



## Operating Instruction Sheet

### Q-Shell

#### Column Description

Product Type: Analytical columns for both HPLC and SFC operations  
Chiral Selectors: O-9 (*tert*-butyl carbamoyl) quinine was covalently bonded on 2.7  $\mu\text{m}$  superficially porous particles (SPPs)  
Hardware: Idex<sup>®</sup> (Isobar) with 2 micron (inlet) and 1 micron (outlet) frits  
Dimensions: Available in 5/10/15 cm length with 2.1/3.0/4.6 mm I.D.

#### QC Test Conditions

Sample: F-MOC Methionine (2 mg/mL in methanol)  
Mobile Phase: 100/0.5/0.13 (v/v/wt%) Methanol/FA/ammonium formate  
Temperature: Ambient (23 °C)  
Injection Volume: 0.1-0.8  $\mu\text{L}$   
Detection: UV 254 nm

#### Operation Parameters

Flow Direction: Indicated by column label  
Max Pressure: 400 bar for 4.6 mm I.D. columns  
500 bar for 3.0 mm/2.1 mm I.D. columns  
Max Flow Rate: Within pressure limits, there is no limit on the flow rate  
Safe pH Range: Buffer solution: pH 2.0-7.0  
Temperature: 5-45 °C (allow step-wise increase/decrease @1 °C /min)

#### Mobile Phase Solvents

These CSPs can be used in any type of organic solvents without any issue. Allow at least 10-20 column volumes of conditioning time before injection.



### Screening Mobile Phases

Polar Ionic Mode: 100/0.4/0.1 (v/v/wt%) MeOH/FA/ammonium formate or 100/0.4/0.1 MeOH/formic acid (FA)/triethylamine (TEA)

Polar Organic: 40/60/0.4/0.1 ACN/MeOH/FA/TEA

Reversed Phase: 80/20 MeOH/50 mM ammonium formate (pH 3) buffer

### Optimizations

Polar Ionic Mode: Change concentration of salts between 0.05 wt% and 1 wt%  
Change ratio of FA/ammonium formate between 5/1 and 1/1  
Change different ammonium salts:  
    Use ammonium acetate or ammonium trifluoroacetate

Polar Organic: Change ACN/MeOH ratio  
Change AA/TEA ratio from 5/1 to 2/1

Reversed Phase: Change organic/buffer ratio  
Change different organic solvents  
Change pHs for acidic compounds  
Change different salts:  
    Use ammonium formate or ammonium nitrate

Flow Rate: Change the flow rate according to the retention time

Temperature: Change the column temperatures between 5-45 °C

**Storage** Pure MeOH or Ethanol is recommended for long term storage.

**Regeneration** Flush the column with 50/50, ACN/50 mM NH<sub>4</sub>OAc @ lower flow rates for at least 2 hours. Then flush with pure methanol.

**Shipment** Each column has been QC-tested before shipping. The columns are stored in pure methanol.