

VERITY® GPC Cleanup System

Fully automated to improve productivity and reliability



SPEC SHEET | PURIFICATION

AUTOMATION OF GPC CLEANUP TECHNIQUE

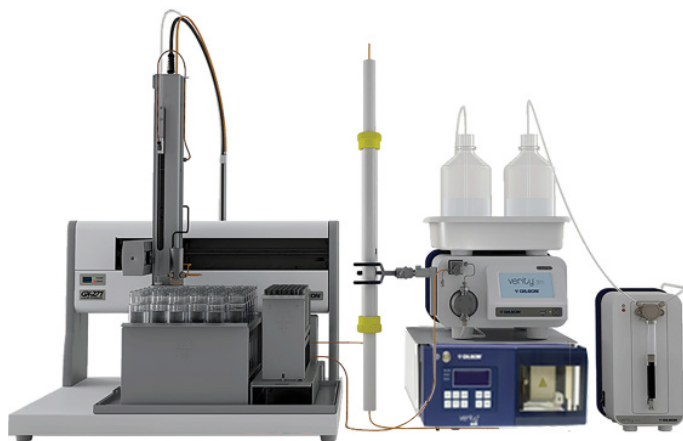
A SIMPLE AND EFFICIENT SAMPLE CLEANUP TECHNIQUE BEFORE ANALYSIS BY GC, GC/MS, HPLC, OR LC/MS

Based on Size Exclusion Chromatography (SEC), the VERITY® GPC Cleanup System discards high molecular weight interfering substances from sample extracts while recovering analytes of interest into a pure fraction of solvent to reduce the sample matrix effect significantly:

- To improve the accuracy and sensitivity of the analytical results
- To extend GC or LC column life and reduce analytical downtime

This cleanup technique is typically performed before analysis of contaminants and residues (such as pesticides, polychlorinated biphenyls (PCBs), antibiotics, plasticizers, polyaromatic hydrocarbons (PAHs), illegal dyes, endocrine disruptors, and other semi-volatile compounds) to remove lipids, proteins, cell debris, pigments, humic acid, and more, from animal tissue, fatty foods, plant tissue, soils sediment, sludge, and wastewater.

A FULLY AUTOMATED SYSTEM COMPLIANT WITH GOVERNMENT AGENCY GUIDELINES



- Meets government requirements for GPC cleanup – USEPA, USDA, USFDA, USGS, USDI, Centers for Disease Control (CDC), Canadian Food Inspection Agency (CFIA), European Union (EN 1528, 12393, DFG S19), AOAC International, JIS, GB/T 14552, etc.
- An optional VERITY® 1741 UV-VIS Detector (200-800 nm) is available to ensure GPC column calibration complies with GPC post-extraction guidelines when requested

Figure 1

The VERITY® GPC Cleanup System is configured with a GX-271 Liquid Handler equipped with a 3 way collection valve, a GX Direct Injection Module, a VERITY® 4020 Single Syringe Pump, a VERITY® 3011 Isocratic Pump, the TRILUTION® LC Software, and an optional VERITY® 1741 UV-VIS Detector.

EVOLUTIVE SYSTEM TO IMPROVE THROUGHPUT AND RELIABILITY OF GPC CLEANUP WORKFLOWS

- Increase the efficiency of your lab by reducing sample repeats and saving time for other tasks
- Improve the accuracy and reproducibility of your sample post-extraction cleanup by automating your injections and fraction collections

HIGH CAPACITY

- Automated cleanup of up to 80 sample extracts without human intervention

HIGH FLEXIBILITY

- Large choice of racks for sample extracts and different evaporation vessels to directly collect compounds inside
- Compatible with various columns, from low-pressure glass columns to higher pressure stainless steel columns with the VERITY® 3011 Isocratic Pump (up to 10 mL/min, 600 bar (8702 psi))
- Possibility to collect multiple sample fractions from the same sample extract
- Possibility to do multiple injections of the same sample extract and collect in the same corresponding fraction collection vessels
- Can also be used for other chromatography applications as part of an isocratic HPLC system from analytical to semi-preparative scale
- Upgradable for Solid Phase Extraction (SPE) applications

SAMPLE INTEGRITY

- Overfill of the sample loop is not required, and sample extract is directly injected into the core of the injection valve to minimize the risk of sample loss
- Intelligent outside and inside liquid handler probe rinsing and optional liquid level following, reduces risk of carryover
- Independent flow paths between injection and fraction collection avoid cross-contamination
- The fraction collection valve directly mounted on the Z-arm of the liquid handler minimizes the post-valve dead volume, thus the risk of carryover from fraction to fraction
- The septum piercing capability option can maintain the integrity of a sample extract by using closed tubes

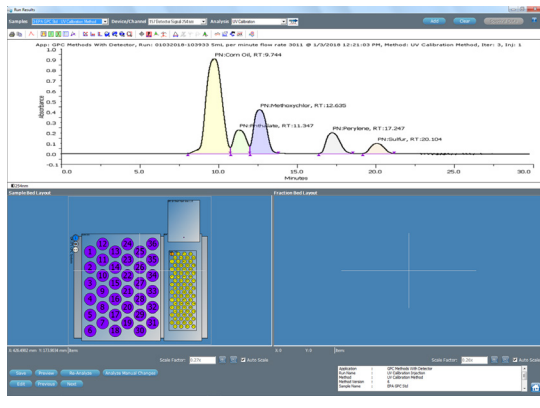


Figure 2
TRILUTION® LC Software

FLEXIBLE AND EASY TO USE SOFTWARE

- **No programming required:** Methods specific to GPC post-extraction cleanup processes are included
- **Use your calibration column reports:** Easily adjust your fraction collection windows
- **Flexible to your science:** Bed layout includes common racks that can be exchanged in the software to allow collection into different vessel sizes
- **Keep your costs to a minimum:** Error handling and shutdown methods minimize solvent waste and sample loss

VERITY GPC CLEANUP SYSTEM SPECIFICATIONS

LEARN MORE ABOUT VERITY®
GPC SYSTEM COMPONENTS AT
GILSON.COM

PUMPING SYSTEM	
Isocratic Pump	VERITY® 3011 Isocratic Pump: Reciprocating pump with single-piston, quick-connect pump head, integrated pulse dampener and pressure sensor
Flow Rate Range	50 µL/min to 10 mL/min with 10 SS pump head
Flow Accuracy	± 2% of the requested flow rate with water 10 SS Pump Head: 0.1 to 10 mL/min 10 mL Syringe
Flow Precision	< 1% relative standard deviation (RSD) with water 10 SS Pump Head: 0.1 to 10 mL/min
Operating Pressure	0-600 bar (0-8702 psi)
Power Requirements	Line Voltage: 120 to 240 V Frequency: 50 to 60 Hz Power Consumption: 75 W
Dimensions (W x D x H)	27.1 x 41.2 x 17.3 cm (10.7 x 16.3 x 6.8 in)



VERITY® 3011 Isocratic Pump

AUTOSAMPLER / FRACTION COLLECTOR	
Automated Liquid Handler	GX-271 Liquid Handler with GX Direct Injection Module
Injection Volume	20 µL to 5 mL (5 mL standard loop)
Syringe Pump	VERITY® 4020 Single Syringe Pump with 10 mL Syringe
Vertical Punch Strength	4.5 kg (10 lb.) for septum piercing
Sample Rack Capacity Options	13 x 100 mm tubes, 16 x 100 mm tubes Other options available upon request
Collection Rack Capacity Options	25 x 200 mm tubes, 38 x 200 mm tubes, Boston round bottles (125 mL or 250 mL), Caliper TuboVap™ evaporation tubes (50 mL and 200 mL), Labconco RapidVap evaporation vessels (100 mL flat, 450 mL flat or with stem), flasks for rotary evaporation (125 mL and 250 mL) Other options available upon request
Power Requirements	Frequency: 50 to 60 Hz Current rating: 2.0A for 100-120 V, 1.0A for 220-240 V Power consumption: 250W Ma
Dimensions (W x D x H)	59.7 x 54.1 x 57.1 cm (23.5 x 21.3 x 22.5 in) Note: This does not include the VERITY® 4020 Single Syringe Pump or Z-arm



VERITY® 4020 Syringe Pump and
GX-271 Liquid Handler

VERITY GPC CLEANUP SYSTEM SPECIFICATIONS CONTINUED

UV-VIS DETECTOR (OPTION)

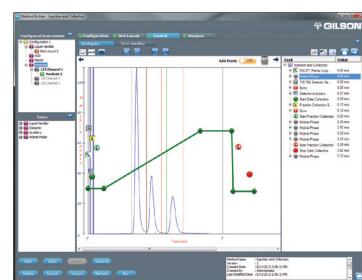
Detector	VERITY® 1741 UV-VIS Detector
Wavelength Range	200–800 nm (256 CCD elements)
Flow Cell	Maximum pressure for all flow cells is 2 MPa (290 psi, 20 bar) Flow cell, 1.3 mm pathlength, 1/16 tubing
Power Requirements	Voltage: 100–240 V Frequency: 50/60 Hz
Dimensions (W x D x H)	28.5 x 14.9 x 50 cm (11.2 x 5.9 x 19.7 in)



VERITY® 1741 UV-VIS Detector

GENERAL SPECIFICATIONS

Software Control	TRILUTION® LC v4 Software or above
GPC Cleanup Columns	Compatible with various columns from low pressure glass to high pressure stainless steel
Dimensions of System Organizer (W x D x H)	39.2 x 37.9 x 93.7 cm (15.5 x 14.9 x 36.9 in)
Environmental Conditions	For indoor use only Operating Temperature: 5°C–40°C (41°F–104°F) Operating Humidity: Maximum relative humidity (RH) 80% for temperatures up to 31°C (87.8°F), decreasing linearly to 50% at 40°C (104°F) Operating Altitude: Up to 2000 m (81 kPa or 604 mmHg)
Manufacture Standards	Meets applicable safety and EMC certification standards; UL and CE-certified



TRILUTION® LC Software