



SPH1299Q™ V2

Linear driven quaternary pump



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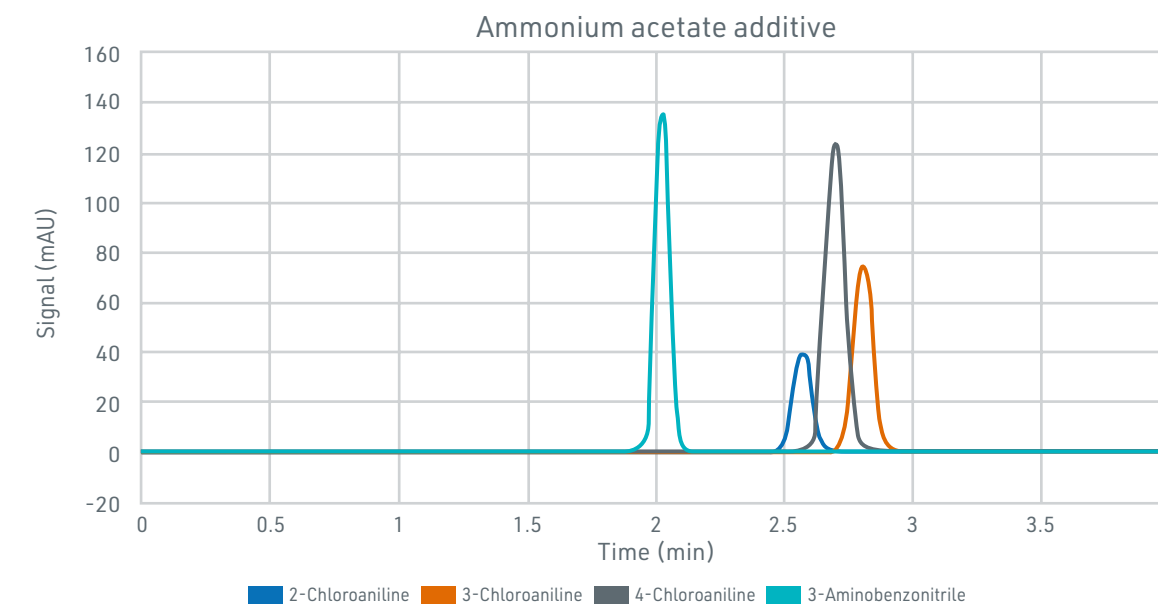
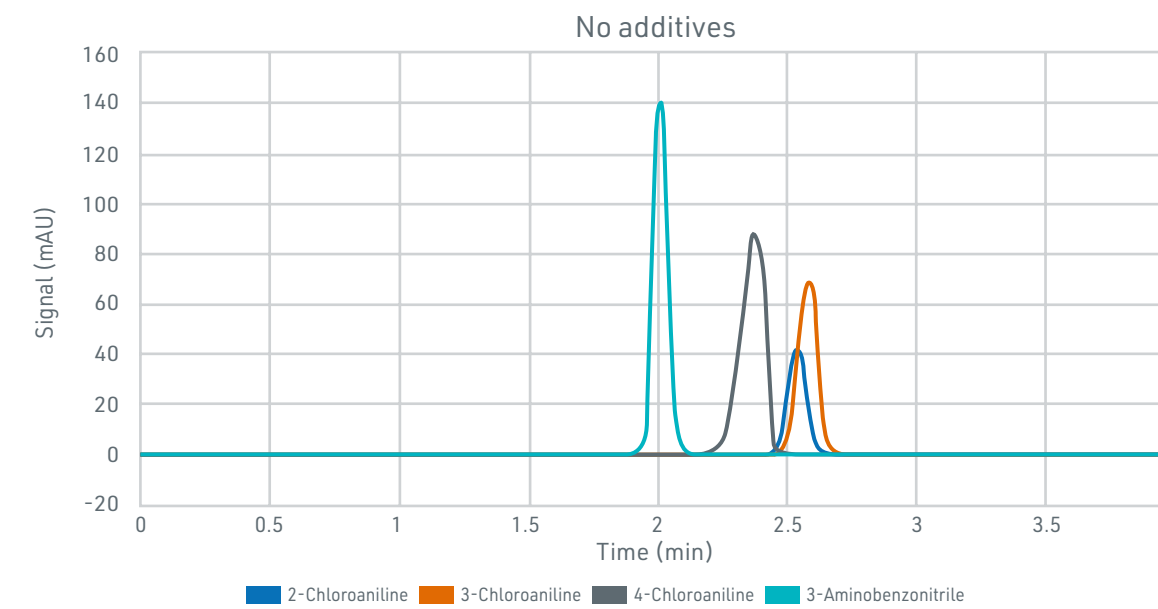
Better Sample Care.

SPH1299Q™ V2

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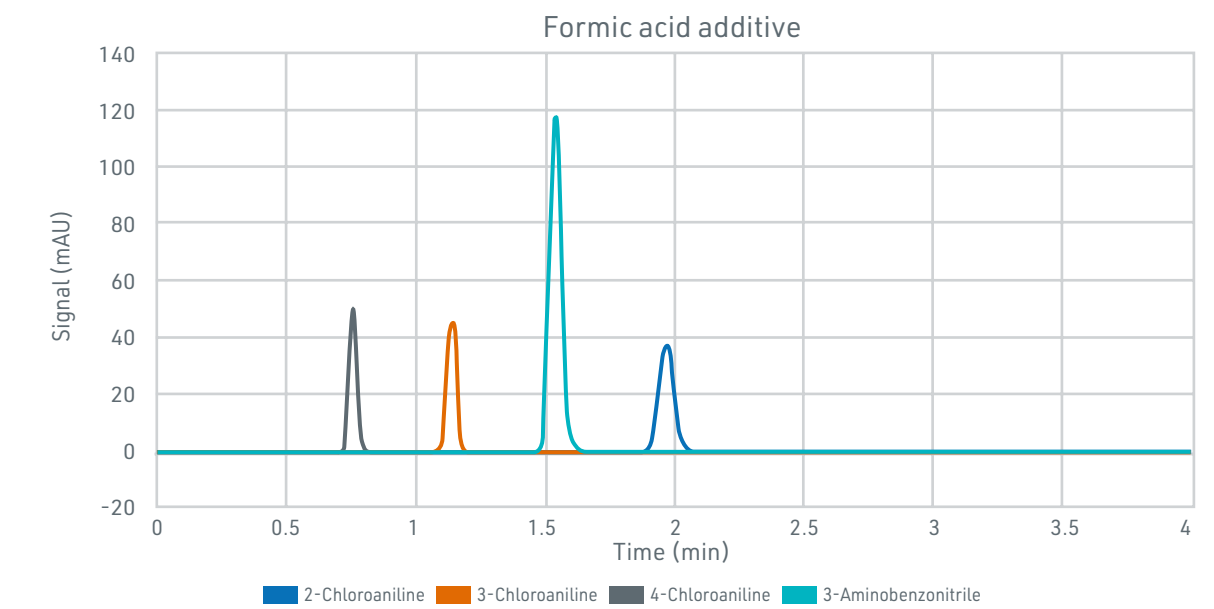
For fast and easy method development

The SPH1299Q™ V2 is a linear driven quaternary pump that easily meets contemporary requirements of modern laboratories. Whereas high pressure gradient pumps - like the SPH1299™ - are known for their ultra fast gradients and low dwell volume, low pressure gradient pumps excel in flexibility. Blending up to four solvents with excellent performance enables easy and fast method development. Next to this, method transfer and application switching are easy and straightforward, which makes the SPH1299Q™ V2 the preferred pump for many laboratories. The autonomous diagnostic tool, reading sensor data in real time at 1,00 Hz, makes troubleshooting easier and saves a lot of maintenance time.



One of the key elements of the SPH1299Q™ V2 is the ability to create different mobile phase mixtures easily. These chromatograms show the effect of adding different types of additives on the separation of anilines. (Experimental conditions: isocratic run mode, flowrate: 0.5 ml/min, 10µl injection)

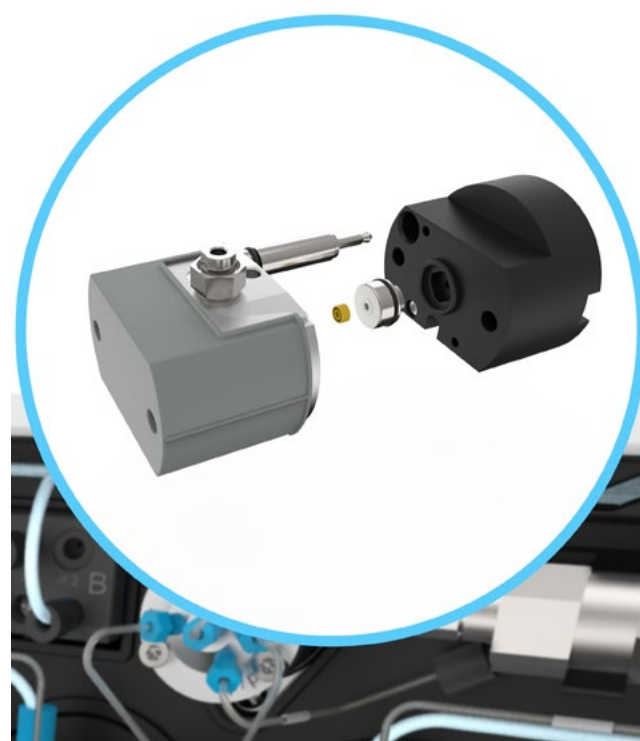
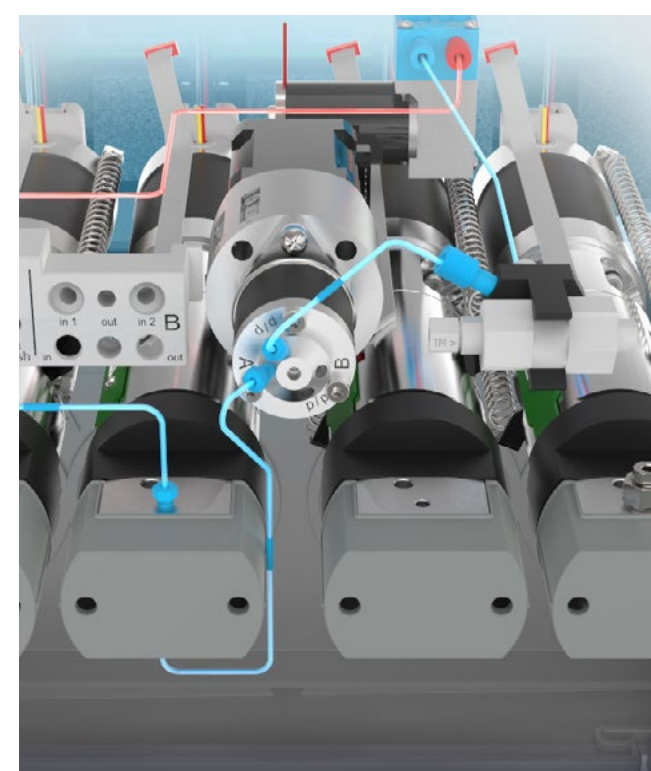
Experiment	Solvent composition			
	Water	MeOH	100 MH NH4Ac	1% Formic acid
No additives	80	20	0	0
FA additive	72	20	0	8
NH4Ac additive	76	20	4	0



- Pressure up to 1300 bar**
- True automatic self-priming**
- Automatic solvent compressibility compensation**
- Fast method development**



The SPH1299Q™ V2 is based upon the proven technology of our high pressure gradient pump, SPH1299™ V2. All the outstanding and unique features of the SPH1299™ V2 are covered in this quaternary pump as well. By default: no manual priming and purging, accurate and precise flow control and easy maintenance.



SPH1299Q™ V2 is based on the reliable, proven concept of linear drive technology. Each of the two pump heads, which are completely made of high quality 316 stainless steel with a high tech coating, is individually driven and controlled, generating maximum freedom for flow control and pulse reduction.

A novel automatic priming concept fully automates the cumbersome priming procedure. A built-in prime pump aspirates solvent through the pump heads when starting with empty solvent inlet lines.

Furthermore, to reduce polymer residue built-up one can, in addition to the standard Sapphire seat, opt for a Zirconia seat.

The pump head has been designed to facilitate easy disassembly and seal exchange. No need to remove covers or take the pump out of the UHPLC stack. And no expensive exchange of entire pump head/drive assemblies!

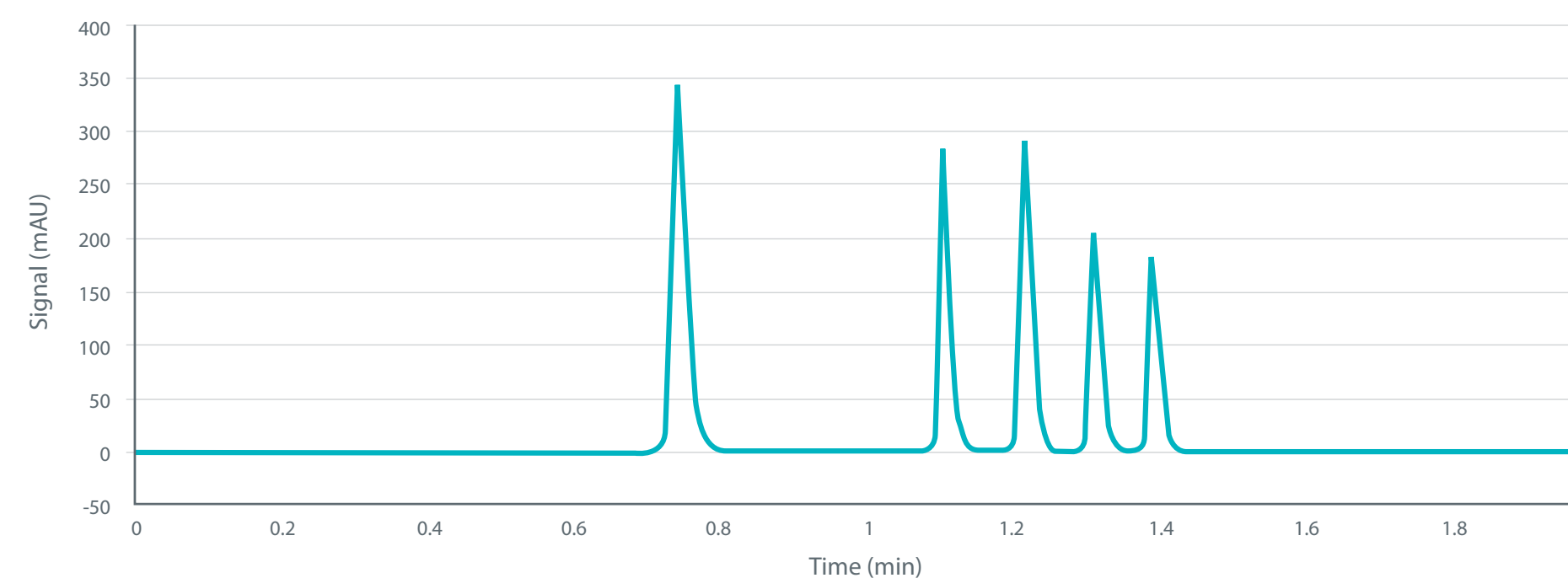
In addition, optimal force distribution on the seal prevents possible breakage of the check valve.

Method parameters	
Wavelength	254 nm
Injection vol.	5 µL
Column	Brownlee Pecosphere CRC18 3.3 x 3 cm, 3 µm
Sample	50 ppm phenone mixture in 10% MeOH

This application example with a fast and steep gradient, demonstrates the fast runtimes and excellent precision performance of the SPH1299Q™ V2. Just what you expect of a high-class quaternary pump.

Gradient				
	Time (min)	Flow (mL/min)	%A (Water)	%B (ACN)
Step 1	0.0	2.0	65	35
Step 2	0.1	2.0	65	35
Step 3	1.0	2.0	0	100
Step 4	1.1	2.0	0	100
Step 5	1.2	2.0	65	35
Step 6	2.0	2.0	65	35

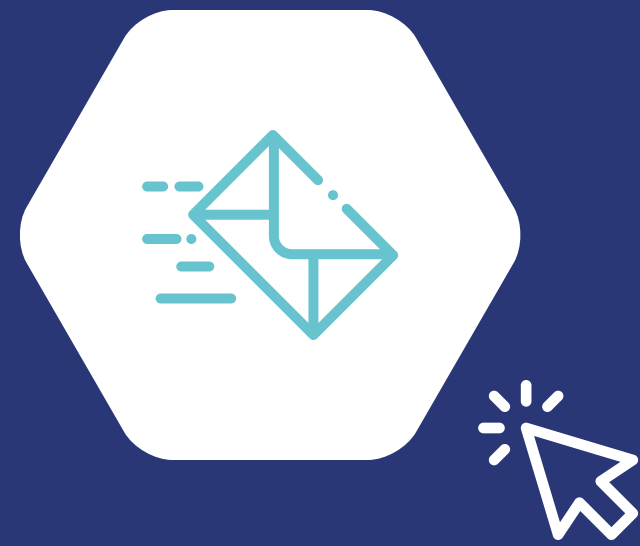
Compound	Acetophenone	Butyrophenone	Valerophenone	Hexaphenone	Heptaphenone
Average Rt (n= 50)	0.727	1.099	1.212	1.307	1.387
Min SD	0.007	0.005	0.005	0.005	0.005



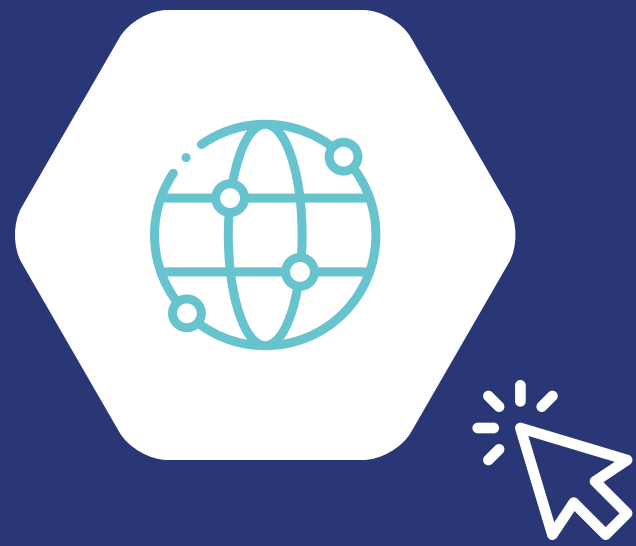
Specifications

Pressure	
Pressure range	0 – 1300 bar / 0 – 18,850 PSI (0–2000 µL/min)
Pressure ripple	< 1% of system pressure or < 5 bar, whichever is greater
Flow	
Flow range	1 – 2000 µL/min
Flow resolution	1.0 µL/min increments
Flow precision	≤ 0.075% RSD or 0.005 minutes SD whichever is greater (water flow range 0.200 – 2.000 mL/min)
Flow accuracy	± 1% or ± 10 µL/min whichever is greater (water flow range 0.200 – 2.000 mL/min)
Gradient	
Gradient formation	Low-pressure mixing
Gradient composition accuracy	±0.5% absolute (full scale) from 5% to 95% from 0.500 – 2.000 mL/min
Gradient composition precision	<0.15% RSD or 0.02 min SD whichever is greater at 0.500 – 2.000 mL/min
Number of solvents	Up to four solvents
Dwell volume	691 µL (default)
Gradient profiles	Linear, concave and convex; 4 of each
Options	
Check valves with a zirconia seat to minimize polymer residue build-up	
High-tech pump head coating for demanding applications	
10,000 psi (690 bar) or 18,000 psi (1240 bar) solvent delivery system	
PEEK tubing to minimize background in PFAS applications	





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Our technologies

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