



HICHROM

Chromatography Columns and Supplies

LC COLUMNS Hichrom C8 and C18

Catalogue 9

Hichrom Limited

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- Capillary to preparative scale dimensions
- ISO 9001:2008 (Quality) and ISO 14001:2004 (Environmental) standards
- Every column exceeds stringent quality test criteria
- Exceptional reproducibility and efficiency
- See also Partisil/Partisphere and Ultrasphere sections



Hichrom has been firmly established in the field of chromatography for over 30 years, specialising in the development, manufacture and supply of high quality HPLC products, both in the UK and throughout the entire world. During this time Hichrom has built up a strong reputation amongst chromatographers for technical expertise, speed of delivery and competitive pricing. Hichrom is accredited to both ISO 9001:2008 (Quality) and ISO 14001:2004 (Environmental) standards. Every Hichrom manufactured column exceeds stringent quality criteria and all columns are supplied with documentation enabling a complete audit trail from the time of manufacture to the point of use. In addition to the following range of Hichrom branded columns (pages 132-140) Hichrom offer a wide range of HPLC columns packed with any commercially available silica (see page 63), an OEM manufacturing and custom bonding service and also manufacture the Partisil and Partisphere (see pages 189-193) and the Ultrasphere (see pages 258-259) brands.

Hichrom C8 and C18

- Ultra pure, base deactivated porous silica
- Suitable for acidic, basic and neutral molecules
- 3.5 and 5µm particle sizes
- Excellent reproducibility

Hichrom's C8 and C18 columns offer high performance in order to tackle the most challenging reversed-phase applications. The use of ultra pure silica, advanced bonding technology, superior column specification and comprehensive batch validation all contribute to the columns' excellent reproducibility.

Hichrom Phases

Phase	Functional Group	Endcapped	Particle Size (µm)	Pore Size (Å)	Surface Area (m ² /g)	Carbon Load (%)
C18	Octadecyl	Yes	3.5, 5	150	250	15
C8	Octyl	Yes	3.5, 5	150	250	8

Excellent Batch Reproducibility

Combining ultra pure silica with advanced bonding technology results in a densely bonded silica that is both highly robust and highly reproducible. Unpredictable interactions between residual silanol sites on the silica surface and the analyte are effectively eliminated. Comprehensive batch validation ensures absolute batch to batch reproducibility is maintained with acidic, basic and neutral molecules. Figures 1 and 2 show two of the tests used during the validation of Hichrom C8 and C18 phases.

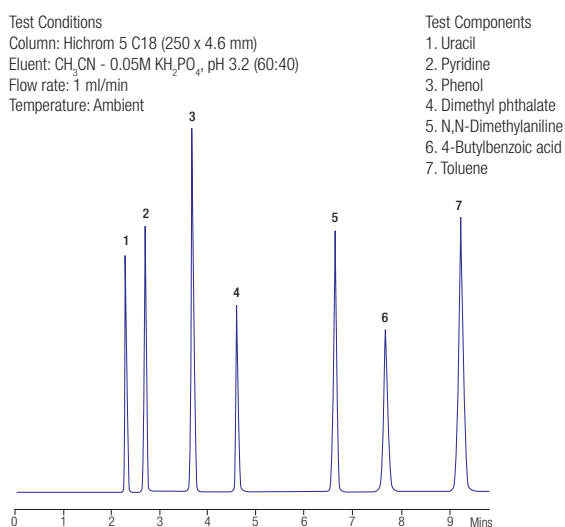


Figure 1. Validation test - Selectivity with acidic, basic and neutral molecules

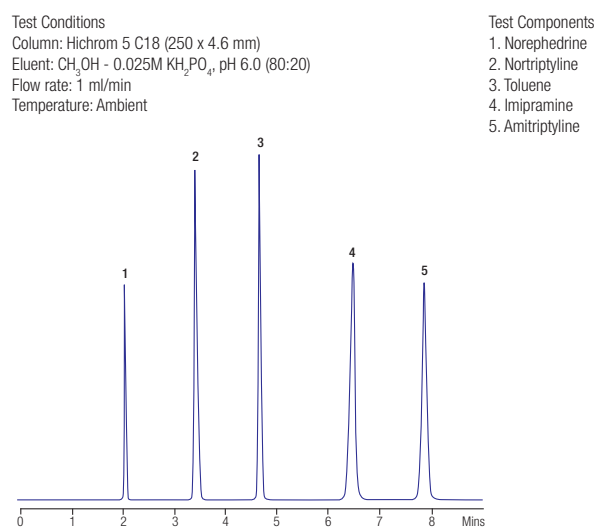


Figure 2. Validation test - Tricyclic antidepressants

Hichrom C8 and C18 (continued)

Excellent Batch Reproducibility (continued)

Figure 3 demonstrates the excellent selectivity match obtained with four Hichrom 5 C18 columns when subjected to the tricyclic antidepressants validation test. Each of these four columns is packed from a different batch of silica.

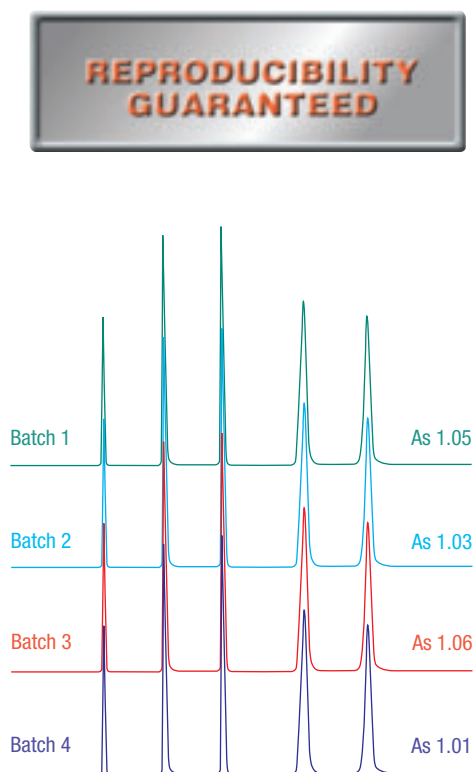
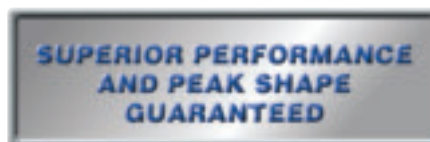


Figure 3. Batch reproducibility – Tricyclic antidepressants

Excellent Column Efficiency

- 3.5µm columns > 150,000 plates/metre
- 5µm columns > 90,000 plates/metre

Careful control of all stages during the manufacturing process results in a high purity silica with a tight particle size distribution. This results in excellent column efficiencies with both 3.5 and 5µm materials.



Every Hichrom C8 and C18 column is individually manufactured and meticulously tested in the Hichrom laboratory. Efficiency measurements and two peak asymmetry calculations are recorded for each component of the quality control test mixture. Samples of the quality control test mixture are available on request. Only columns exceeding the most stringent efficiency and peak shape specifications are approved for sale.

All Hichrom C8 and C18 columns are supplied with a Test Chromatogram and Batch Validation Certificate. Information regarding column care and use is displayed on the reverse of the Test Chromatogram.



Figure 4 shows the analysis of toluene using twenty Hichrom 5 C18 columns under standard quality control conditions. Excellent efficiency, peak asymmetry and column-to-column reproducibility are demonstrated.

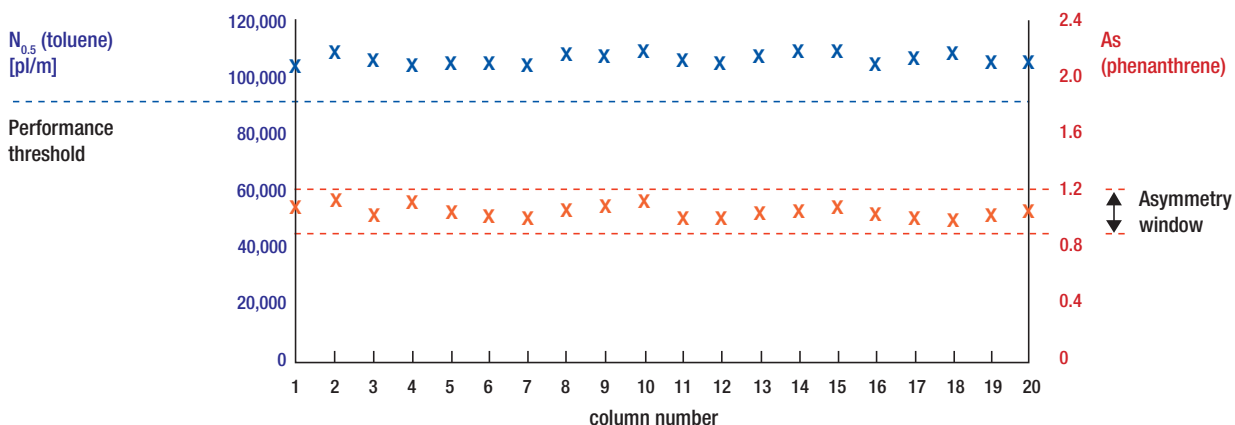


Figure 4. Excellent Hichrom 5 C18 column-to-column reproducibility

Hichrom C8 and C18 (continued)

Extended Column Lifetime

Hichrom C8 and C18 columns exhibit extended lifetimes – the result of intensive research and development.

Bonding Stability

Combining a unique dense bonding process (inhibiting ligand cleavage at low pH) with a revolutionary capping process (shielding the silica from dissolution at high pH) enables Hichrom C8 and C18 columns to offer exceptional stability across an extended pH range. Figure 5 demonstrates the acid robustness of a Hichrom 5 C18 column.

Column Robustness

A stable packed silica bed is critical to the long term performance of the column. Hichrom C8 and C18 columns are packed to extremely high efficiencies with excellent peak asymmetries, ensuring that high performance is maintained throughout the column's lifetime. Figure 6 shows that the performance of both Hichrom 3.5µm C18 and Hichrom 5µm C18 columns remains unaffected after extended use.

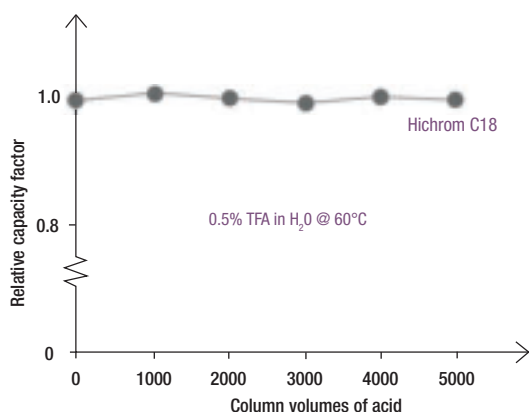


Figure 5. Acid robustness testing

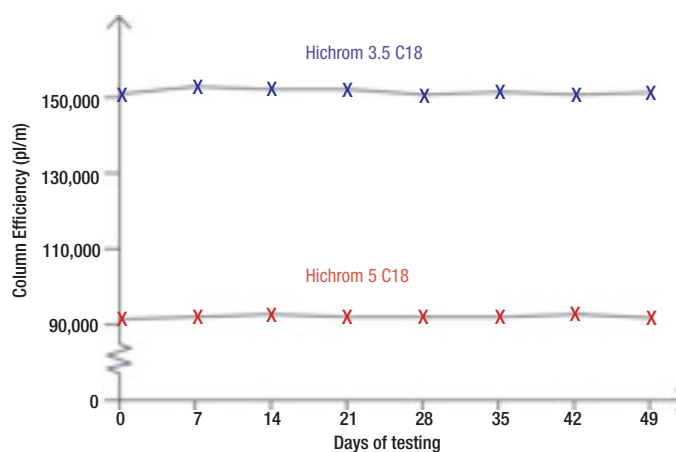


Figure 6. Extended column testing

Guard Cartridges

Guard cartridges are available for all Hichrom C8 and C18 column dimensions, to further extend column lifetime by preventing irreversible adsorption and frit blockage at the top of the column. As shown in Figure 7, a fingertight column coupler (HI-081) is used to connect the guard holder (HI-161) to a Hichrom 5 C18 column. Further information on the guard cartridge range is listed on pages 24 and 25.

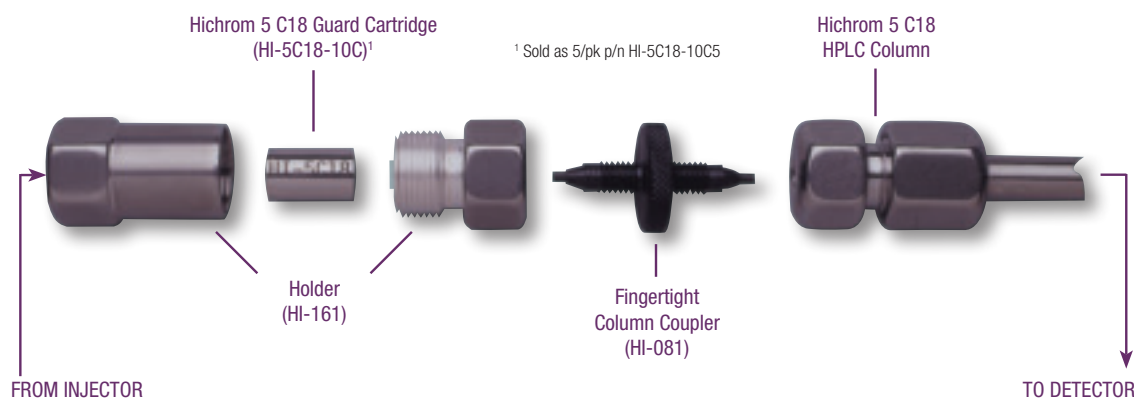


Figure 7. Stand alone guard cartridge system