IMTAKT HPLC COLUMN

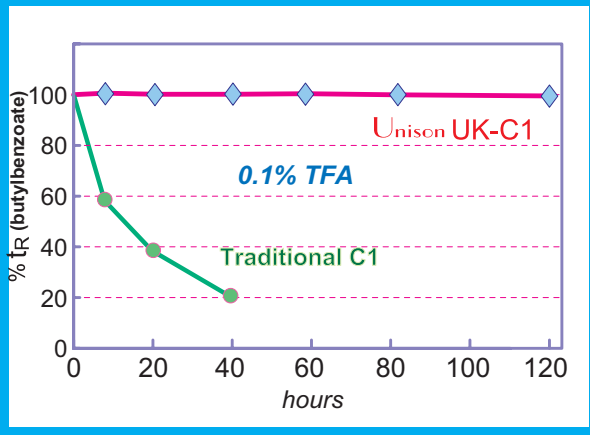
Unison UK-C1

3µm silica particles
13nm pore
Methylsilyl ligands (USP: L13)
pH 1.5-9

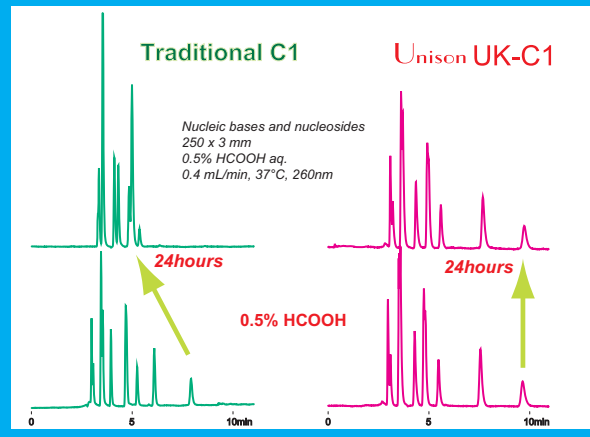
Highly durable C1 phase

Amazing durability for acidic mobile conditions using formic acid or TFA
Excellent for compounds with a wide range of polarity
Analysis of super hydrophobic compounds which are difficult to elute on an ODS phase
Alternative selectivity from C18 phase
High-performance, high pH 3µm particles

Acid stability (0.1% TFA)



Acid stability (0.5% HCOOH)



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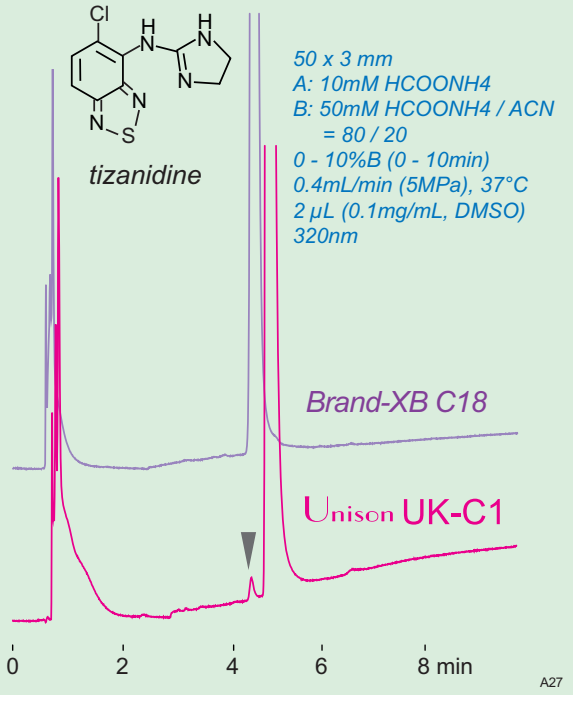
Tizanidine (muscle-relaxant) impurity



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Product Advantages

Durability of traditional C1 phases under aqueous mobile phase conditions has always been a significant challenge due to the ease of ligand hydrolysis. To address this problem, we utilized stationary phase designs from our Scherzo and Intrada series resulting in extraordinary aqueous stability for this C1.

Unison UK-C1, as expected, has lower hydrophobic retention than a C18 column, but due to proximity of polar silica surface, these columns exhibit hydrophilic retention characteristics. This provides a balance of both hydrophobic and hydrophilic separation modes, bringing differential selectivity for individual compounds. In the figure to the left, an impurity was resolved on our C1 phase, but not on a C18, thanks to this alternative selectivity.

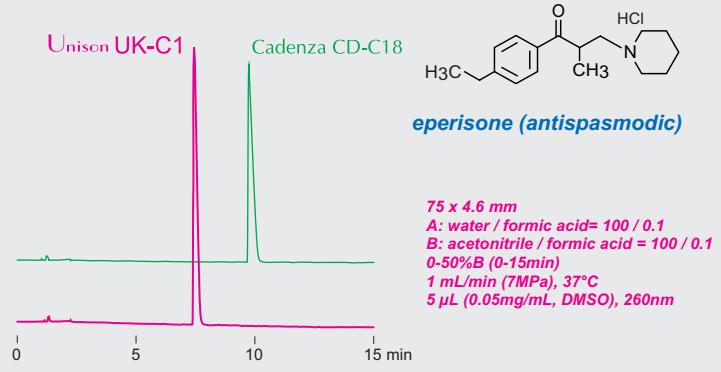
Additionally, the Unison UK-C1 column easily separates highly hydrophobic compounds, which can be very difficult to elute on C18 columns.

A complementary stationary phase to C18 columns

Unison UK-C1

Hydrophobic interactions are the main solute retention mechanism on C18 stationary phases. However, other mechanisms, such as electrostatic interactions with the base material, can also contribute. The resulting retention of each solute is determined by the sum of all molecular interactions, with experimentally measured separation between solutes manifested as the different ratios of individual interactions contribution at molecular level. C1 phases have low hydrophobicity due to the only methyl groups (C1) on the surface, a stark contrast with high hydrophobicity from the long alkyl chains in C18s. However, the methyl group on C1s allows a long-range solute interactions with the polar groups on the base silica surface, providing a different selectivity.

BASIC COMPOUNDS

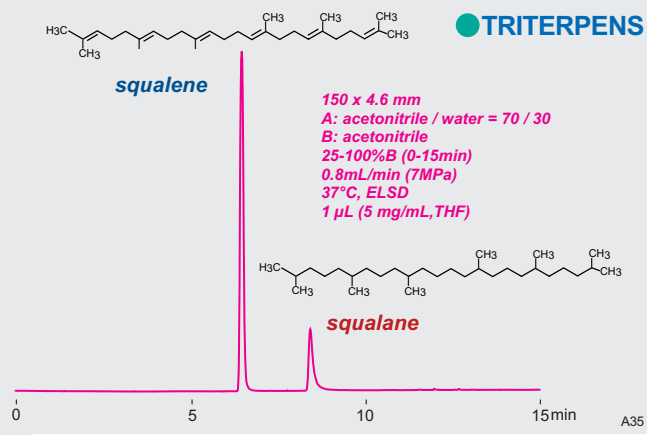


C18 columns often produce a broad peak when using formic acid modified mobile phases, especially for basic compound due to the difficulties in control of amine dissociation. C1 phases may provide better peak shape under the same conditions because they have a well-balanced mix of both hydrophobic and electrostatic mechanisms that can improve separations.

Durability of the Unison UK-C1 column under formic acid conditions has been dramatically improved with its unique anti-hydrolysis surface structure.

When conventional C18 columns fail due to poor peak shape under acidic conditions, our Unison UK-C1 column can be an excellent alternative to improve separations.

TRITERPENS

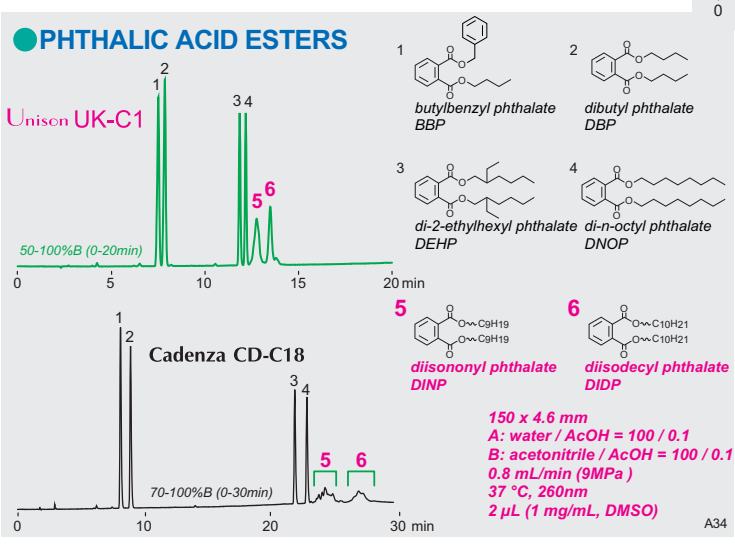


Terpenoids and triterpenes are very hydrophobic compounds, typically requiring the use of non-aqueous conditions on C18 columns to facilitate elution.

Unison UK-C1 column has an advantage for these and other highly hydrophobic compounds because it can be used with a variety of combinations of aqueous and organic solvents for elution and successful separation.

Therefore, Unison UK-C1 may deliver excellent results for not only hydrophilic but also hydrophobic compounds.

PHTHALIC ACID ESTERS



Quantification of phthalic acid esters can be challenging because they have multiple branched chain isomers, which can produce multiple peaks on C18 columns, adversely impacting accurate quantification.

In such a case, the methyl group stationary phase of Unison UK-C1, which show poor molecular recognition for alkyl compounds, are an advantage because it can coalesce multiple isomers into a single peak, considerably simplifying data interpretation.

Unison UK-C1 column will undoubtedly contribute to improve this kind of branched chain isomers quantification analysis.

PRODUCT INFORMATION

3 or 5 µm silica, 13nm pore, methyl group phase (USP: L13), 250bar MAX (HT: 500bar, UP: 1000bar)

COLUMN NAME	COLUMN ID	COLUMN LENGTH	GUARD COLUMNS
Unison UK-C1 *(3µm)* Unison US-C1 *(5µm)*	1mm, 1.5mm, 2mm, 3mm 4.6mm, 6mm, 10mm 20mm(5µm), 28mm(5µm)	10mm, 20mm, 30mm 50mm, 75mm, 100mm 150mm, 250mm, 500mm	GUARD HOLDER CARTRIDGE COLUMNS *Micro/Nano columns are available*