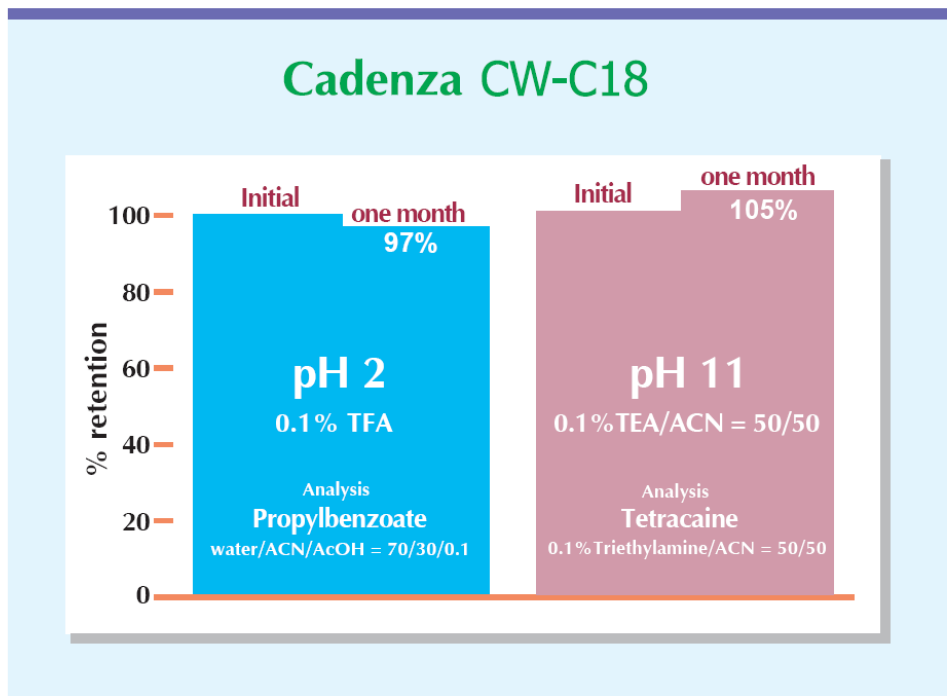


CADENZA CW-C18 A New, High Efficiency 3 μ m, WIDE PORE Material for SMALL MOLECULES

- Very Low Back pressure for Ultra Fast, Ultra High Resolution
- Suitable for use on UPLC™ and Conventional Systems
- High Resolution - n/M 170,000
- Wide pH Tolerance, 2-11
- Suitable for use in place of Fused Core materials

Cadenza CW-C18 is a high-throughput, high-resolution ODS phase, which consists of 3 μ m silica particle with a 30nm pore size. CW-C18 utilizes the same bonding / end-capping technology as CD-C18. Furthermore, CW-C18 (30nm pore size) has less micropores than the standard 12nm pore-sized CD-C18. This reduced number of micropores on the silica surface results in improved end-capping efficiency and reduced silanol activity.

pH Stability of Cadenza CW-C18



Hydrophobic Properties and Retention on Cadenza CW-C18

Alkali Durability

The unique end-capping technology utilized in making CW-C18 results in improved durability under alkali mobile phase conditions. For the analysis of certain basic compounds, such as tetracaine (see above), basic mobile phase conditions are sometimes required.

CW-C18 shows improved column lifetime under alkali mobile phase conditions (0.1% TEA, pH 11). CW-C18 shows excellent durability under a wide pH range, and is useful for numerous applications - including small molecule analysis.

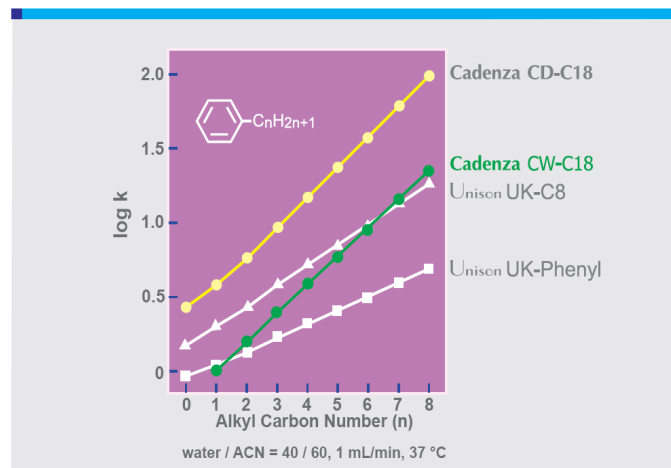
Acid Durability

CW-C18 shows excellent durability under low pH conditions (0.1% TFA, pH 2), with almost no loss in retention.

The figure above shows the relationship between retention factor and the alkyl carbon number (n) for alkylbenzenes.

Hydrophobicity is defined as the molecular recognition of a methylene group (e.g. alpha for two compounds differing by a CH₂ group). The graph shows that for C₃ or larger solutes, there is a linear relationship between retention and carbon chain length.

Retention properties (log k) on CW-C18 are lower than CD-C18 (Imtakt's Standard 3µm packing) and similar to C8 (Unison UK-C8).



Ref: N.Tanaka et al., J. Chromat. Sci., 27, 721 (1989)

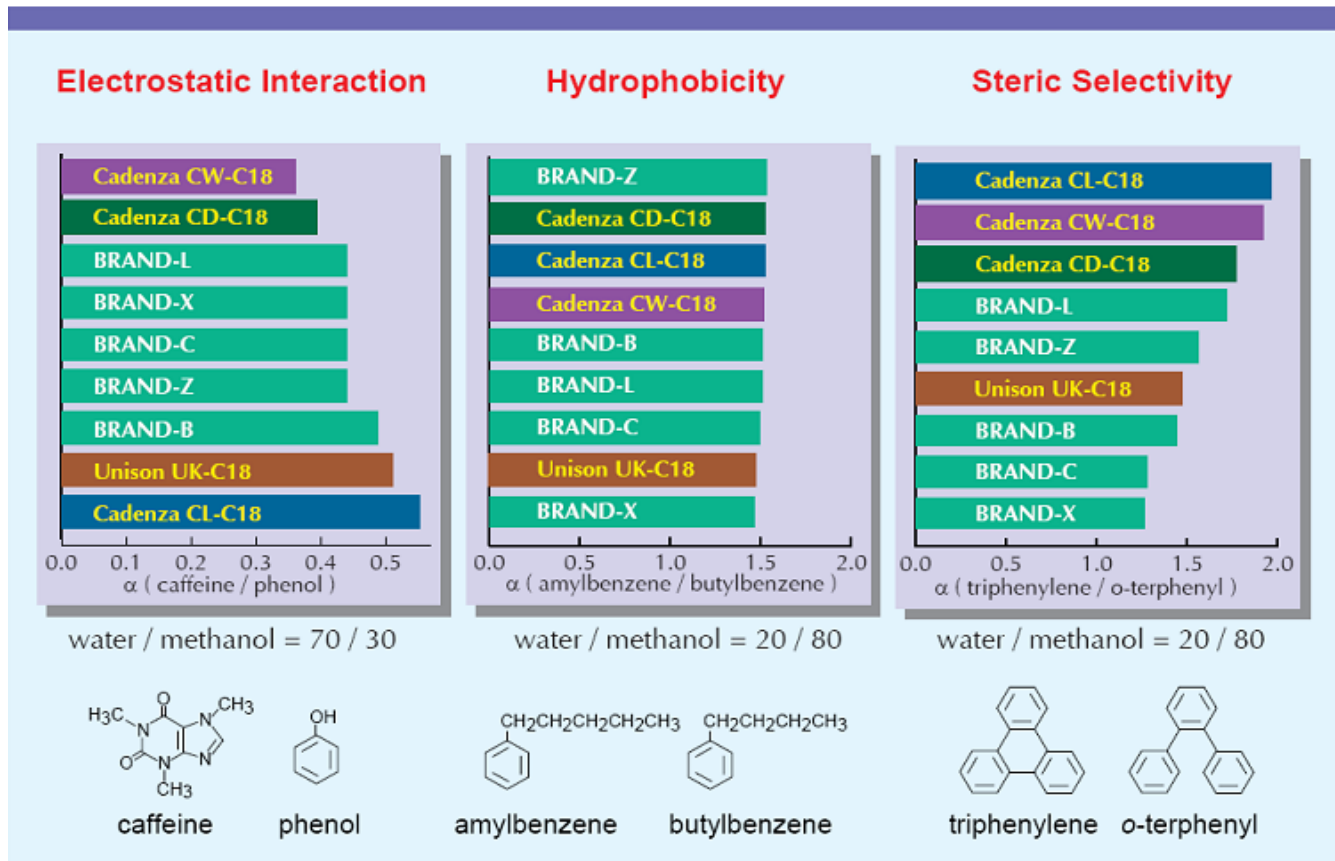
This results in faster elution of highly hydrophobic compounds, while offering different selectivity than a C8 phase (apparent by the different slopes between the two phases).

In contrast, the slopes are almost parallel between CW-C18 and CD-C18. This shows that the hydrophobicity for CW-C18 and CD-C18 are almost identical (a result of the ligand density being almost equal).

In conclusion, CW-C18 has the same hydrophobic selectivity as CD-C18, and can provide faster elution than conventional ODS.

Moreover, CW-C18 is a high resolution ODS phase using a 3µm silica particle, with an opportunity to provide faster analysis by replacing conventional ODS or Fused Core Packings with CW-C18 under the same operating conditions.

Basic Interaction of Cadenza CW-C18



Ref) N.Tanaka *et.al.*, J. Chromatg. Sci., 27, 721 (1989)

Due to the larger pore size, there are several key advantages:

- Better end-capping efficiency provides improved peak shape
- Higher-speed analysis under the same conditions as conventional ODS or Fused Core columns
- Improvement of peak response for relatively large molecules.

It provides different selectivity from other ODS phases due to different molecular interaction as follows:

Hydrophobicity

Hydrophobicity is a fundamental property of ODS phases. CW-C18 results in almost the same value which means the same ODS ligand density as CD-C18 (same phase structure).

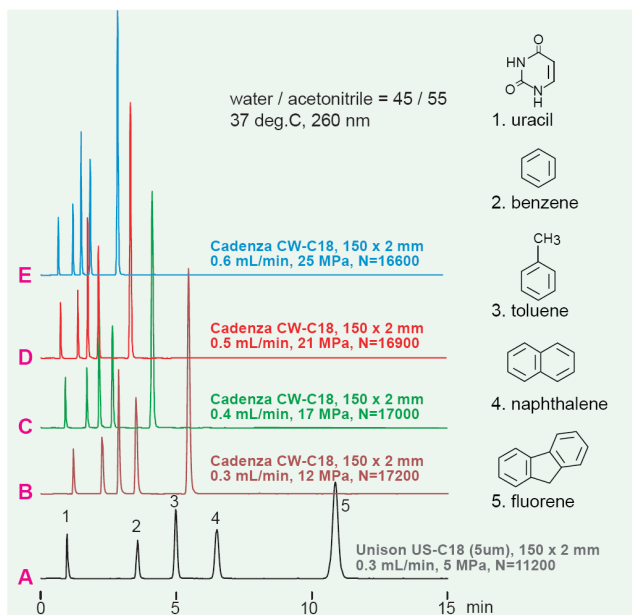
High Throughput with Cadenza CW-C18 at Low Back Pressures

Electrostatic Interaction

This interaction is related to the existence of siloxane and silanol on the surface of silica material. CW-C18 shows a minimum value and was similar to CD-C18. These low values derive from Imtakt's proprietary, unique and effective polymeric end-capping technology.

The wide-pore nature of Cadenza CW-C18 means it has 1/3 surface of a traditional pore-size column. The lower ODS coverage reduces the analysis time by 50% under the same LC conditions.

Cadenza CW-C18 allows for increased performance when compared to 5 μ m particles (Chromatogram A and B).



In addition, it can provide ultra-high speed analysis with pressures compatible with standard HPLC instruments (Chromatogram C to E). Sub-2 μ m particle columns require extremely high pressures.

In contrast, Cadenza CW-C18 (3 μ m) can be operated using normal (standard) HPLC equipment, as well as UPLC - resulting in a balance of both low pressure and high plate counts.

In addition, a 250mm length column (which is difficult to make using sub-2 μ m particle) is available for high resolution and high speed analysis.

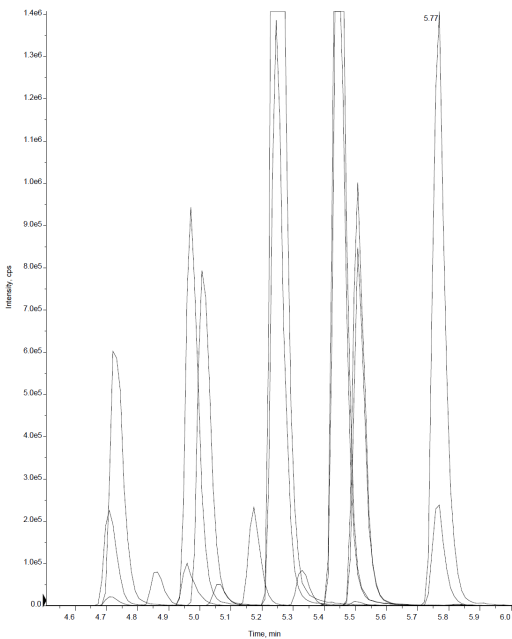
Steric Selectivity

High ligand density ODS phase has the ability to recognize the steric structure of similar compounds. CW-C18 showed a large value similar to CD-C18. CW-C18 is useful for high-throughput analysis.

In sum, Cadenza CW-C18 can provide many solutions to scientists working with basic compounds, high molecular weight compounds, and hydrophilic compounds.

Comparison of Cadenza CW-C18 and Fused Core

**2 X 50mm Cadenza CW – 300Ångstrom,
High Resolution 3µm Particle C18**



**Cadenza CW, 300Å C18 50 X 2.0 3µm
BACK PRESSURE 76 BAR**

Cadenza CW-C18 can be supplied in a wide range of dimensions, from 50µm ID to 20mm and from 1cm in length to 500mm.

Not all diameters are available in all lengths. E.g. Longer columns for more resolution, narrower columns for lower solvent consumption.

Chromatographic Conditions

Gradient: 5-95% CH₃CN 0.1% formic acid in 0.1% formic acid over 5 minutes (1-6 minutes on chromatogram)

Temp: 40C

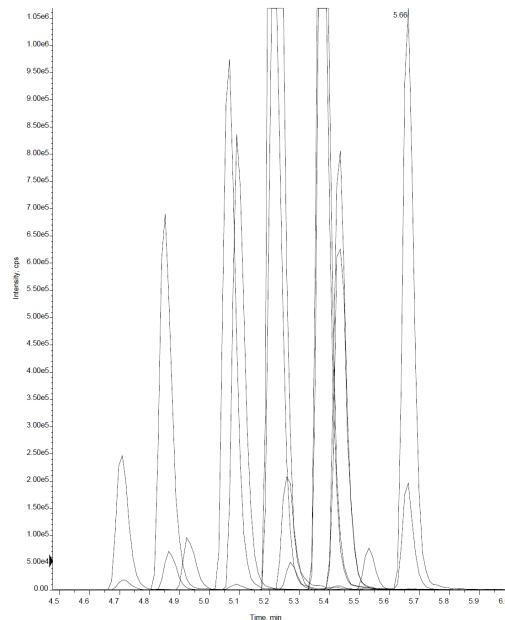
5µl injected (50% CH₃CN / H₂O), 0.1% formic acid

Flow rate: 400 µl/minute

Agilent 1100, Sciex API 3000

Sample: Metabolic Intermediates.

**2.1 X 50mm Ascentis Express – Fused
Core, 2.7µm, C8**



**Supelco Acentis C8, 50 X 2.1, 2.7µm
BACK PRESSURE 136 BAR**

We provide 1mm and 1.5mm ID columns in all Imtakt phases which would be ideal for use with a UPLC, offering the same efficiency as UPLC, but much lower back pressures. This means that you can run longer columns on a UPLC for even more resolution. Columns up to 250mm can be provided, although this may be too long for use with an Aquity system.

Ordering Information—Standard Dimensions

For other dimensions, please enquire

CW000	Cadenza CW-C18 (10x4.6mm)	3um, 30nm, ODS, end-capped	£380.00
CW001	Cadenza CW-C18 (30x4.6mm)	3um, 30nm, ODS, end-capped	£320.00
CW002	Cadenza CW-C18 (50x4.6mm)	3um, 30nm, ODS, end-capped	£355.00
CW003	Cadenza CW-C18 (75x4.6mm)	3um, 30nm, ODS, end-capped	£380.00
CW004	Cadenza CW-C18 (100x4.6mm)	3um, 30nm, ODS, end-capped	£405.00
CW005	Cadenza CW-C18 (150x4.6mm)	3um, 30nm, ODS, end-capped	£445.00
CW006	Cadenza CW-C18 (250x4.6mm)	3um, 30nm, ODS, end-capped	£575.00
CW007	Cadenza CW-C18 (500x4.6mm)	3um, 30nm, ODS, end-capped	£930.00
CW009	Cadenza CW-C18 (20x4.6mm)	3um, 30nm, ODS, end-capped	£380.00
CW011	Cadenza CW-C18 (30x1mm)	3um, 30nm, ODS, end-capped	£355.00
CW012	Cadenza CW-C18 (50x1mm)	3um, 30nm, ODS, end-capped	£380.00
CW013	Cadenza CW-C18 (75x1mm)	3um, 30nm, ODS, end-capped	£405.00
CW014	Cadenza CW-C18 (100x1mm)	3um, 30nm, ODS, end-capped	£445.00
CW015	Cadenza CW-C18 (150x1mm)	3um, 30nm, ODS, end-capped	£490.00
CW016	Cadenza CW-C18 (250x1mm)	3um, 30nm, ODS, end-capped	£635.00
CW020	Cadenza CW-C18 (10x2mm)	3um, 30nm, ODS, end-capped	£380.00
CW021	Cadenza CW-C18 (30x2mm)	3um, 30nm, ODS, end-capped	£320.00
CW022	Cadenza CW-C18 (50x2mm)	3um, 30nm, ODS, end-capped	£355.00
CW023	Cadenza CW-C18 (75x2mm)	3um, 30nm, ODS, end-capped	£380.00
CW024	Cadenza CW-C18 (100x2mm)	3um, 30nm, ODS, end-capped	£405.00
CW025	Cadenza CW-C18 (150x2mm)	3um, 30nm, ODS, end-capped	£445.00
CW026	Cadenza CW-C18 (250x2mm)	3um, 30nm, ODS, end-capped	£575.00
CW029	Cadenza CW-C18 (20x2mm)	3um, 30nm, ODS, end-capped	£380.00
CW030	Cadenza CW-C18 (10x3mm)	3um, 30nm, ODS, end-capped	£380.00
CW031	Cadenza CW-C18 (30x3mm)	3um, 30nm, ODS, end-capped	£320.00
CW032	Cadenza CW-C18 (50x3mm)	3um, 30nm, ODS, end-capped	£355.00
CW033	Cadenza CW-C18 (75x3mm)	3um, 30nm, ODS, end-capped	£380.00
CW034	Cadenza CW-C18 (100x3mm)	3um, 30nm, ODS, end-capped	£405.00
CW035	Cadenza CW-C18 (150x3mm)	3um, 30nm, ODS, end-capped	£445.00
CW036	Cadenza CW-C18 (250x3mm)	3um, 30nm, ODS, end-capped	£575.00
CW039	Cadenza CW-C18 (20x3mm)	3um, 30nm, ODS, end-capped	£380.00
CW061	Cadenza CW-C18 (30x6mm)	3um, 30nm, ODS, end-capped	£355.00
CW062	Cadenza CW-C18 (50x6mm)	3um, 30nm, ODS, end-capped	£380.00
CW063	Cadenza CW-C18 (75x6mm)	3um, 30nm, ODS, end-capped	£405.00
CW064	Cadenza CW-C18 (100x6mm)	3um, 30nm, ODS, end-capped	£445.00
CW065	Cadenza CW-C18 (150x6mm)	3um, 30nm, ODS, end-capped	£490.00
CW066	Cadenza CW-C18 (250x6mm)	3um, 30nm, ODS, end-capped	£635.00
CW0P1	Cadenza CW-C18 (30x10mm)	3um, 30nm, ODS, end-capped	£575.00
CW0P2	Cadenza CW-C18 (50x10mm)	3um, 30nm, ODS, end-capped	£675.00
CW0P3	Cadenza CW-C18 (75x10mm)	3um, 30nm, ODS, end-capped	£805.00
CW0P4	Cadenza CW-C18 (100x10mm)	3um, 30nm, ODS, end-capped	£1,015.00
CW0P5	Cadenza CW-C18 (150x10mm)	3um, 30nm, ODS, end-capped	£1,270.00
CW0P6	Cadenza CW-C18 (250x10mm)	3um, 30nm, ODS, end-capped	£1,525.00
GCCW0C	Cadenza CW-C18 Guard Cartridge (5x1mm)	3um, 30nm, ODS, end-capped	£195.00
GCCW0M	Cadenza CW-C18 Guard Cartridge (10x8mm)	3um, 30nm, ODS, end-capped	£195.00
GCCW0S	Cadenza CW-C18 Guard Cartridge (5x2mm)	3um, 30nm, ODS, end-capped	£140.00
GCH01S	Guard Holder	for 1mm, 2mm, 3mm, 4,6mm columns, including a column coupler	£220.00
GCH02M	Guard Holder	for 10mm columns, including a column coupler	£295.00

*Prices are valid until December 2010



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