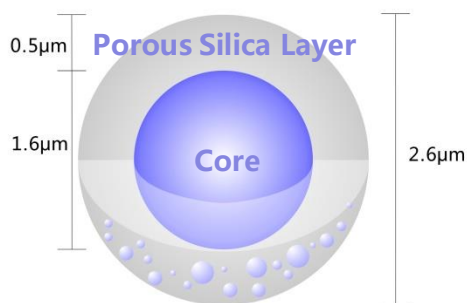


## General Description

Sepax Opalshell™-C18 columns use a core-shell bonded silica stationary phase. This core-shell bonded silica particle has a total size of 2.6 µm, comprised of a 1.6 µm solid silica core with a 0.5 µm porous outer layer. The uniform, spherical particles have a nominal surface area of 150 m<sup>2</sup>/g with a controlled pore size of 90 Å. The size distribution of the Opalshell™ particles is much narrower than that of conventional totally porous particles. This leads to reduced inter particle spacing in the column, achieving higher efficiency and performance by less eddy diffusion.

Sepax Opalshell™-C18 columns have great selectivity and peak symmetry for separations of acidic, neutral and basic organic compounds.



## Featured Characteristics

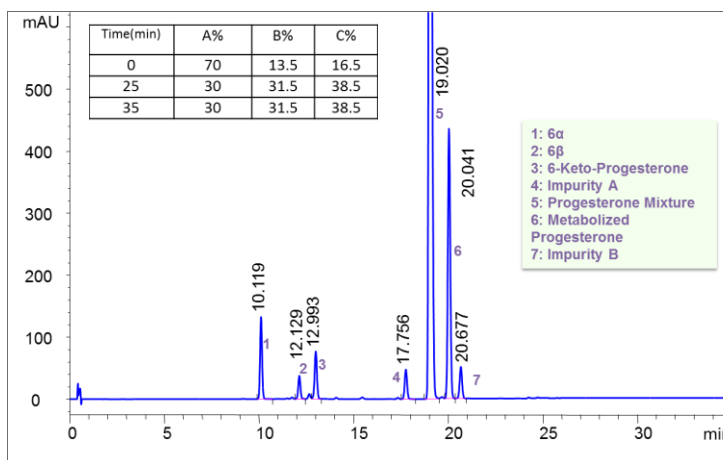
- High resolution with same efficiency as a sub-2 µm particle
- Fast analysis with shorter run time
- Ideal for high-throughput analysis
- High stability with longer lifetime
- Low backpressure, comparable to 3 and 5 µm particles
- Compatible with both UPLC and HPLC for easy method transfer between systems
- Wide pH range: 1.5 – 10.0
- Great selectivity and peak symmetry for separations of acidic, neutral and basic organic compounds

## Technical Specifications

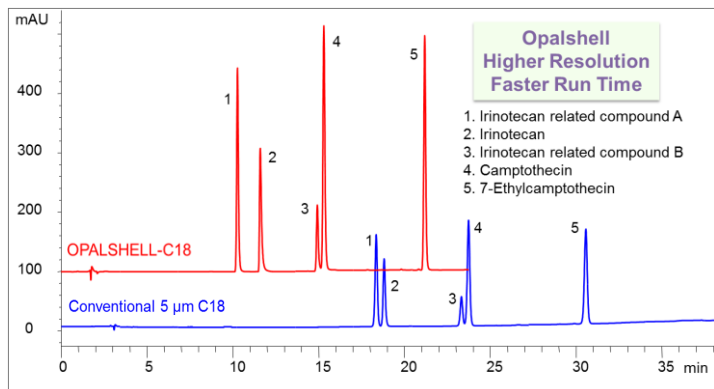
Phase	Opalshell™-C18
Material	Core-shell bonded silica with a porous outer layer
Average particle size	2.6 µm
Pore size	90 Å
Surface area	150 m <sup>2</sup> /g
pH stability	1.5 – 10.0
Recommended flow rate range for maximum column lifetime	0.1 - 0.35 mL/min
Recommended operating pressure for maximum column lifetime	< 5,000 psi
Maximum operating temperature	60 °C

## Applications

### Progesterone Analysis by Opalshell™-C18



**Column:** Opalshell™-C18 (2.6 µm, 90 Å, 4.6 x 50 mm)  
**Mobile Phase:** A :H<sub>2</sub>O; B: ACN; C: MeOH (v/v)  
**Injection:** 10 µL  
**Flow Rate:** 1.0 mL/min  
**Pressure:** 120 bar  
**Detection:** UV 241 nm  
**Temperature:** Ambient  
**Sample:** Progesterone sample mixture ( 0.5 mg/mL)

**Irinotecan Analysis  
by Opalshell™-C18 vs a Conventional 5 μm C18**


**Column:** Opalshell™-C18 (2.6 μm, 90 Å, 4.6 x 100mm)  
C18 (5 μm, 4.6 x 250 mm)

**Mobile Phase:** A : 2.72 g/L KH<sub>2</sub>PO<sub>4</sub>, pH 3.5 by 1/20 H<sub>3</sub>PO<sub>4</sub>;  
B: ACN : MeOH = 3 : 2

**Injection:** 10 μL

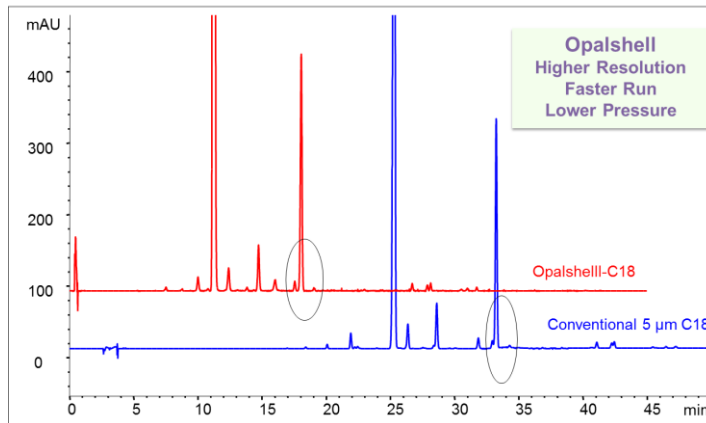
**Flow Rate:** 0.6 mL/min

**Pressure:** 114 bar

**Detection:** UV 220 nm

**Temperature:** Ambient

**Sample:** Irinotecan sample mixture

**Overlays of API Crude Sample Analysis  
by Opalshell™-C18 vs a Conventional 5 μm C18**


**Column:** Opalshell™-C18 (2.6 μm, 4.6 x 50 mm)  
C18 (5 μm, 4.6 x 250 mm)

**Mobile Phase:** A: 0.1% Acetic Acid in Water, B: ACN

**Injection:** 20 μL

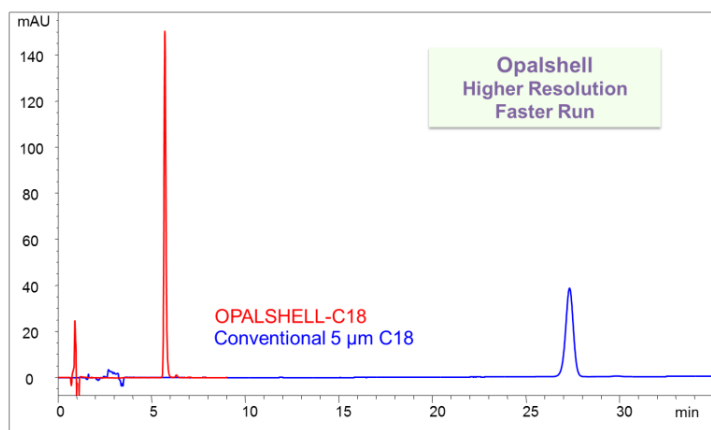
**Flow Rate:** 1.0 mL/min

**Pressure:** 105-165 bar

**Detection:** UV 254 nm

**Temperature:** Ambient

**Sample:** Prednisolone Acetate Tablets (0.05mg/mL)

**Overlay of Prednisolone Acetate Analysis  
by Opalshell™-C18 vs a Conventional 5 μm C18**


**Column:** Opalshell™-C18 (2.6μm, 4.6 x 50 mm)  
C18 (5 μm, 4.6 x 250 mm)

**Mobile Phase:** ACN : H<sub>2</sub>O= 35 : 65 (v/v)

**Injection:** 10 μL

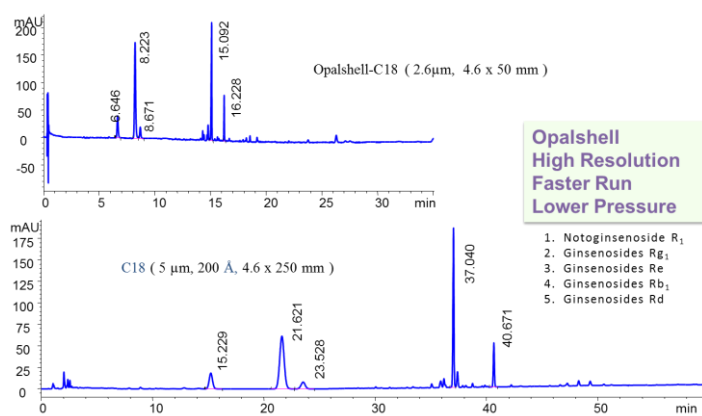
**Flow Rate:** 1.0 mL/min

**Pressure:** 175 bar

**Detection:** UV 246 nm

**Temperature:** Ambient

**Sample:** Prednisolone Acetate Tablets (0.05 mg/mL)

**Ginseng Saponins Extract Analysis  
by Opalshell™-C18 vs a Conventional 5 μm C18**


**Column:** Opalshell™-C18 (2.6 μm, 4.6 x 50 mm)  
C18 (5 μm, 200 Å, 4.6 x 250 mm)

**Mobile Phase:** A: ACN; B: H<sub>2</sub>O

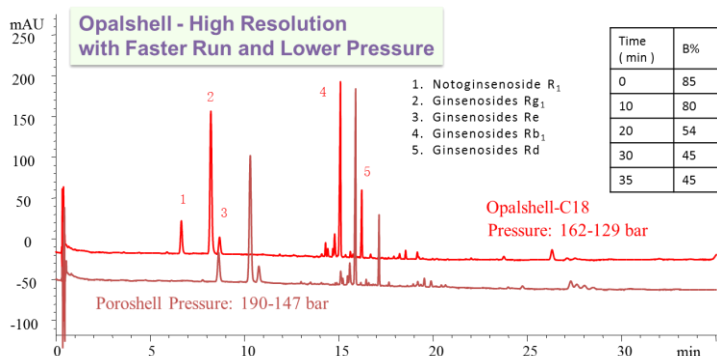
**Injection:** 10 μL

**Flow Rate:** 1.5 mL/min

**Detection:** UV 203 nm

**Temperature:** Ambient

**Sample:** 2.5 mg/mL diluted by 70% methanol

**Ginseng Saponins Extract Analysis – Competition Comparison**


Disclaimer: Agilent and Poroshell are registered trademarks of Agilent Technologies; Comparative separations may not be representative of all applications.

**Column:** Opalshell™-C18 (2.6 µm, 4.6 x 50 mm)  
 Agilent Poroshell 120 C18 (2.7µm, 4.6 x 50 mm)

**Mobile Phase:** A: ACN; B: H<sub>2</sub>O

**Injection:** 10 µl

**Flow Rate:** 1.5 mL/min

**Detection:** UV 203 nm

**Temperature:** Ambient

**Sample:** 2.5 mg/mL diluted by 70% methanol

**Ordering Information**

<b>Sepax Opalshell™-C18 HPLC Column</b>	
104182-2110	Opalshell-C18, 2.6µm, 90 A 2.1 x 100 mm
104182-2115	Opalshell-C18, 2.6µm, 90 A 2.1 x 150 mm
104182-4605	Opalshell-C18, 2.6µm, 90 A 4.6 x 50 mm
104182-4610	Opalshell-C18, 2.6µm, 90 A 4.6 x 100 mm
<b>Sepax Opalshell™-C18 Guard</b>	
104182-4001C	Guard Cartridge with Holder
104182-4001F	Guard Refill Cartridge (5 pcs/pk)

**Column Screening & Method Development Service**

- Various column phases including SEC, IEX, HIC and RP from Sepax and other vendors available for screening
- Different buffer systems including mobile phases and gradients for development and optimization
- Cost effective and quick turnaround solutions
- Eliminate uncertainty, accomplish projects with higher success rates

Please contact [techsupport@sepax-tech.com](mailto:techsupport@sepax-tech.com) for further information or call toll free 1-887-SEPAX-US (option 3) to speak with our technical support team.

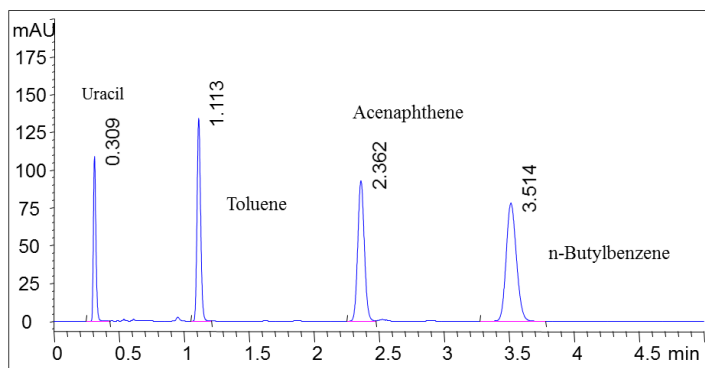
**Additional resources at [www.sepax-tech.com](http://www.sepax-tech.com)**

- Access to application notes of your interested sample type
- Method development training webinars
- Up-to-date listing of where our columns have been cited in the scientific literature
- Easy way to view prices, request quotes and order products

**Sepax Technologies, Inc.**

5 Innovation Way, Suite 100  
 Delaware Technology Park  
 Newark, Delaware 19711

Phone: (302) 366-1101  
 Toll Free: 1-877-SEPAX-US  
 Fax: (302) 366-1151  
 E-mail: [info@sepax-tech.com](mailto:info@sepax-tech.com)


**QC Standards on Opalshell™-C18**


**Column:** Opalshell™-C18 (2.6 µm, 4.6 x 50 mm)

**Mobile Phase:** ACN : H<sub>2</sub>O = 60 : 40 (v/v)

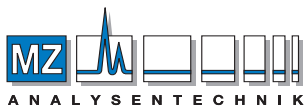
**Injection:** 1 µL

**Flow Rate:** 1.5 mL/min

**Detection:** UV 254 nm

**Temperature:** Ambient

**Sample:** Uracil (0.05 mg/mL)  
 Toluene (5 µL/mL)  
 Acenaphthene (1.2 mg/mL)  
 n-Butylbenzene (10 µL/mL)



**AUTHORIZED DISTRIBUTOR**  
 MZ-Analysentechnik GmbH, Barcelona-Allee 17• D-55129 Mainz  
 Tel +49 6131 880 96-0, Fax +49 6131 880 96-20  
 e-mail: [info@mz-at.de](mailto:info@mz-at.de), [www.mz-at.de](http://www.mz-at.de)