



Unleash a Wealth
of Macromolecular Information with

WinGPC Unity

Macromolecular Chromatography Data System
that **INTEGRATES**
LC & GPC Instruments and Detectors
into **ONE Environment**



- Market-Wide Compatibility:
Manages multiple instruments, brands and users
- Modular Software and Hardware Solutions:
Grow from single installations to
Client/Server system
- Best Value of Ownership:
Expand upon previous investment as needs
and budgetary resources increase
- Ease of Use:
One data system to learn,
validate and maintain



Harness the Power of WinGPC Unity

Why WinGPC Unity?

No longer will there be a need to learn multiple programs to fully implement SEC/GPC instrumentation within the laboratory. With WinGPC Unity you may integrate the laboratory resources and streamline the process.

Time and Cost Savings will result from more efficient allocation of human resources and higher laboratory productivity: One environment to learn, validate and maintain.

WinGPC Unity's **Market-Wide Compatibility** lets you acquire data from any commercial system in the market, allowing you to capitalize on previous instrumentation investment.

WinGPC Unity brings into the market a state of the art data acquisition hardware which permits simultaneous control of multiple detectors and instruments ①.

However, if you already have data acquisition, WinGPC Unity will import data files from many different HPLC software packages, or use the universal AIA/AnDI/CDF or ASCII file import.

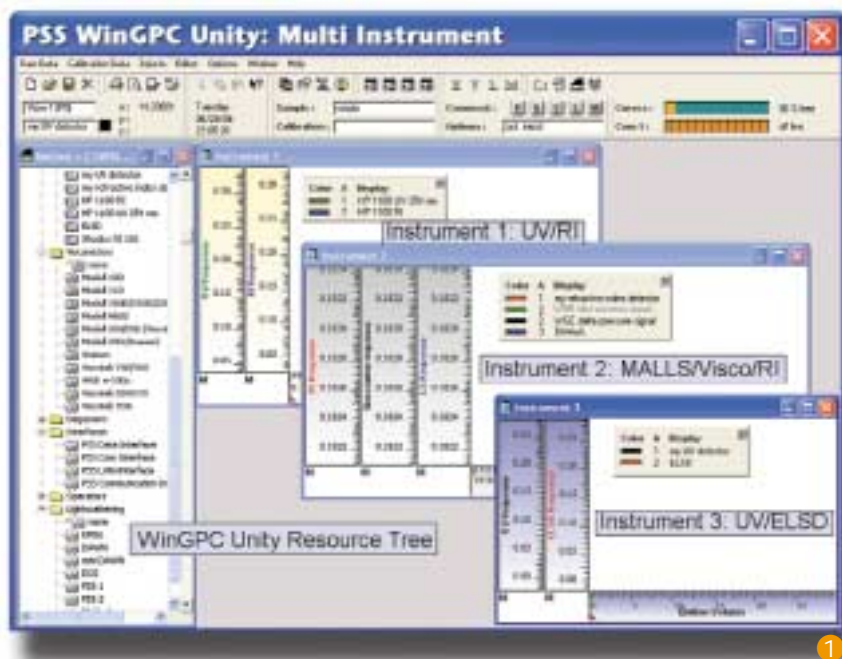
The **Modular Design** fits your changing needs by offering a complete path for expansion from a single instrument to large SEC installations; up to true Client/Server networks where all instruments are available any time, anywhere. Software modules fit seamlessly into the main program, facilitating training on new features.

You can **Grow at your Pace** in any way you choose. Various versions are available to meet your needs: Start with a data processing version and add data acquisition capability. Add one module at a time to expand the analytical power of your system, as your analytical needs evolve. Add systems to your network and get the best value of ownership in the marketplace.

The PSS **Quality Management System** guarantees design, production, sales and support following the standard ISO 9001. WinGPC Unity assures the quality, integrity and reliability of the complete data system by meeting all validation and compliance requirements in R&D and QC environments alike. WinGPC Unity fully complies with national and international GPC standards: ISO/EN 13885, DIN 55672, ASTM D 5296-97, JIS, BR etc.

WinGPC Unity is designed in accordance with **21CFR11** to provide a full feature set to help companies using GPC chromatography comply with this rule.

PSS provides exceptional **Support** by on-site installation and training, e-mail, phone, fax support, 12-month unlimited warranty with free software updates, access to applications through newsletters, and special hands-on software update training sessions that include theoretical and practical solutions to user problems assisted by PSS staff.



Which detectors does WinGPC Unity support?

This list is not exhaustive; all manufacturers of RI, UV, IR, Conductivity and ELSD. Also, viscosity detectors from WGE (ETA1001, ETA2010), Viscotek (H502, TDA, T50, DDA, ...), Waters and others; light scattering detectors from Brookhaven (BI-MwA, SLD7000), Wyatt (DAWN DSP, DAWN EOS, mini-DAWN), Precision Detectors and others.

Can I use my old GPC data when I switch to WinGPC Unity software?

WinGPC Unity imports the following file types directly: Agilent/Hewlett Packard Chemstation, Hitachi, Merck, Spectra Physics/TSP and additionally ASCII and AIA/AnDI. If ASCII/AIA does not work we can offer special import filters.

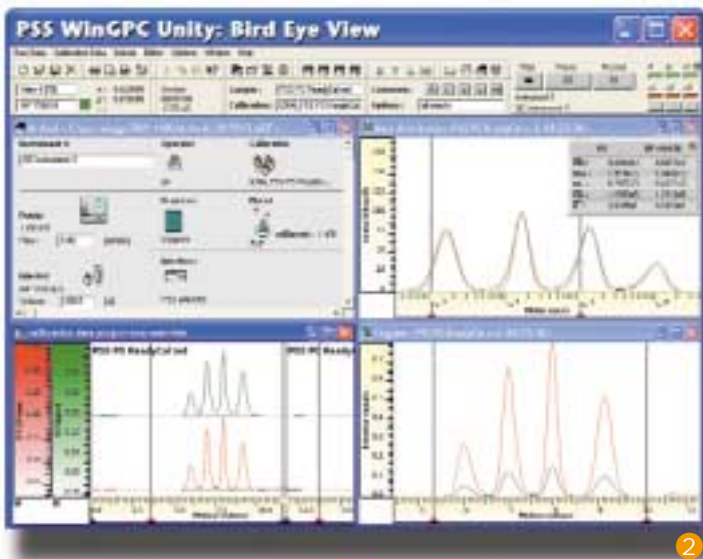
Can we incorporate WinGPC Unity results into our LIM system?

Yes, results, operating conditions and all type of graphical information generated by WinGPC Unity can be passed to any LIMS using the standard PSS LIMS interface.

How does the WinGPC Unity License work?

The WinGPC Unity license (with the exception of Compact and OEM versions) restricts the number of data acquisition copies, not the number of reprocessing copies. You may install – free of charge – an unlimited number of reprocessing copies.

Harness the Power of WinGPC Unity



Ease of Use

A clear interface lets you always see what is going on. A bird-eye-view ② shows all important parameters and results simultaneously: The method window, raw data and calculated molecular weight distributions. All windows are updated as you go.

The software lets you monitor multiple injections at the same time assuring complete method documentation, traceability, as well as unlimited data acquisition time with priority sample possibility.

Exceptional Data Security

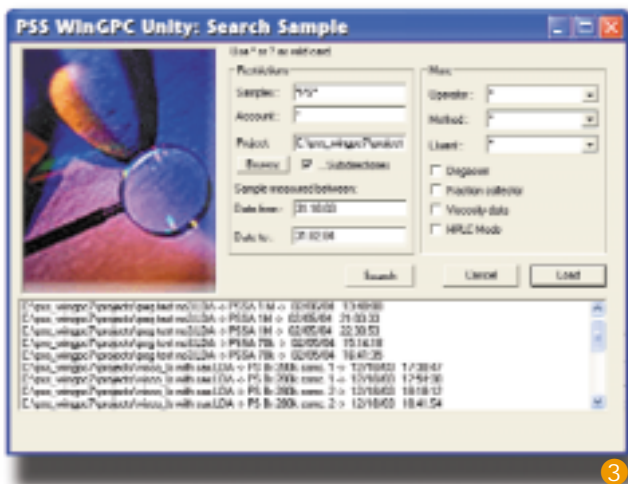
Database driven collection and retrieval of data ③ provides fast access to sample information without the risks of accidental data overwrite. All information about a measurement method, calibration and processing parameters is automatically stored in the database providing an audit-ready environment with complete documentation in an internal log book.

Powerful Overlays

Chromatogram and molar mass overlays ④ provide application versatility, for example:

- Column performance may be monitored by comparing reference sample chromatograms acquired on different dates. Slight differences of the overlaid peaks can be used to trace the long term column performance.
- Degradation studies can be performed by comparing molecular weight distributions and frequency distributions.
- Determination of sieve curves of membranes may be calculated from chromatograms of permeated and retained fractions.

The overlay feature includes a saving option, multiple sample entries and calculation of resulting curves.



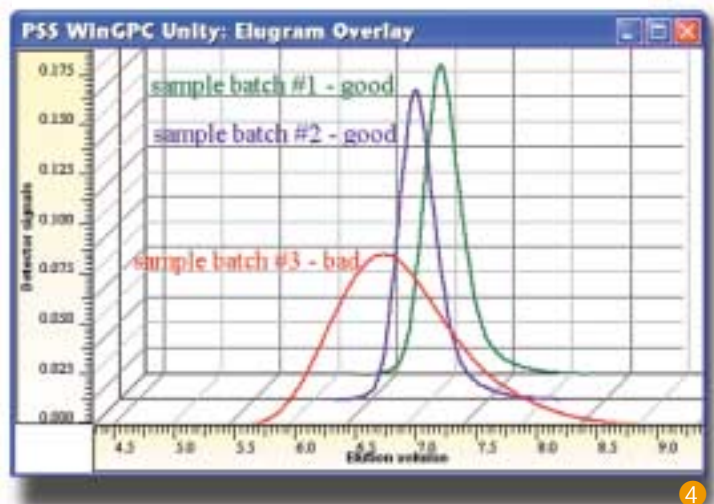
Convenient Automation

Concentrate on result interpretation while producing information in prescribed formats and complexity.

Automation features include: Automatic calibration and re-calibration, automatic data evaluation even during run times, automatic calculation of product specific parameters and quality related numbers useful for QC documentation.

High Throughput

One more feature that further enhances the productivity is the ability to inject a sample before the last sample run has completed. WinGPC Unity's overlaid injection feature saves about 30% time (and eluent) required per injection. Achieve the highest throughput by using WinGPC Unity in connection with PSS HighSpeed Columns, the PSS ReadyCal Standards and automation features listed above.



Unleash a Wealth of Macromolecular Information – any time, anywhere



WinGPC Unity

combines all kinds of SEC/GPC applications for synthetic, natural and biopolymers:

- Molar mass determination (MWD, molar mass averages M_n , M_w , M_z , polydispersity)
- Quantification and identification of sample compounds
- Analysis of aggregation states, association and gel content
- In-depth elucidation of molecular and structural properties

Gain Increased Knowledge

Proven flexibility with the multiples of WinGPC Unity: Multi-injections, multi-peak evaluations, multiple overlays, multi-detectors, multi-users, multi-instruments

Create a Method Setup

Manage your resources from the structured resource tree, click on element icons to set properties, use drag & drop to

define pertinent instrument parameters like pumps, columns, detectors. Activate data acquisition manually, by injection number, using a timer or autosampler.

Handle Calibration Curves with Ease

WinGPC Unity facilitates data transfer and allows automatic calibration and recalibration. It lets you display slope and residuals for easy optimization of calibration curves.

WinGPC Unity provides a wide selection of calibration methods computed with proprietary calibration fit routines that yield high accuracy and precision:

- Calibration with narrow standards
- Universal calibration with Mark-Houwink constants
- Broad standards calibration and cumulative match calibration are provided with step-by-step guides that assure integrity of process
- More calibration variety with software modules



Upgrade to Multi Instrument Control

Addition of instruments to an existing Unity installation is seamless and easy.

- Plug-in the instrument(s)
- Add the license file for more instruments
- Benefit from running independent systems in a single environment

The new instruments gain the WinGPC Unity advantages already experienced, maintaining the existing configura-

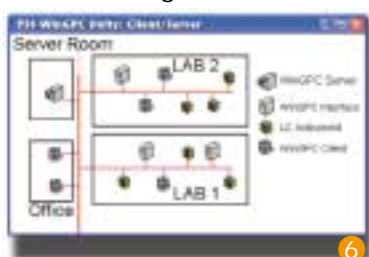
tions, data and methods. Seamless software integration alleviates the need for re-installation, re-validation or additional training. The sophisticated fiber optics data transmission allows large distances between instruments and the PC hosting WinGPC Unity. The WinChrom interface's intelligent data buffer assures superior data security and stability. One WinChrom interface normally manages up to four instruments, however, up to 16 instruments can be controlled from a single PC with a simple upgrade.



Expand Installations to a Client/Server System

This sophisticated solution is designed for laboratories that require a variety of instruments to be accessible to many users simultaneously. The "data follow people" principle allows to control and review runs and data from any location anywhere.


A dedicated WinGPC Unity Server manages all chromatography systems within the department or even company wide, via the network (6). Authorized users may reserve the requested instruments before starting tests. While the data acquisition is activated, the run can be controlled, modified, or processed from every network client. The built-in access control guarantees measurements free of interference from other users.



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Powerful and Flexible Data Evaluation

WinGPC Unity's data processing tools are carefully designed to optimize workflow for QC and R&D environments alike. WinGPC Unity supports manual and automatic data processing with optional internal standard correction, flexible multi-peak evaluations, and high accuracy and reproducibility.

The HPLC mode  quantifies simultaneous HPLC and SEC/GPC results, i.e., molecular weight distribution and the amount of polymer, residual monomer and additives (area%, amounts, compound identification)

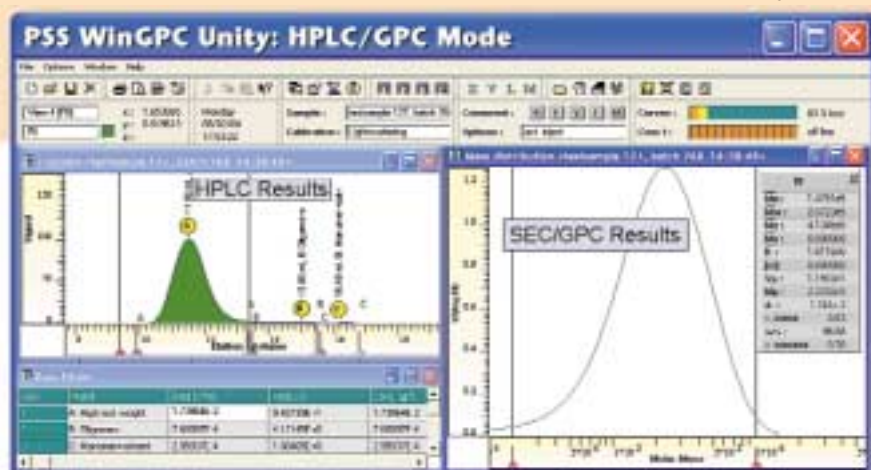
Reporting is a Breeze!

Highlight the window to print, (data acquisition, elugram, mass distribution or overlay) and print. The window content prints in color just as you see it displayed, traces and all. Portrait print-outs give graphics and tabulated results and landscape shows the picture only. The reporting tools are already pre-formatted.

WinGPC Unity lets you manage report and distribute the information in multiple ways:

- Export the graphics to word processing tools
- Transfer data to LIMS
- Prepare electronic reports in various formats such as pdf or html
- Prepare powerful chromatogram overlays and distribute them to anyone, anyhow, anywhere


However, if you want to achieve complete control on the design and content of your report, you will benefit from the optional WinGPC Unity Report Designer.

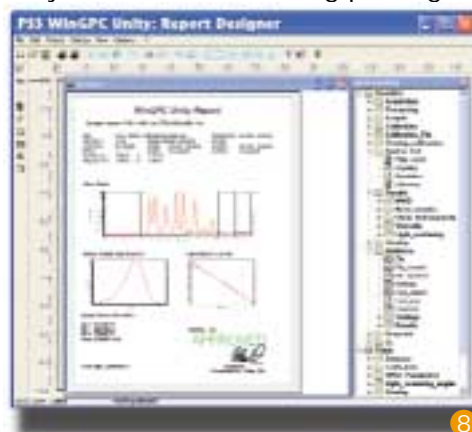


Customize Powerful Reports and Share Information

The Report Designer tool enables the creation of custom individualized reports with your choice of parameters, results and figures. These designs may become standard reports in the laboratory.

Lay out the report content and style by drag & drop using well known formatting options.

Custom text, company logos, tables, graphics etc. are formatted with easy-to-use Windows controls. Define quality parameters or customized calculations to be verified during print out. Set up reports to automatically generated QC signatures when specifications are met; otherwise to issue lock flags . Print reports on any Windows output device or publish them to pdf, jpeg or html. Custom comments and user specific information may be added, even during printing.



The Report Designer excels in the fast and simple distribution of analytical information via e-mail systems, LIM systems, Intranet and Extranet.



Unleash a Wealth of Macromolecular Information – any time, anywhere

Perform Advanced Characterization and Structure Determination with Triple Plus Detection

The characterization of modern and highly specialized macromolecules is challenged by the various types of monomers and topologies. The macromolecular architecture strongly affects the application properties according to processing ability, rheological behavior and transport properties. SEC/GPC analysis of these products has become more feasible with the availability of molar mass sensitive detectors like light scattering or viscometer devices. They provide absolute molecular weights,

the type of branching architecture and the degree of branching.

WinGPC Unity is the only software that seamlessly integrates any molar mass sensitive method and detector. Data can be processed/reprocessed on-line or post-run by freely selecting the most appropriate data analysis method or method combination. This reveals a wealth of product properties which are never available in any single method.



Modules for Light Scattering

WinGPC Unity offers two light scattering modules which main difference is the number of supported angles.

For applications that can be restricted to a single angle the **LS module** is the suitable choice for any RALLS or LALLS instrument. Validated light scattering data evaluation yields absolute and reliable measurement of all molar mass averages and their distribution, including dn/dc or recovery determination.

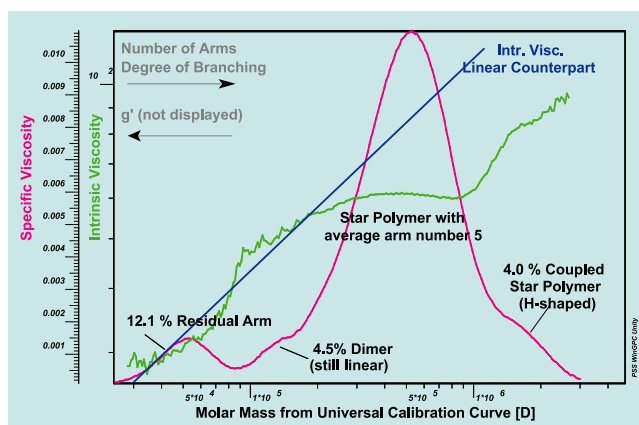
The **light scattering module for multi angles** ⑤ brings the previous features as well as the following additional information: molecular size (R_g) and its distribution evaluated with Zimm's, Debye's or Berry's method, degree of branching and structure coefficients. WinGPC Unity allows to monitor up to 18 different angles and 6 auxiliary analog signals from RI, UV or viscometer at the same time.



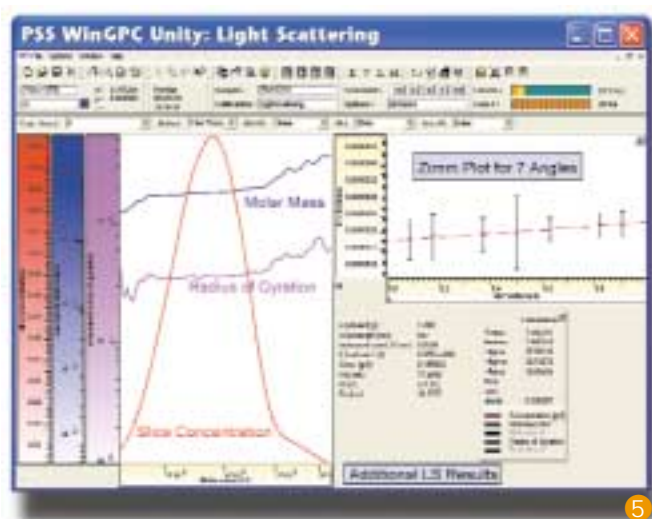
Module for Viscometry

The viscosity module supports all viscometers regardless of manufacturer or design principle (e.g. single or dual capillary, asymmetric or symmetric bridge). Viscometers directly measure intrinsic viscosity without relying on assumptions.

intrinsic viscosity without relying on assumptions.



Validated and proprietary viscometry data processing methods derive true molecular weights and reliable Mark-Houwink constants based on the universal calibration principle. The branching index g' can be measured across the molar mass distribution.



An important note:

The combination of light scattering and viscometry information adds reliability and substance by combining primary information. The use of viscometry in conjunction with RALLS (Triple Detection) has become standard methodology to overcome the limitations posed by 90° light scattering only. The combination of the LS module and the viscosity module adds triple evaluation capability. However, WinGPC Unity goes one step further by combining MALLS with viscometry. This allows for the unambiguous absolute measurement of branching, aggregation, agglomeration, structure parameters and gel content.

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Achieve Product Deformulation using Detector or Method Combinations

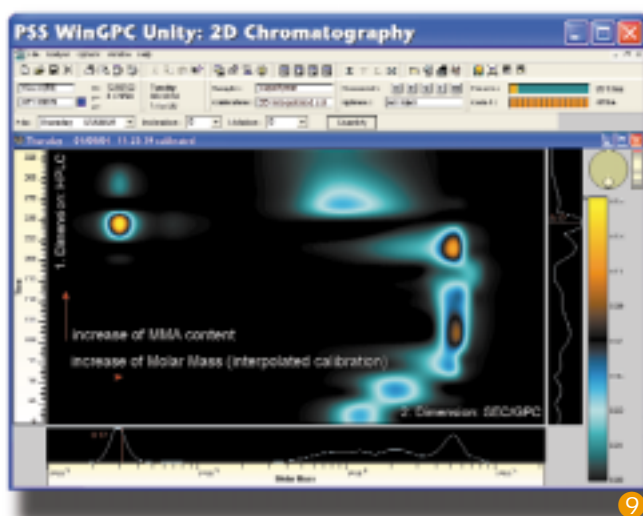
Many samples are copolymers which have a comonomer distribution and a molar mass distribution. The chemical heterogeneity of a product can be an important parameter for performance and quality. WinGPC Unity offers a variety of data

analysis options to meet any R&D and QA requirement of modern high-tech products. Access the full range of product properties through WinGPC Unity's advanced characterization modules.



Module for 2D Chromatography

The 2D analysis software module combines the separation power of two different chromatographic methods (HPLC, SEC/GPC, TREF, IC, CE, GC). This results in a dramatical enhancement of resolution and peak capacity as well as in-depth information on complex products. All kinds of detectors can be used in both dimensions. Data acquisition and control of the fraction transfer between dimensions is fully automated. Multiple views of raw and consolidated data, like 3D surface plots or contour maps, are available (9). WinGPC Unity is the only software that determines and quantifies multiple property distributions simultaneously.



Module for Chemical Heterogeneity

The chemical heterogeneity software module calculates the chemical composition, the skew and width of the compositional distribution based on HPLC-type separations (Polymer-LC, GPEC). It relies on a composition calibration of the chromatography time base. This calibration can be done either with standards of known composition or via multiple detection (Copolymer Analysis module).



Module for Copolymer Analysis

The copolymer analysis software module calculates the average chemical composition, the comonomer distribution and the copolymer average molecular weights. It uses multiple detectors in SEC/GPC separations. This data processing method needs at least two independent concentration signals for the automatic determination. It relies on the calibration of the individual signal responses to measure comonomer concentration in an absolute way.

Elucidate Structure-Property-Action Relationships of Advanced Materials

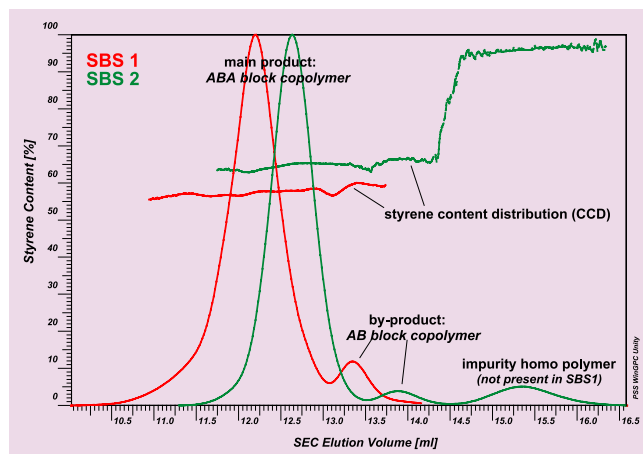
Product properties of pharmaceutically active heparins, resins, functional or branched polymers are directly correlated to the quantity and type of end groups. With this information absolute molar mass calibration is at your fingertips.



Module for End Group Analysis

The end group analysis software module allows to determine functionality, distribution and even molecular weights without the need for calibration standards or light scattering detection.

Calculation of heparin product quality is in full compliance with national and international pharmacopoeias (e.g. EP, USP, JP, DAB). End group data analysis only needs two independent detector signals for the automatic calculation of desired results.



WinGPC Unity overall view		part no.		part no.
WinGPC Unity	Macromolecular Chromatography Data System that integrates all detectors, applications and methods	400-0073	Module: End Group Analysis	Determines functionality, distribution and molecular weights, heparin characterization included 400-1007
Upgrade to Multi-Instruments Control	From 1 instrument to 2 instruments	400-0301	Module: 2D Chromatography	Combines the analysis power of two different chromatographic methods 400-1008
	From 1 instrument to 3 instruments	400-0302	WinChrom Interface	Interface with intelligent data buffer assures superior data security and stability 401-0001
	From 1 instrument to 4 instruments	400-0303		
	From 2 instruments to 3 instruments	400-0304	LAN Interface	Allows to control and review runs from any location 401-0003
	From 2 instruments to 4 instruments	400-0305	A/D Converter	Prepares signals from detectors, incl. fibre optics data cable High resolution version 401-0005 401-0006
From 3 instruments to 4 instruments	400-0306			
Client/Server	Manages all chromatography systems within the department or even company wide, via network	401-0004	What if I do not need to acquire data?	WinGPC Unity OEM will be the best choice to import data acquired with other systems. Complete data processing including calibration; option Report Designer. 400-0101
Report Designer	For custom individualized reports	400-1001	Which product do I need if I have 1 GPC system with up to 3 detectors?	WinGPC Compact is the solution with the best performance/price value. You will need a WinChrom interface and 1 A/D converter for each detector. You can upgrade WinGPC compact with the report designer option to create your own reports. 400-0102
Module: 1 Angle Light Scattering Detection	Supports all LALLS und RALLS detectors. Direct measurement of molar masses, M_n , M_w , M_z , and dn/dc	400-1003	How do I determine the best path to grow?	Contact us with the following information: How many LC instruments? Are they in the same room? How far? Type and model of injection systems (per instrument)? Specify detectors associated with each instrument? What kind of testing will you do?
Module: MALLS Light Scattering Detection	Supports all detectors. Absolute determination of M_n , M_w , M_z , $R_g(n,w,z)$, K_s , α_s , g , and direct measurement of dn/dc	400-1004		
Module: Viscosity Detection	Supports all viscometers regardless of manufacturer or type. Measures intrinsic viscosity, true molar masses, K , α , and g'	400-1002		
Module: Copolymer Analysis	Calculates average chemical composition, comonomer distribution and copolymer average molecular weights	400-1006		
Module: Chemical Heterogeneity	Calculates chemical composition, skew and width of the compositional distribution based on HPLC-type separations	400-1009		

PSS is one of the worlds leading companies for polymer characterization.
The comprehensive product line includes:

Software

- WinGPC Unity
- Pore-size Analysis Software

GPC Instruments

- Complete Systems and Components
- Light Scattering Detectors
- Viscosity Detectors
- FTIR/MALDI Interface
- dn/dc Instrumentation

Reference Polymer Standards

- SEC/GPC Standards and Kits
- Certified Reference Materials
- MALDI Kits

- Viscosity and Light Scattering Validation Kits
- ReadyCal Kits
- Deuterated Polymers
- Tailor made Polymers and Copolymers

SEC/GPC Columns

- for all organic and aqueous eluents
- for high and low molecular synthetic and biopolymers
- from micro GPC up to preparative jobs
- for high speed polymer/biopolymer analysis

Analytical services

- Molar Mass Determination
- Structure Analysis
- Method Developements and Transfer
- Complete Product Deformulation

SEC/GPC Schools and Support

- SEC/GPC and Software Training Schools
- SEC/GPC In-house Training
- User Meetings
- Net Community with Application Downloads

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