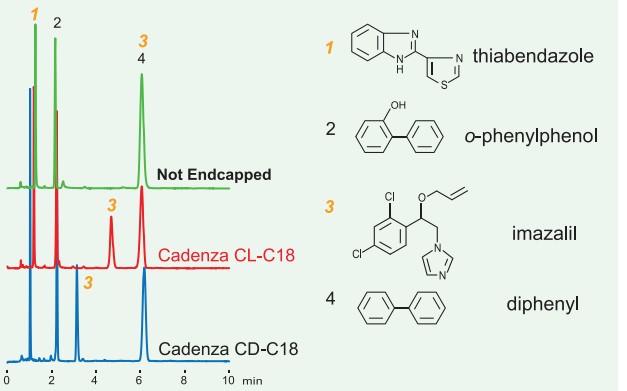
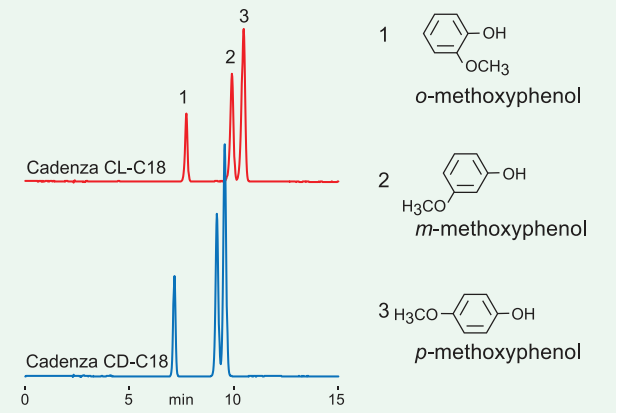
Cadenza CL-C18

World's First Silanol Regulated ODS Phase

- Controlled, partial endcapping exposes residual silanols and offers unique selectivity
- Changing organic solvent varies the retention of steroid hormones



75 x 4.6 mm, 20mM ammonium acetate /ACN = 40 /60, 1 mL/min, 37 deg.C, 260 nm

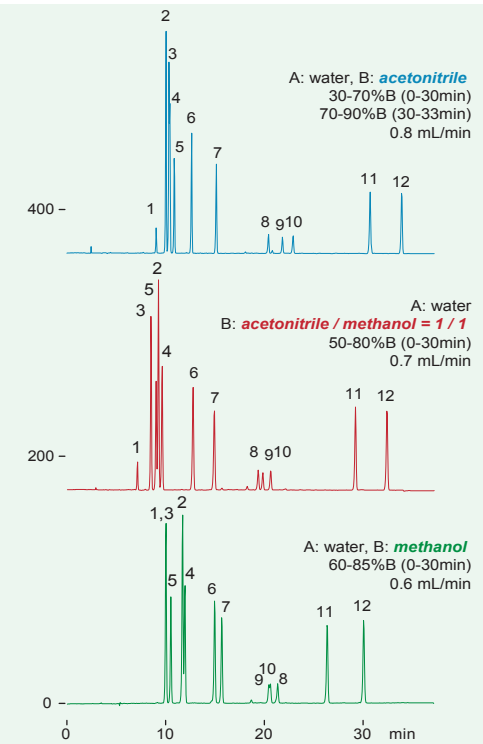


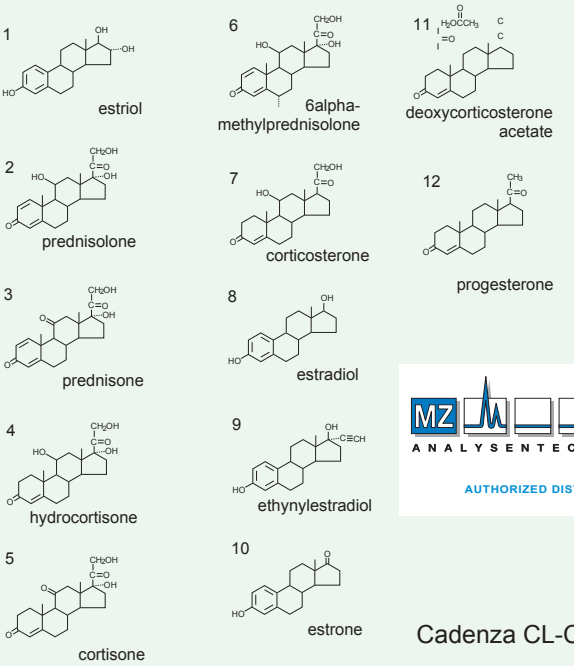
150 x 4.6 mm, 0.1% acetic acid / MeOH = 60 / 40, 0.7 mL/min, 37 deg.C, 260 nm

Due to its partial endcapping, the Cadenza CL-C18 opens a new world of separation possibilities. Almost all recent ODS columns have complete endcapping. However, complete endcapping makes some separations impossible. Conversely, ODS columns without any endcapping provide poor elution characteristics due to the influence of silanol. Our new Cadenza CL-C18 with partial encapping uniquely optimizes the remaining silanol.

The difference between Cadenza CL-C18 and CD-C18 is that CL-C18 has more silanol remaining on the material surface. An example of the retention activity for an ionized compound (imazalil, pKa=ca.6) is pictured (above left) and shows the influence on eluent separation and retention of CL-C18's remaining silanol. Imazalil retention is greatest with columns that are not endcapped, followed by CL-C18, and CD-C18, in that order.

Steroid Hormones





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Cadenza CL-C18, 250 x 4.6 mm
37 deg.C, 260 nm

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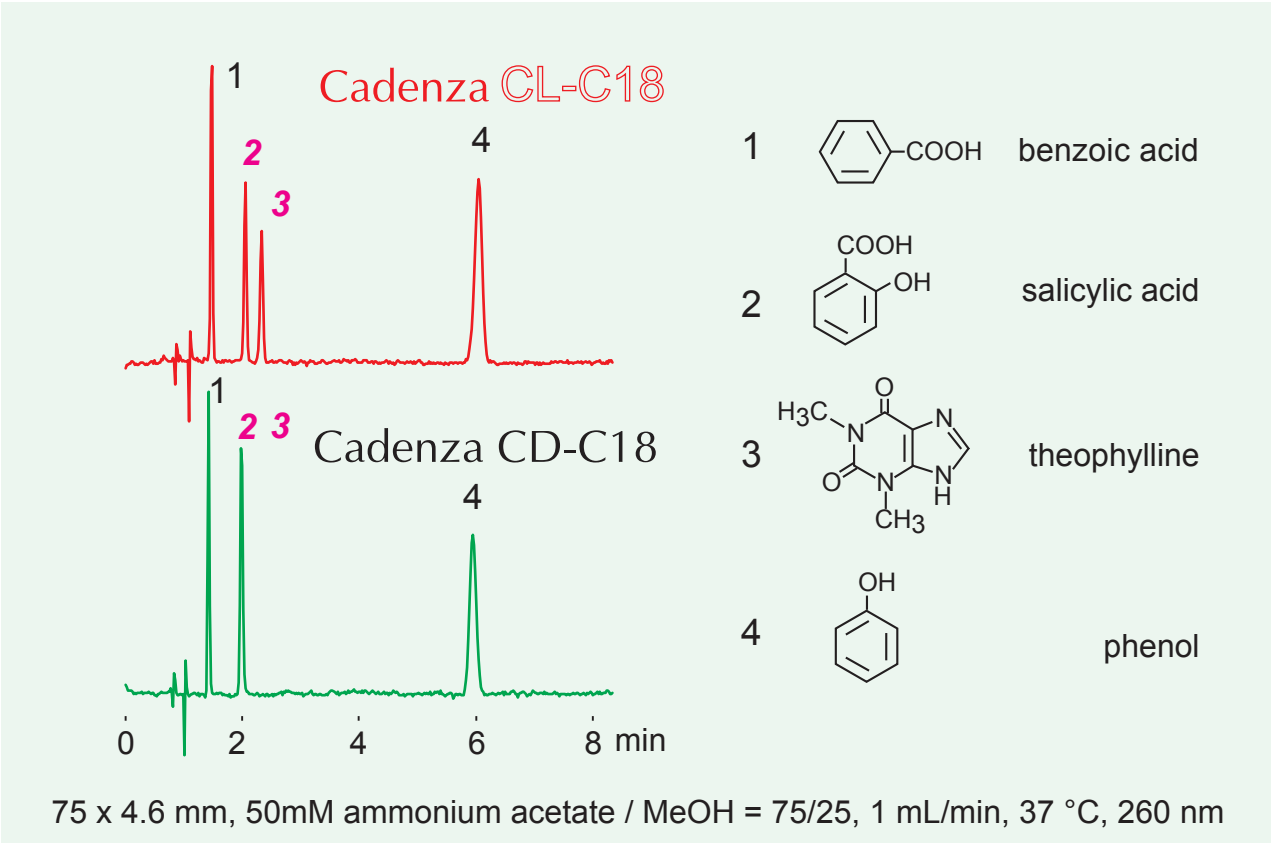
Separation properties for acidic compounds on CL-C18

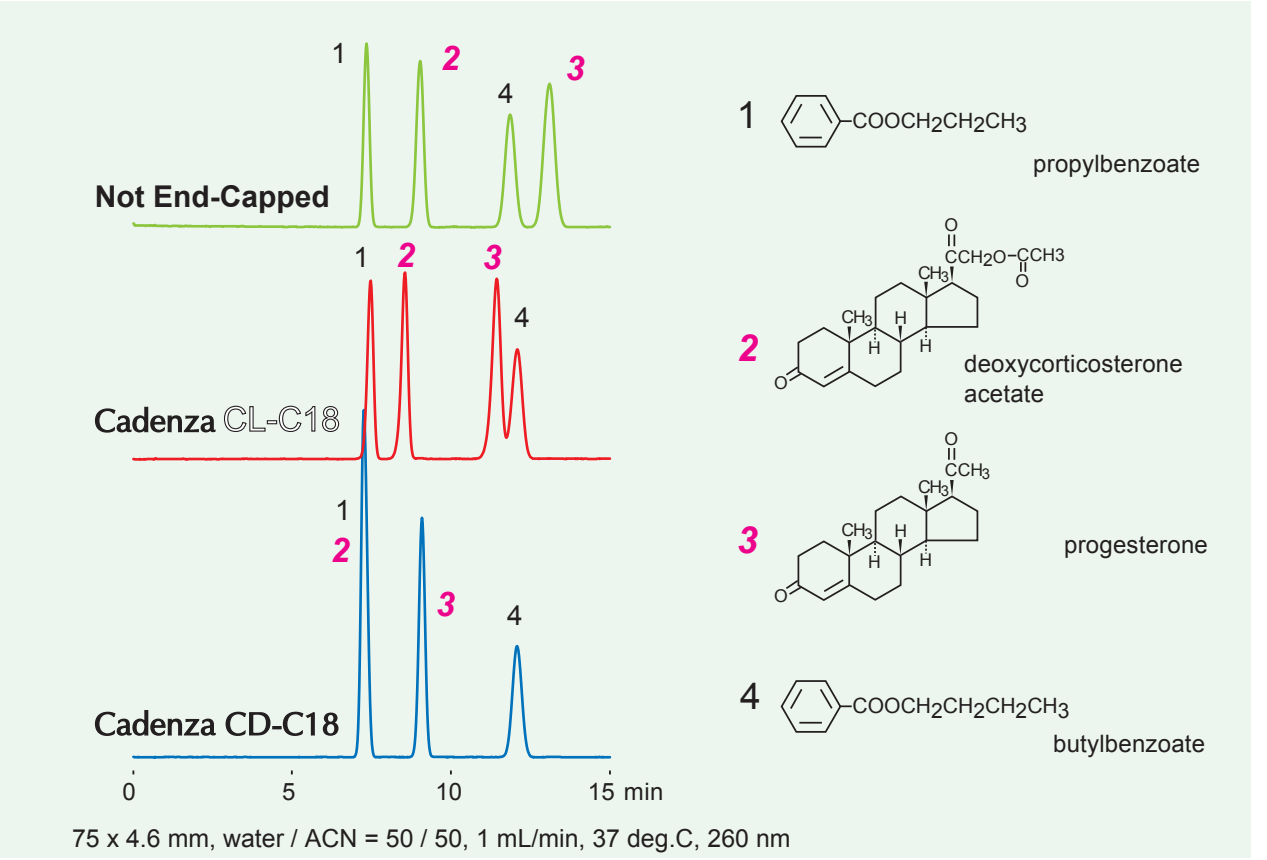


Cadenza CD-C18 and Cadenza CL-C18 have the same base silica and ODS ligand density. The only difference between the two phases is the amount of residual silanols on the silica surface.

For certain applications, better separation can be achieved by using CL-C18 instead of CD-C18. Analytes differing by pK_a value or structure, that co-elute on CD-C18, may in fact be separated by CL-C18.

In the figure above, the separation of ionized salicylic acid (neutral pH conditions) and theophyline is obtained on CL-C18, but not on CD-C18. The observed longer retention for theophylline on CL-C18 is due to an increase in electrostatic interaction between analyte and residual silanols. On the other hand, acidic compounds (benzoic acid and salicylic acid) showed similar retention on both ODS phases. This shows that there is no ion-exclusion between these ionized acidic compounds and silanols.

Separation properties for neutral compounds on CL-C18



75 x 4.6 mm, water / ACN = 50 / 50, 1 mL/min, 37 deg.C, 260 nm

When molecular structures contain oxygen-rich functional groups, different selectivity can be obtained on different ODS phases. The neutral compounds with oxygen-rich structures had improved separation on CL-C18 due to the effect of silanol.

Neutral compounds that are rich in oxygen atoms can have more secondary (electrostatic) interactions with the stationary phase than nuetral compounds that lack these structures. In the figure above, the steriod compounds (peaks 2 and 3) show more retention on the ODS phase without endcapping than on the fully endcapped ODS phase (CD-C18). The two steroid compounds have multiple keto groups, which are polar functional groups that have strong electrostatic interactions with the silica surface. On the other hand, peaks 1 and 4 contain an ester group, and there seems to be little secondary interaction with the silica surface (retention time for peaks 1 and 4 is similar on all 3 ODS phases). Hydrophobic interaction with the alkyl chain group seems to be the main interaction for peaks 1 and 4.

Ordering Information for Cadenza CL-C18

3µm Column, Pressure limits of up to: 50MPa, 500 bar, 7,500 psi					
	ID				
Column Length	1.0 mm	1.5 mm	2.0 mm	3.0 mm	4.6 mm
10			CL020T	CL030T	CL000T
20			CL029T	CL039T	CL009T
30	CL011T	CL071T	CL021T	CL031T	CL001T
50	CL012T	CL072T	CL022T	CL032T	CL002T
75	CL013T	CL073T	CL023T	CL033T	CL003T
100	CL014T	CL074T	CL024T	CL034T	CL004T
150	CL015T	CL075T	CL025T	CL035T	CL005T
250	CL016T	CL076T	CL026T	CL036T	CL006T

3µm, 100MPa,1000 bar, 15,000 psi	
Column Length	ID
	2.0 mm
10	
20	
30	CL021U
50	CL022U
75	CL023U
100	CL024U
150	CL025U
250	CL026U

3µm Column, Pressure limits of up to: 20MPa, 250 bar, 3,000 psi							
	Internal Diameter						
Column Length	1.0 mm	1.5 mm	2.0 mm	3.0 mm	4.6 mm	6.0 mm	10.0 mm
10			CL020	CL030	CL000		
20			CL029	CL039	CL009		
30	CL011	CL071	CL021	CL031	CL001	CL061	CL0P1
50	CL012	CL072	CL022	CL032	CL002	CL062	CL0P2
75	CL013	CL073	CL023	CL033	CL003	CL063	CL0P3
100	CL014	CL074	CL024	CL034	CL004	CL064	CL0P4
150	CL015	CL075	CL025	CL035	CL005	CL065	CL0P5
250	CL016	CL076	CL026	CL036	CL006	CL066	CL0P6
500					CL007		

Guard Column System for Unison Cadenza CD-C18							
	Internal Diameter						
	1.0 mm	1.5 mm	2.0 mm	3.0 mm	4.6 mm	6.0 mm	10.0 mm
Guard Holder	GCH01S	GCH01S	GCH01S	GCH01S	GCH01S	GCH01S	GCH02M
Guard Cartridge (Set of 3)	GCCL0C	GCCL0C	GCCL0S	GCCL0S	GCCL0S	GCCL0S	GCCL0M

All of our stationary phases can also be made in the following internal diameters:
Nano: 0.05mm, 0.075mm Capillary: 0.1mm, 0.3mm, 0.5mm Semi-Prep: 20mm, 28mm

Four Easy Ways To Order:
1. Call us at (215) 665-8902
2. Order by fax (501) 646-3497
3. Through VWR (vendor code 8070779) or Fisher (vendor code VN101253)
4. Via www.imtaktusa.com with any major credit card

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