



HICHROM

Chromatography Columns and Supplies

LC COLUMNS
YMC-Triart

Catalogue 9

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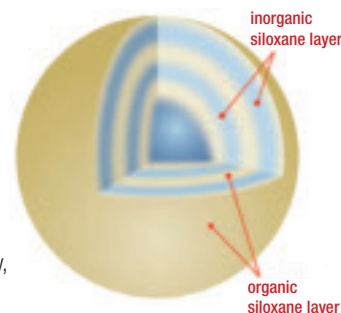
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YMC-Triart

- Multi-layer hybrid material
- Innovative micro-reactor technology
- Multi-stage endcapping
- High pH and temperature stability
- 1.9, 3 and 5µm particle sizes

YMC-Triart phases are based on a multi-layered hybrid material, manufactured using innovative micro-reactor technology. The combination of this layered hybrid particle with the precise microreactor granulation and the multi-stage endcapping procedures, produces a versatile material with outstanding chemical and physical durability, plus excellent chromatographic performance with acidic, basic and neutral compounds.



Phase Specifications¹

	YMC-Triart C18	YMC-Triart C8	YMC-Triart Diol-HILIC
Base Material	Organic/inorganic silica	Organic/inorganic silica	Organic/inorganic silica
Ligand	C18	C8	Diol
Particle Size (µm)	1.9, 3, 5	1.9, 3, 5	1.9, 3, 5
Pore Size (Å)	120	120	120
Bonding	Polymeric type	Polymeric type	-
Endcapping	Multi-stage hybrid groups	Multi-stage hybrid groups	-
Carbon Load (%)	C18: 16 (20% in total)	C8: 7 (11% in total)	-
pH Range	1-12	1-12	2-10
Temperature Range	pH 1-7:70°C, pH 7-12: 50°C	pH 1-7:70°C, pH 7-12: 50°C	50°C

¹ Other Triart phases are available. See page 6

Features of YMC-Triart

- **Homogeneous and uniform particles.** Use of microreactor technology produces homogeneous and uniform particles that result in low operating pressure and reproducible surface modification, leading to excellent column-to-column and lot-to-lot reproducibility.
- **Multi-stage endcapping.** YMC-Triart uses an innovative endcapping procedure for surface modification. Using a stepwise, multi-stage process with a number of compounds with different reactivities, the maximum number of silanols can be capped.
- **Balanced hydrophobicity.** YMC-Triart exhibits a balanced hydrophobicity, making it more retentive than other hybrids.
- **Excellent durability.** YMC-Triart C18 and C8 show excellent chemical stability. Even at high pH (up to pH 12) or high temperature conditions (up to 70°C), the column lifetime is greater than for conventional C18 and C8 columns.
- **Method transfer between HPLC ↔ UHPLC.** YMC-Triart phases provide matching chromatographic behaviour for all particle sizes. This ensures identical selectivity and excellent peak shape for basic compounds for all particle sizes. YMC-Triart allows predictable scale-up from UHPLC to conventional HPLC and even to semi-preparative LC and vice versa. Figure 1 illustrates method transfer from a 5µm, 150 x 2.0mm YMC-Triart C18 to a 1.9µm, 50 x 2.0mm column. Resolution is maintained but run time has been decreased from 55mins to 6mins.

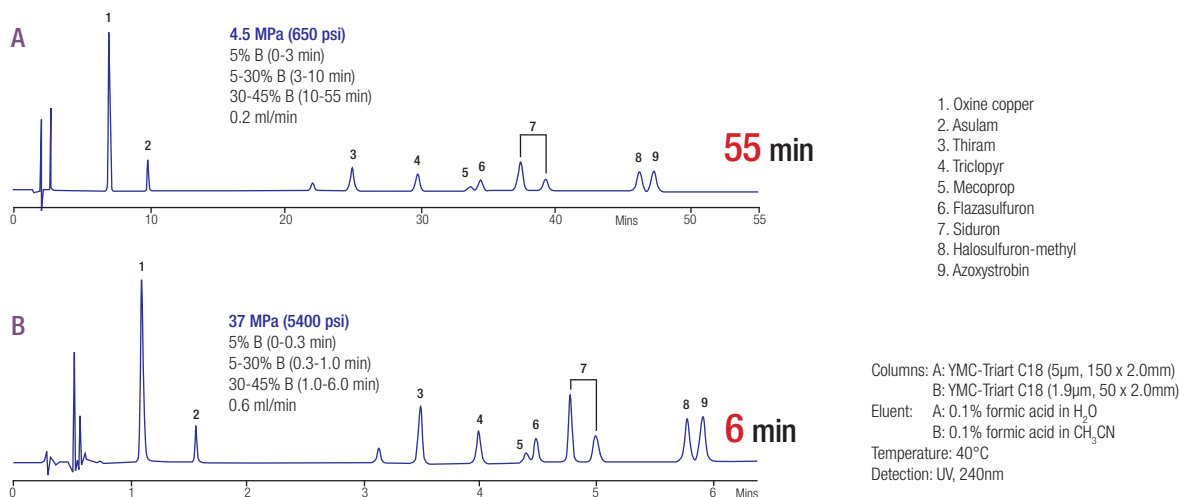


Figure 1. Method transfer between HPLC and UHPLC

YMC-Triart (continued)

Features of YMC-Triart (continued)

- **Improvement of loadability.** YMC-Triart C18 can tolerate larger injection volumes containing strong solvents (eg. acetonitrile), whilst maintaining better peak shape than traditional silica-based columns. This can be important for difficult to solubilise samples that need higher concentrations of organic solvent for solubilisation prior to analysis. Figure 2 illustrates the influence of injection volume on peak shapes.
- **LC-MS compatibility.** Extremely low levels of column bleed lead to reduced background noise and hence lower levels of detection. In Figure 3, no bleed is observed in the test of total ion current measured by LC-MS with blank (no column) or with YMC-Triart C18.

Column: 5µm, 50 x 2.0mm
 Eluent: A: Water – formic acid (100:0.1)
 B: CH₃CN – formic acid (100:0.1)
 5 to 100% B from 0.5 to 2.5min
 Flow rate: 0.4ml/min
 Temperature: 40°C
 Detection: UV, 275nm

Solvent for sample: acetonitrile
 Injection volume: 1.0µl, 1.5µl, 2.0µl, 3.0µl

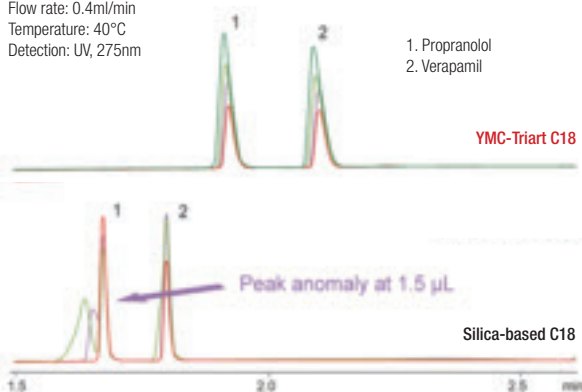


Figure 2. Influence of injection volume on peak shapes*

*The comparative separations and data presented here may not be representative for all applications.

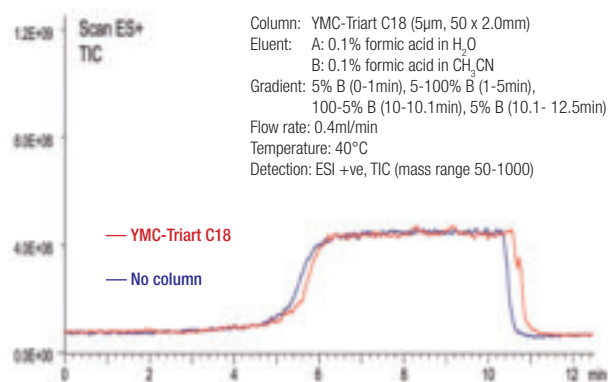


Figure 3. LC-MS compatibility*

Hardware for YMC-Triart 1.9µm columns

YMC-Triart columns packed with 1.9µm particle size phases are provided in PT-hardware, which is compatible with Waters UPLC® systems and Agilent equipment. This enables optimised chromatographic separations to be achieved when using these and other instruments.

Ordering Information

When ordering please replace 'XX' with TA for Triart C18, TO for Triart C8 and TDH for Triart Diol-HILIC.

1.9µm YMC-Triart C18, C8 and Diol-HILIC Columns⁴

Column i.d. (mm)	Column Length ¹ (mm)					Guard Cartridges ² (5mm length)
	20	30	50	100	150	
2.0	XX12SP9-0202PT	XX12SP9-0302PT	XX12SP9-0502PT	XX12SP9-1002PT	XX12SP9-1502PT	XX12SP9-E5Q1CC
3.0	-	XX12SP9-0303PT	XX12SP9-0503PT	XX12SP9-1003PT	-	XX12SP9-E503CC

3µm and 5µm YMC-Triart C18, C8 and Diol-HILIC Columns⁴

Column i.d. (mm)	Column Length ¹ (mm)				Guard Cartridges ³ (10mm length)
	50	100	150	250	
3µm Particle Size					
2.0	XX12S03-0502WT	XX12S03-1002WT	XX12S03-1502WT	XX12S03-2502WT	XX12S03-01Q1GC
3.0	XX12S03-0503WT	XX12S03-1003WT	XX12S03-1503WT	-	XX12S03-0103GC
4.6	XX12S03-0546WT	XX12S03-1046WT	XX12S03-1546WT	XX12S03-2546WT	XX12S03-0104GC
5µm Particle Size					
2.0	XX12S05-0502WT	XX12S05-1002WT	XX12S05-1502WT	XX12S05-2502WT	XX12S05-01Q1GC
3.0	XX12S05-0503WT	XX12S05-1003WT	XX12S05-1503WT	XX12S05-2503WT	XX12S05-0103GC
4.6	XX12S05-0546WT	XX12S05-1046WT	XX12S05-1546WT	XX12S05-2546WT	XX12S05-0104GC

¹ Other dimensions available

³ 5/pk. Requires holder XPGCH-01 - see p. 272 for further information

² 3/pk. Requires holder XPCHUHP

⁴ YMC-Triart Phenyl and PFP also available - please enquire

YMC-Triart preparative 10 and 15µm bulk material also available – please enquire.