

# Ultra fast, mega flexible

▶ PLATINblue



PLATIN blue  
by Knauer



## Optimized

- Pump
- Eluent mixing
- Injection
- Column
- Detection
- Data processing



# Flexible

## More than just UHPLC

Take advantage of the extraordinary separation power offered by sub-2  $\mu\text{m}$  packed columns with PLATINblue ultra high performance liquid chromatography (UHPLC) systems. Optimized for UHPLC, PLATINblue systems can also be configured for use with conventional HPLC columns, making PLATINblue an excellent investment for any laboratory.

### Ultimate versatility

- ▶ widest flow rate range available through exchangeable pump heads offers unsurpassed flexibility for practically any HPLC application
- ▶ all system components (pump, autosampler, detector) are easily adaptable for either UHPLC or HPLC
- ▶ the only UHPLC system available as either a binary\* high pressure gradient or quaternary low pressure gradient system

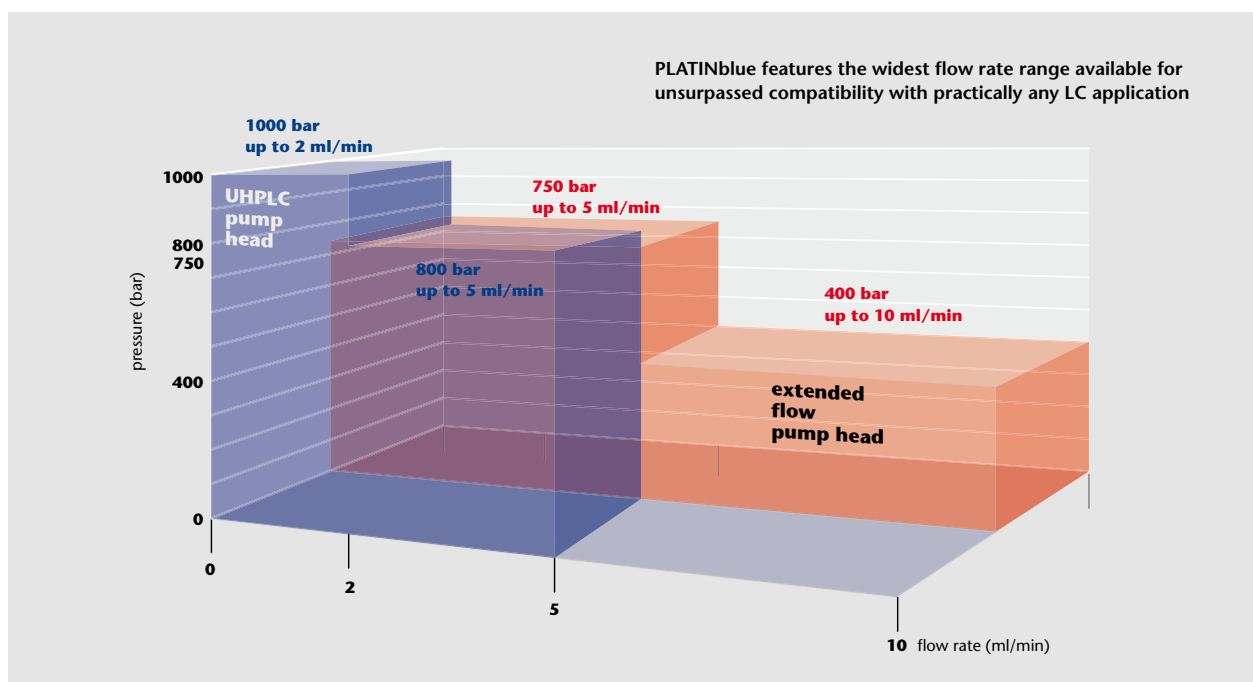
### Binary gradient configuration

- ▶ binary\* high pressure gradient (HPG) configuration features ultra-low 110  $\mu\text{l}$  system dead volume (including pump, mixer and autosampler) for ultra-fast gradients
- ▶ eluent composition change rate up to 3% per second

### Quaternary gradient configuration

- ▶ optional quaternary low pressure gradient configuration offers flexible handling of up to 4 eluents for isocratic or gradient applications
- ▶ integrated ultra-efficient 4-channel degasser and A/D-D/A interface

\* ternary and quaternary HPG also available



# Fast

## Speed and productivity

Increase your laboratory's productivity with PLATINblue UHPLC and achieve:

- ▶ faster separations, thanks to the use of shorter columns with equal or higher separation performance
- ▶ higher resolution and unmatched separation efficiency at equivalent column lengths

### PLATINblue UHPLC

- ▶ ultimate performance HPLC with an extended pressure range up to 1000 bar (15000 psi) at flow rates of up to 2 ml/min and of 800 bar (11600 psi) up to 5 ml/min
- ▶ system volume of only 110  $\mu$ l, including mixer and autosampler, for quick system response

### Short cycle time

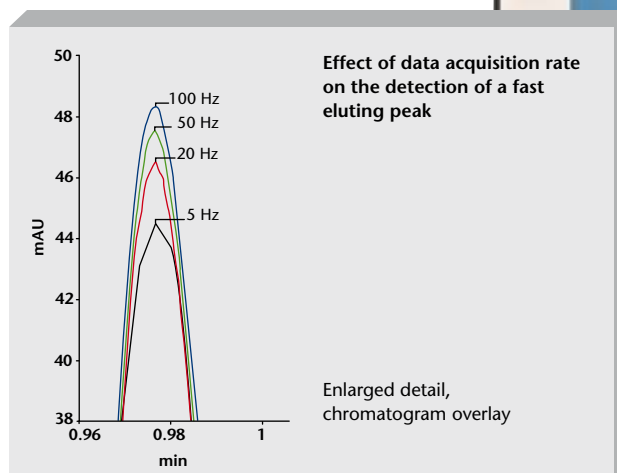
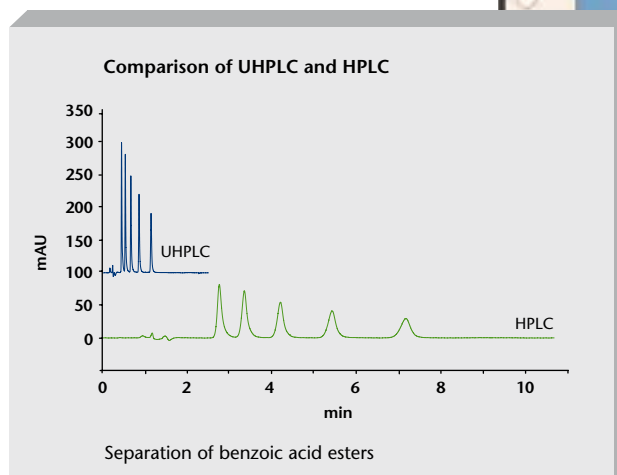
- ▶ fast gradients with up to 3% composition change rate per second
- ▶ high-performance autosampler for fast injection (15 s or < 60 s with needle wash)
- ▶ optimized communication and software operations for short initialization times

### High throughput

- ▶ process up to 768 samples in 2 x 384-well plates or up to 96 samples in standard 1.8 ml vials

### Fast detection

- ▶ data acquisition rates up to 200 Hz provide higher resolution and peak capacity, as well as a more accurate integration





## Tip

The PLATINblue system includes eluent filters for protection against particulate matter. When working with columns packed with sub- $2\mu\text{m}$  particle sizes, samples should also always be filtered through a  $0.2\mu\text{m}$  membrane.

# Precise

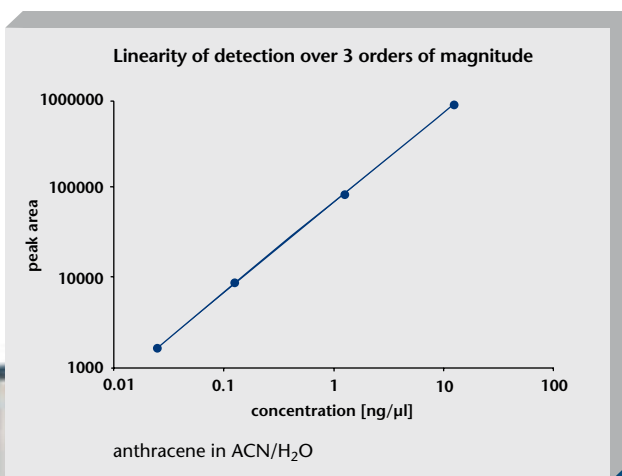
## Sensitivity and reproducibility

High-quality PLATINblue components were designed to work together perfectly to enable accurate measurement with optimal reproducibility – a prerequisite for analysis results you can rely on.

The sharp and narrow peaks produced by fast chromatography in conjunction with low-noise and low-drift UV and PDA detectors ensure sensitive measurements.

### Ultimate detection sensitivity

- ▶ electronically controlled pump drive provides for low pulsation eluent flow and a stable baseline
- ▶ high light intensity over the full UV-Vis range through the combination of a long-life “high brightness” D<sub>2</sub> with a tungsten-halogen lamp
- ▶ optimized flow cells with path lengths up to 10 mm and volumes as low as 2.0 µl allow for most sensitive detection of narrow peaks
- ▶ extremely low noise (5 µAU) and drift (< 50 µAU/h) specifications
- ▶ excellent linearity of up to 3 AU for precise simultaneous determination of main substances and trace components



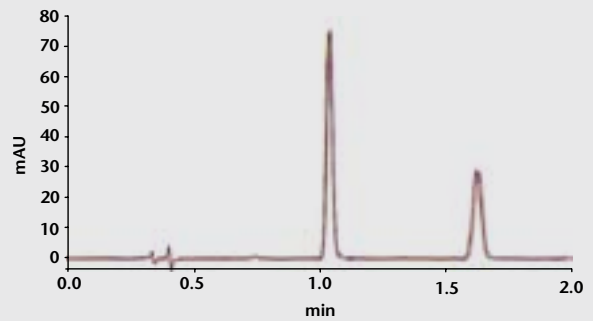
### Tip

A very high injection peak can be disadvantageous in fast chromatography since the first sample peaks elute very quickly after the injection. Dissolve the sample in eluent whenever possible to minimize this disturbance.

## Reproducibility

Precision can only be as good as the weakest link in the chain. All critical components of the PLATINblue system were optimized for the demanding requirements of UHPLC, resulting in a system with excellent reproducibility.

Excellent reproducibility of overall system



Six successive separations using online mixing of a ternary eluent  
Eluent: 3% CH<sub>3</sub>COOH/MeOH/ACN = 78/20/2  
Flow rate: 1 ml/min, Temp.: 30 °C, Wavelength: 225 nm

**Retention time**

< 0.3 % RSD

**Peak areas**

< 1.1 % RSD with partial loopfill injection  
( < 0.3 % RSD with full loop injection)



# Easy to use

Simple to operate and to service

So that you can stay focused on what is really important, the PLATINblue ultra high-performance LC system is equipped with many useful features that make operation more convenient, relieve you from time-consuming routine checks and assist you in your daily work.



Simple lamp replacement thanks to detachable side panel



## Tip

The lifespan of the detector lamps can be conserved by having one or both turned off during interruptions in analysis and switched back on automatically when resuming measurements.

## Comfortable operation

- ▶ easy to read color display
- ▶ intuitive touchscreen control\*
- ▶ automatic configuration of communication with PC and software eliminates time-consuming manual setup
- ▶ automatic selection of optimal detector integration time

## Easy access for quick maintenance

- ▶ solid glass doors provide convenient access to system components
- ▶ removable side panel for easy lamp exchange and maintenance

## Reliable and GLP compliant

- ▶ fast Ethernet communication
- ▶ automatic pump head detection (RFID)
- ▶ automatic lamp detection
- ▶ automatic wavelength verification
- ▶ comprehensive GLP reporting functions

## Safety and protection

- ▶ system functions are monitored, minimum pressure shut-off and eluent level control feature in ChromGate® software provide protection against leaks and running dry
- ▶ soft-start flow for protection of columns and system components

\*also available without touchscreen



# PLATINblue

## Component overview



### ▶ PLATINblue P-1 Ultra High Pressure Pump

Ultra high pressure pump optimized for fast liquid chromatography, capable of pressures up to 1000 bar (15000 psi) and flow rates up to 10 ml/min. The electronically controlled pump drive provides for low pulsation, a highly precise flow rate and a stable baseline.

<b>Flow rate</b>	0.01 – 5.0 ml/min or 0.01 – 10.0 ml/min (depending on pump head), 0.001 ml increments
<b>Flow accuracy</b>	±1 %
<b>Flow precision</b>	< 0.1 %
<b>Pump heads</b>	
<b>UHPLC:</b>	1000 bar up to 2 ml/min, 800 bar up to 5 ml/min
<b>extended flow:</b>	750 bar up to 5 ml/min, 400 bar up to 10 ml/min
<b>Eluent mixing</b>	SmartMix ultra efficient static mixing technology
<b>Configuration</b>	
<b>binary HPG:</b>	2 x Pump P-1, integrated 2 channel degasser and SmartMix (ternary/quaternary with additional pumps)
<b>quaternary LPG:</b>	1 x Pump P-1 incl. SmartMix, Modular Eluent Manager M-1, 4 channel degasser and interface
<b>Features</b>	touchscreen, active pressure and pulsation compensation, RFID automatic pump head detection (GLP), interchangeable pump heads



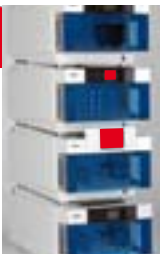
### ▶ PLATINblue M-1 Modular Eluent Manager

Combination module to add quaternary low pressure gradient functionality and a 4 channel online degasser for four eluents to the Pump P-1. The M-1 is also equipped with an A/D-D/A interface for adding devices with an analog input/output.

<b>Quaternary LPG</b>	blending of up to 4 eluents
<b>Degasser module</b>	4 channels, Teflon® AF, high efficiency
<b>A/D-D/A interface</b>	24-bit

**Tip**

PLATINblue components are available with either a touchscreen display or with a small status display for operation with software. Both types can be freely combined in one system.




▶ **PLATINblue PDA-1**  
Diode Array Detector

This extremely sensitive diode array detector with a data acquisition rate up to 100Hz with dual-lamp configuration has a wavelength range of 190–1000 nm. New ultra sensitive fiber optical flow cell provides for highest detection performance. Use spectrum data to determine peak purity or to facilitate the identification of unknown substances.

<b>Lamps</b>	high-brightness D <sub>2</sub> , tungsten-halogen
<b>Wavelength range</b>	190–1000 nm
<b>Wavelength accuracy</b>	< 1 nm
<b>Max. data acquisition rate</b>	100 Hz
<b>Diodes</b>	1024
<b>Pixel pitch</b>	< 1nm
<b>Channels</b>	max. 6
<b>Noise*</b>	±5 µAU
<b>Drift*</b>	< 300 µAU/h
<b>Linearity</b>	0 – 2 AU
<b>Spectral bandwidth</b>	< 2.5 nm
<b>Special features</b>	touchscreen, exchangeable flow cells
<b>Standard flow cell</b>	ultra sensitive, ‚zero-loss‘, fiber optical technology, 2.4 µl, 10 mm, fused silica

\* according to ASTM



▶ **PLATINblue MW-1**  
Multiple Wavelength Detector

High sensitivity detector for data acquisition rates up to 200Hz with dual-lamp functionality for a wavelength range of 190–900 nm. Best in class for noise and drift values. With an unsurpassed linearity of 3 AU, trace components can be determined accurately even when main components are present.

<b>Lamps</b>	high-brightness D <sub>2</sub> , tungsten-halogen
<b>Wavelength range</b>	190 – 900 nm
<b>Wavelength accuracy</b>	< 1 nm
<b>Max. data rate</b>	200 Hz
<b>Channels</b>	max. 6
<b>Noise*</b>	±5 µAU
<b>Drift*</b>	< 50 µAU/h
<b>Linearity</b>	0–3 AU
<b>Special features</b>	touchscreen, exchangeable flow cells, scan mode
<b>Standard flow cell</b>	2.0 µl, 10 mm, stainless steel

\* according to ASTM



▶ **PLATINblue AS-1**  
Autosampler

The fast and extremely accurate UHPLC autosampler can handle pressures up to 1000 bar (15000 psi) for injection of samples from well plates and standard vials. Supports full and partial loopfill injection as well as "microliter-pickup" for flexible selection of injection volumes. The tray cooling option allows for analysis of temperature-sensitive samples.

<b>UHPLC injection</b>	up to 1000 bar (15000 psi)
<b>Sample capacity</b>	max. 768 sample positions with well plates or 96 sample positions with standard autosampler vials
<b>Injection volume</b>	1–5000 µl
<b>Standard fitted loop</b>	10 µl
<b>Injection cycle time</b>	15 s, < 60 s with wash
<b>Injection modes</b>	full loop, partial loopfill and "microliter-pickup"
<b>Precision</b>	RSD < 0.3 % full loop injection
<b>Carry over</b>	< 0.05 % with needle wash
<b>Sample tray cooling</b>	4–22 °C



▶ **PLATINblue T-1**  
Column Temperature Manager\*

This oven provides for accurate thermostating for up to 4 columns from 10 to 140 °C. The eluent is equilibrated before reaching the column and is cooled before reaching the detector to minimize noise and drift. A stable column temperature not only improves reproducibility but considerably improves the resolution of many HPLC methods as well.

<b>Temperature range</b>	10 – 140 °C
<b>Temperature stability</b>	0.1 °C
<b>Eluent preheating</b>	equilibration to temperature of column compartment
<b>Postcolumn cooling</b>	yes
<b>Maximum heating rate</b>	5 °C/min

\*available in 2010

▶ **PLATINblue valves**

Automatic switching valves and a manual injection valve are also available



# Practical

## System details



Pump P-1 with SmartMix eluent mixer



Easy access of detector flow cell



High-quality materials –  
stainless steel and glass



Eluent tray for up to six 1 liter bottles



Tubing guide



Rear view

# Intelligent

User-friendly, scalable and compliant

ChromGate® PLATINblue Edition is our easy-to-use software solution for laboratories with high demands for functionality, flexibility and scalability, as well as GLP compliance. Based on EZChrom Elite™ software, ChromGate® PLATINblue Edition software adds extended KNAUER-specific functions.

## Smart product features that save time

- ▶ automatic system configuration for the PLATINblue system via the instrument network
- ▶ navigation with tree structure for quick orientation

Only ONE software for your chromatography laboratory is required to control all KNAUER instruments and a wide range of chromatography instrumentation from other manufacturers. Your lab benefits from reduced training expenses, uniform operability and harmonized data reporting.

## Flexible reporting functions

- ▶ report layouts are easily customized via multiple options in Custom Report feature
- ▶ predefined standard reports for quick output of results



Automatic configuration of PLATINblue systems makes installation simple

## Scalability and compliance

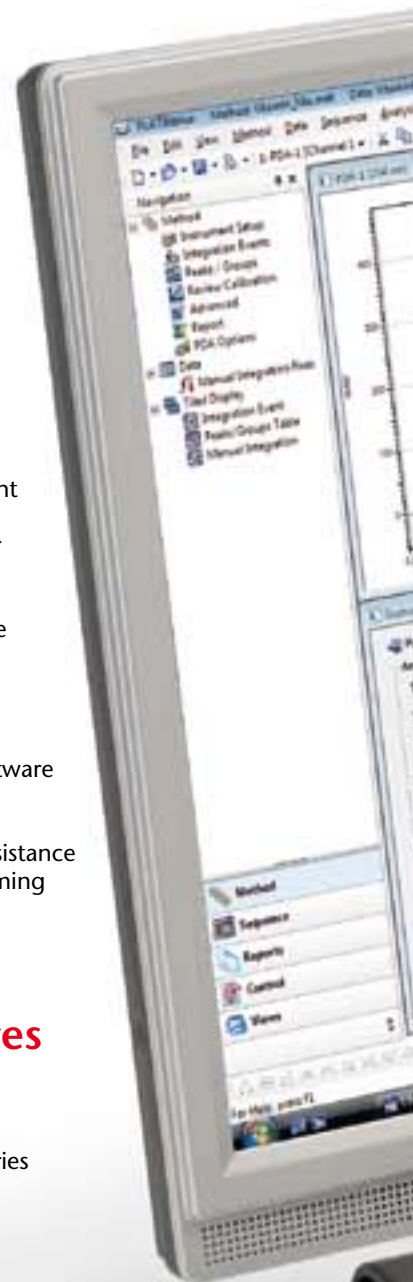
- ▶ scalable from a single instrument to a multi-user enterprise-wide solution thanks to Client/Server functionality
- ▶ FDA 21 CFR Part 11 compliance

## Easy to use

- ▶ simple method creation via software "wizards"
- ▶ "sequence wizard" provides assistance and saves time when programming a sequence of analyses

## Convenient diode-array features

- ▶ clear presentation of 3-D data
- ▶ easy creation of spectrum libraries and fast spectrum search





**Tip** ChromGate® PLATINblue Edition Software

Our full-featured scalable chromatography software includes one client/server licence (additional licences optional). Every complete PLATINblue system also includes a major brand PC with the latest technology, large hard disk, DVD writer, large TFT display and 8-port Ethernet/LAN router.

# Ultimate

## Front-end for LC/MS

PLATINblue UHPLC together with the MSQ Plus™ mass spectrometer offers the most sensitive and compact LC/MS solution for high throughput applications.



### Seamless integration

- ▶ when operating the PLATINblue UHPLC system as part of an LC/MS solution, Xcalibur™ takes over complete LC instrument control and mass spectrometer data handling
- ▶ splitless sample introduction at flow rates up to 2 ml/min for maximum transfer of analytes

### High performance

- ▶ highly sensitive ion optics
- ▶ 60° M-Path™ source for high ruggedness and lowest carryover
- ▶ square quadrupole RF/DC pre-filter lens protects from contamination and enables high-efficiency transmission
- ▶ fast scan speed up to 12000 amu/s for full compatibility with narrow UHPLC peaks

### Work with ease

- ▶ the MSQ Plus™ detector is very robust and easy to handle
- ▶ exchanging the probes between ESI and APCI mode takes only minutes
- ▶ tool-free maintenance of ionization source

### Versatile

- ▶ available with two ionization modes: electrospray ionization (ESI) or atmospheric pressure chemical ionization (APCI)
- ▶ ESI is a very mild method, even for thermally labile species. It is suitable for polar compounds or ionic substances in solution, e.g. anions/cations, peptides, small nucleotides, drugs, or sugars (< 2000 Da)
- ▶ APCI requires higher vaporization temperatures, but is less dependent on solvent type and solvent flow rate. Typical detectable compounds include hydrocarbons, alcohols, aldehydes, ketones, esters – excluding acidic or basic groups (< 1000 Da)



Detail of MSQ Plus with atmospheric pressure chemical ionization (APCI) installed



Detail of MSQ Plus with electrospray ionization (ESI) installed



## ► MS detector specifications

<b>Ionization modes</b>	electrospray (ESI) or atmospheric pressure chemical ionization (APCI)
<b>Mass range</b>	17 – 2000 Da
<b>Sensitivity*</b>	
<b>ESI, positive ion</b>	1000:1 RMS, 50 pg erythromycin (10 µl x 5 pg/µl)
<b>ESI, negative ion</b>	500:1 RMS, 20 pg p-nitrophenol (10 µl x 2 pg/µl)
<b>APCI, positive ion</b>	200:1 RMS, 50 pg erythromycin (10 µl x 5 pg/µl)
<b>APCI, negative ion</b>	50:1 RMS, 20 pg p-nitrophenol (10 µl x 2 pg/µl)
*signal-to-noise, loop injection, 1 ml/min flow rate	

## ► Xcalibur™ MS Data System

Xcalibur is a very versatile and easy-to-use mass spectrometry data system, offering transparent navigation through the process of instrument setup, sequence setup, and data acquisition. MS data analysis is simplified using any of the three browser environments: Qual Browser, Quan Browser, and Library Browser. Intuitively create reports with XReport software.

The Xcalibur MS data system provides for control and data acquisition of all PLATINblue instruments and the MSQ Plus MS detector, as well as the complete range of Thermo MS detectors.

# Versatile

Wide range of application areas

## Pharmaceutical

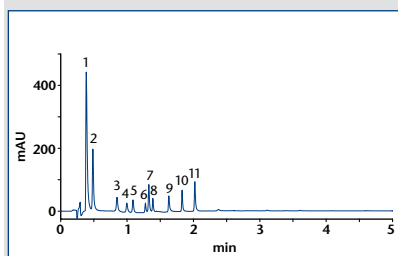
Separation of paracetamol and common synthesis impurities



**Separation column**  
BlueOrchid C18 1.8µm, 100 x 2 mm

### Separation conditions

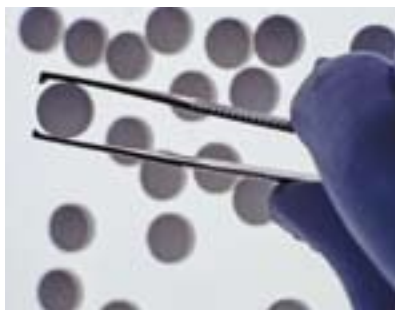
Eluent: A: 1.7 mM NaH<sub>2</sub>PO<sub>4</sub>, pH 3.7  
B: ACN  
Flow rate: 0.85 ml/min  
Mode: gradient  
Injection volume: 1 µl  
Pressure: 950 bar (13800 psi)  
Detection: MW-1, 254 nm (80 Hz, 0.005 s)  
Temperature: 50 °C



- 1 4-aminophenol
- 2 paracetamol
- 3 N-(4-hydroxyphenyl)propanamide
- 4 N-(2-hydroxyphenyl)acetamide
- 5 N-(3-chloro-4-hydroxyphenyl)acetamide
- 6 1-(4-hydroxyphenyl)ethanoneoxime
- 7 N-phenylacetamide
- 8 4-(acetylamino)phenyl acetate
- 9 4-nitrophenol
- 10 chloroacetanilide
- 11 1-(2-hydroxyphenyl)ethanone

## Pharmaceutical

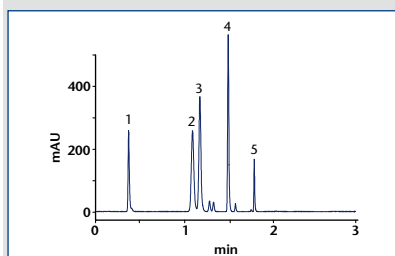
Separation of sulfa drugs



**Separation column**  
BlueOrchid C18 A 1.8µm, 50 x 2 mm

### Separation conditions

Eluent: A: 1.7 mM NaH<sub>2</sub>PO<sub>4</sub>, pH 4  
B: ACN  
Flow rate: 1.4 ml/min  
Mode: gradient  
Injection volume: 1 µl  
Pressure: 750 bar (10880 psi)  
Detection: PDA-1, 265 nm (100 Hz, 0.005 s)  
10 mm, 2.4 µl flow cell  
Temperature: 40 °C



- 1 sulfadiazine
- 2 sulfamethiazole
- 3 sulfamethoxypridazine
- 4 sulfamethoxazole
- 5 sulfamethoxine

## Pharmaceutical

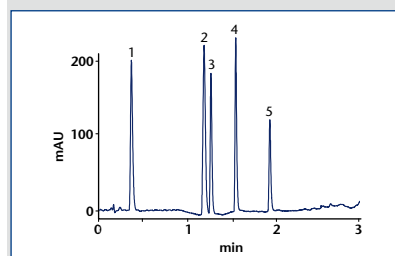
Separation of beta-blockers



**Separation column**  
BlueOrchid C18 1.8µm, 50 x 2 mm

### Separation conditions

Eluent: A: 25 mM NaH<sub>2</sub>PO<sub>4</sub> pH 2.7  
B: Eluent A / ACN 40:60 (v/v)  
Flow rate: 1.0 ml/min  
Mode: gradient  
Injection volume: 0.5 µl  
Pressure: 650 bar (9430 psi)  
Detection: PDA-1, 254 nm (100 Hz, 0.005 s)  
10 mm, 2.4 µl flow cell  
Temperature: 35 °C



- 1 Atenolol
- 2 Pindolol
- 3 Nadolol
- 4 Metoprolol
- 5 Alprenolol

PLATINblue systems can be flexibly used to increase the throughput and sensitivity of many applications. Benefit from the advantages of high-speed UHPLC applications without having to completely convert your established HPLC methods. The following are only a few examples of the applications possible with PLATINblue.

## Pharmaceutical

Separation of steroids

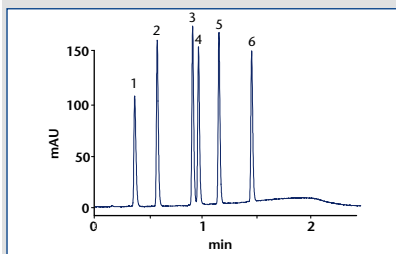


### Separation column

BlueOrchid C18 1.8 μm, 50 x 2 mm

### Separation conditions

Eluent: A: 0.1 % formic acid  
 B: ACN (+ 0.1 % formic acid)  
 Flow rate: 1.0 ml/min  
 Mode: gradient  
 Injection volume: 0.5 μl  
 Pressure: 650 bar (9430 psi)  
 Detection: PDA-1, 254 nm (100 Hz, 0.005 s)  
 10 mm, 2.4 μl flow cell  
 Temperature: 30 °C



- 1 cortisone
- 2 corticosterone
- 3 testosterone
- 4 deoxycorticosterone
- 5 norgestrel
- 6 progesterone

## Environmental

Separation of benzene derivatives

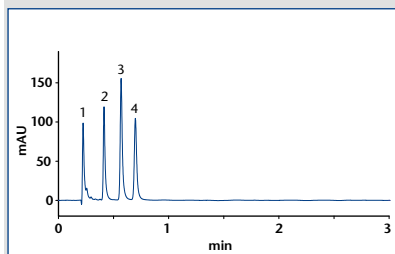


### Separation column

BlueOrchid C18 A 1.8 μm, 100 x 2 mm

### Separation conditions

Eluent: ACN/H<sub>2</sub>O 85:15 (v/v)  
 Flow rate: 1.0 ml/min  
 Mode: isocratic  
 Injection volume: 1 μl  
 Pressure: 750 bar (10150 psi)  
 Detection: MW-1, 254 nm (100 Hz, 0.005 s)  
 Temperature: 35 °C



- 1 thiourea
- 2 toluene
- 3 propylbenzene
- 4 butylbenzene

## Environmental

Determination of 16 EPA PAH

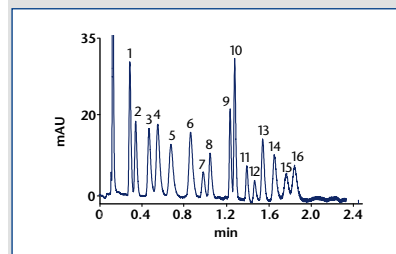


### Separation column

BlueOrchid PAH, 50 x 2 mm

### Separation conditions

Eluent: A: MeOH/H<sub>2</sub>O 75:25  
 B: ACN  
 Flow rate: 1.0 ml/min  
 Mode: gradient  
 Injection volume: 1 μl EPA standard  
 Detection: 254 nm (100 Hz, 0.05 s)  
 Temperature: 25 °C



- |                      |                           |
|----------------------|---------------------------|
| 1 naphthalene        | 11 benzo(b)fluoranthene   |
| 2 acenaphthalene     | 12 benzo(k)fluoranthene   |
| 3 acenaphthene       | 13 benzo(a)pyrene         |
| 4 fluorene           | 14 dibenzo(a,h)anthracene |
| 5 phenanthrene       | 15 benzo(g,h,i)perylene   |
| 6 anthracene         | 16 indeno(1,2,3-cd)pyrene |
| 7 fluoranthene       |                           |
| 8 pyrene             |                           |
| 9 benzo(a)anthracene |                           |
| 10 chrysene          |                           |

## Food

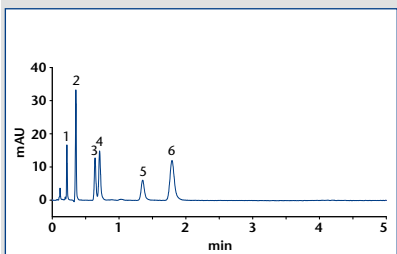
### Quick determination of tocopherols



**Separation column**  
BlueOrchid Si 1.8 μm, 50 x 2 mm

#### Separation conditions

Eluent: heptane/2-butanol 1000:4 (v/v)  
Flow rate: 1.7 ml/min  
Mode: isocratic  
Injection volume: 1 μl  
Pressure: 350 bar (5080 psi)  
Detection: MW-1, 280 nm (50 Hz, 0.01 s)  
Temperature: 25 °C



- 1 trans-retinol
- 2 alpha-tocopherol
- 3 beta-tocopherol
- 4 gamma-tocopherol
- 5 delta-tocopherol
- 6 vitamin D2

## Food

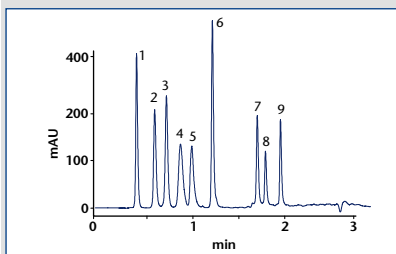
### Determination of water soluble vitamins



**Separation column**  
BlueOrchid C18 A 1.8 μm, 100 x 2 mm

#### Separation conditions

Eluent: A: 50 mM NaH<sub>2</sub>PO<sub>4</sub> pH 4  
B: MeOH  
Mode: gradient  
Flow rate: 0.7 ml/min  
Injection volume: 1 μl  
Pressure: 800 bar (11600 psi)  
Detection: PDA-1, 254 nm (50 Hz, 0.01 s)  
10 mm, 2.4 μl flow cell  
Temperature: 30 °C



- 1 ascorbic acid
- 2 thiamine
- 3 nicotinic acid
- 4 pyridoxal
- 5 pyridoxin
- 6 nicotinamid
- 7 folic acid
- 8 cyanocobalamine
- 9 riboflavin

## Food

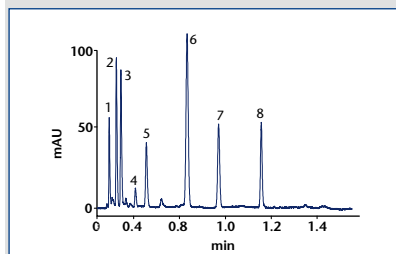
### Separation of Sudan dyes



**Separation column**  
BlueOrchid C18 1.8 μm, 50 x 2 mm

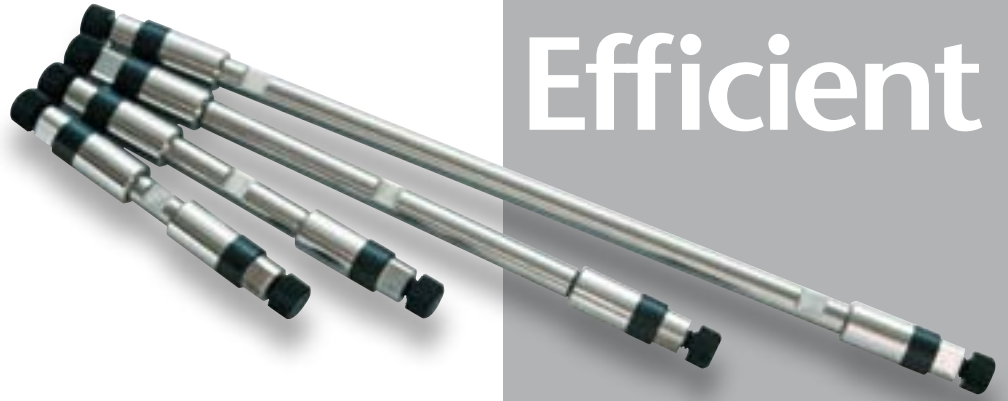
#### Separation conditions

Eluent: A: H<sub>2</sub>O (+ 0.1 % formic acid)  
B: ACN (+ 0.1 % formic acid)  
Mode: gradient  
Flow rate: 1.0 ml/min  
Injection volume: 1 μl  
Pressure: 400 bar (5800 psi)  
Detection: PDA-1, 240 nm (50 Hz, 0.01 s)  
10 mm, 2.4 μl flow cell  
Temperature: 25 °C



- 1 impurity 1
- 2 4-phenylazophenol
- 3 α-naphthyl Red
- 4 impurity 2
- 5 impurity 3
- 6 sudan II
- 7 sudan III
- 8 sudan IV

# Efficient



## KNAUER UHPLC columns

Specifically designed for ultra high-performance liquid chromatography applications, KNAUER UHPLC columns packed with sub-2  $\mu\text{m}$  particles make high-resolution separations possible. Their exceptional stability in both acidic and alkaline eluents make them universally applicable.

**BlueOrchid** Our 1.8  $\mu\text{m}$  columns feature an extremely narrow particle size distribution for optimal resolution at lower back pressures. BlueOrchid columns are available in a variety of phase modifications and column dimensions.



**BlueOrchid RP UHPLC column kit**  
This kit of high resolution reversed phase columns provides three different selectivities and is included with every PLATINblue system.

### Columns in kit

BlueOrchid C18 1.8  $\mu\text{m}$ , 50 x 2 mm  
BlueOrchid C18 A 1.8  $\mu\text{m}$ , 50 x 2 mm  
BlueOrchid C8 1.8  $\mu\text{m}$ , 50 x 2 mm

Please refer to our BlueOrchid brochure for more details and ordering information.

## Clinical diagnostics

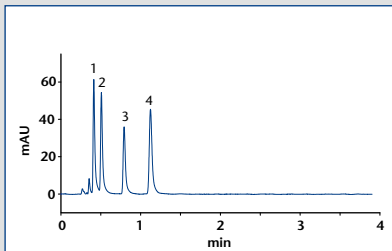
Determination of sedatives,  
e.g. barbiturates



**Separation column**  
BlueOrchid C18 1.8  $\mu\text{m}$ , 50 x 2 mm

### Separation conditions

Eluent: MeOH/H<sub>2</sub>O 60:40 (v/v)  
Flow rate: 0.5 ml/min  
Mode: isocratic  
Injection volume: 1  $\mu\text{l}$   
Pressure: 826 bar (11980 psi)  
Detection: MW-1, 254 nm (80 Hz, 0.005 s)  
Temperature: 40 °C



- 1 barbital
- 2 luminal
- 3 prominal
- 4 revonal

## Selectivity test

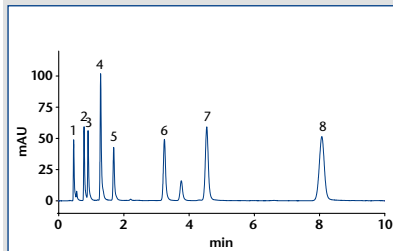
Engelhardt test (modified)  
in less than 8 minutes



**Separation column**  
BlueOrchid C18 1.8  $\mu\text{m}$ , 100 x 2 mm

### Separation conditions

Eluent: MeOH/H<sub>2</sub>O 55:45 (v/v)  
Flow rate: 0.45 ml/min  
Mode: isocratic  
Injection volume: 1  $\mu\text{l}$   
Pressure: 890 bar (12900 psi)  
Detection: MW-1, 254 nm (80 Hz, 0.005 s)  
Temperature: 40 °C



- 1 uracil
- 2 aniline
- 3 phenol
- 4 p-ethylaniline
- 5 N,N-dimethylaniline
- 6 benzoic acid ethyl ester
- 7 toluene
- 8 ethylbenzene

# Support

## Fast and reliable

Excellent support starts at the product development stage. That's why we developed PLATINblue instruments with ultimate reliability in mind. Each component was designed for maximum dependability and durability, using only the best materials available.

To keep all of the components in your PLATINblue system running with the highest performance, we offer a comprehensive support and maintenance program to ensure your system's reliable operation.



**All support requests will be responded** to by local authorized KNAUER support staff within two hours. Guaranteed! A detailed report of your system's status can be easily generated by the PLATINblue ServiceTool software for fast problem diagnosis. KNAUER technical support will contact you within 24 hours with a detailed plan for resolution of the problem. If necessary, we will solve the problem at your site – quickly and without complication.



**We offer you a three-year warranty** on every PLATINblue system in conjunction with a service agreement. This entitles you to an all-inclusive full service plan. The reliable and continuous operation of your PLATINblue system is our highest priority.



**So you can get off running right from the start**, we combine the PLATINblue system installation with training for you and your team. A follow-up training session within the following six months is included in the service package at no extra cost.



**We will accompany you** when working out your methods, step by step. Our application experts are available Monday through Friday to assist you with any application questions you might have. We also offer on-site demonstrations and method transfer workshops.

[www.knauer.net](http://www.knauer.net)

## HPLC · SMB · Osmometry

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