1	☑	2980	3.4742	19.69	1.0000	19.69	Data₩STD_A_07_03_201	14.10	0.70	-2.74
4	2	☑	19900	4.2989	16.88	1.0000	16.88	Data₩STD_B_07_03_201	14.10	0.70	-1.09
5	2	☑	7640	3.8831	18.23	1.0000	18.23	Data₩STD_B_07_03_201	14.10	0.70	4.08
6	2	☑	1860	3.2695	20.72	1.0000	20.72	Data₩STD_B_07_03_201	14.10	0.70	0.76
7	3	☑	13300	4.1239	17.37	1.0000	17.37	Data₩STD_C_07_03_201	14.10	0.70	-2.78
8	3	☑	4900	3.6902	18.88	1.0000	18.88	Data₩STD_C_07_03_201	14.10	0.70	0.50
9	3	☑	1220	3.0864	21.68	1.0000	21.68	Data₩STD_C_07_03_201	14.10	0.70	0.05

[Polystyrene Standard Calibration]

System Configuration

Item	Description	Part No.
Pump	ChroZen HPLC Isocratic Pump for GPC	9421011031
Autosampler	ChroZen HPLC Autosampler	5421011020
Column oven	ChroZen HPLC Column oven for Analytical scale	3421011020
Detector	ChroZen HPLC RI Detector	7431011020
Installation Kit	HPLC Performance Kit	1601011890
Column	Selectable Depending on Applications	-
CDS	YL-Clarity software for single instrument of YCM HPLC	5301011000
	Autosampler control of YL-Clarity	5301011040
	GPC module of YL-Clarity CDS	5301011060

Things to Choose

Column Type	Mobile Phase	Samples	Applications
Organic Columns (For hydrophobic polymers)	THF, Toluene, Chloroform, DCM, DMF, HFIP (Hexafluoroisopropanol)	Polystyrene, PMMA, Polyolefins, ABS, Polycarbonate, Synthetic Rubber, Polyesters	- Molecular weight distribution analysis of polystyrene for resin performance control - Quality control of PMMA for optical lenses and sheets - Determining process consistency in polyolefin manufacturing - Evaluating thermal aging effect on ABS materials - Branching analysis of polycarbonate used in engineering plastics
Aqueous Columns (For hydrophilic polymers)	Water, PBS (Phosphate-Buffered Saline), $NaNO_3$ solution, 0.1 M NaOH, Urea/SDS (Sodium Dodecyl Sulfate)	PEG, PEO, Polysaccharides, Proteins, Cellulose derivatives, Polyacrylic acid	- Determining molecular weight of PEG in drug delivery formulations - Analyzing purity and aggregation state of monoclonal antibodies - Evaluating size and structure of polysaccharides in food additives - Characterizing cellulose derivatives in pharmaceutical excipients - Studying degradation of polyacrylic acid in detergent formulations



YOUNG IN
Chromass

60, Anyangcheondong-ro, Dongan-gu, Anyang-si,
Gyeonggi-do, 14042, Korea
TEL : +82-31-428-8700 / FAX : +82-31-428-8787
E-mail : export@youngincm.com
Homepage : www.youngincm.com

Young In Chromass products are endorsed by Korean PPS(Public Procurement Service) in recognition of their excellent technologies and the product quality.