



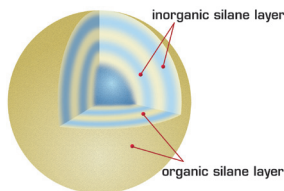
YMC-Triart

Hybrid UHPLC and HPLC Columns and Media

YMC-Triart	Stationary Phase:	C18 (ODS, USP L1); C8 (Octyl, USP L7)
	Particle Sizes:	UHPLC: 1.9 μ m
		Analytical HPLC: 3 μ m, 5 μ m Prep HPLC: 10 μ m, 15 μ m, 20 μ m for C8 and C18; 50 μ m for C18 (prep materials described separately).
Availability:	UHPLC and HPLC materials in packed columns and prep HPLC material in bulk or packed columns.	

Introduction:

YMC-Triart is a novel, multi-layered, organic/inorganic hybrid particle. Produced with a combination of YMC technologies for silica manufacturing and flow micro-reaction, YMC-Triart exhibits excellent physical and chemical durability compared to conventional silica materials, and other hybrid materials.



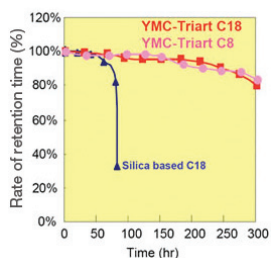
Triart Advantages:

Mechanical strength, chemical durability (pH range 1-12), operation at elevated temperature, lot-to-lot reproducibility, and scalability set YMC-Triart apart from conventional chromatographic materials.

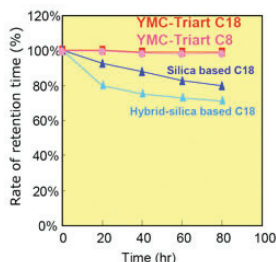


YMC-Triart base material is extraordinarily pure and metal-free – this purity, combined with multi-stage, multi-reagent end capping, produces a stationary phase offering excellent peak shape with acidic, basic, and neutral analytes across a wide range of separation conditions.

Triart Physical Characteristics:



High pH: Triethylamine,
pH 11.5, 40°C

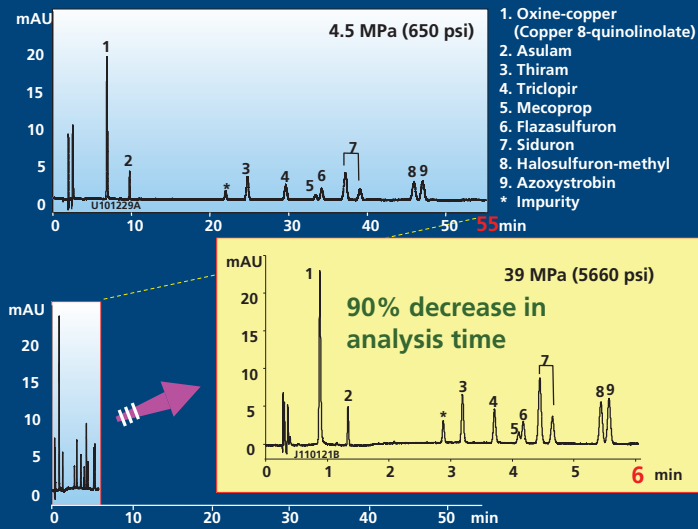


Low pH, High Temperature:
pH 1, 70°C

YMC-Triart can be applied effectively at elevated temperature and at a wide range of pH. Chromatographers enjoy greater flexibility in separation conditions – during method development and routine use.

Specifications	Base Material	organic/inorganic multilayered hybrid
	Stationary Phase	C18 (USP L1) C8 (USP L7)
	Particle size	1.9 μ m, 3 μ m, 5 μ m prep sizes described separately
	Pore size	120Å
	Carbon Loading	C18: 20% C8: 17%
	Bonding	polymeric type
	End-capping	proprietary, multi-stage
	pH Range	1 - 12
	Temperature Recommendation	For pH 1-7: up to 70°C For pH 7-12: up to 50°C

Separation of Agrichemicals by HPLC and UHPLC

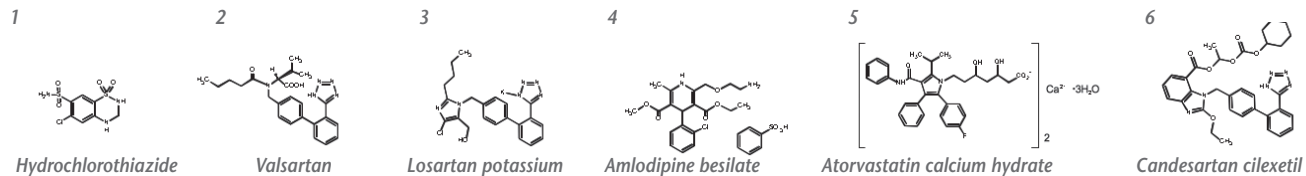


Upper chromatogram is on a 150 x 2.0 mm i.d. column packed with 5 μ m YMC-Triart C18
Lower chromatogram is on a 50 x 2.0 mm i.d. column packed with 1.9 μ m YMC-Triart C18

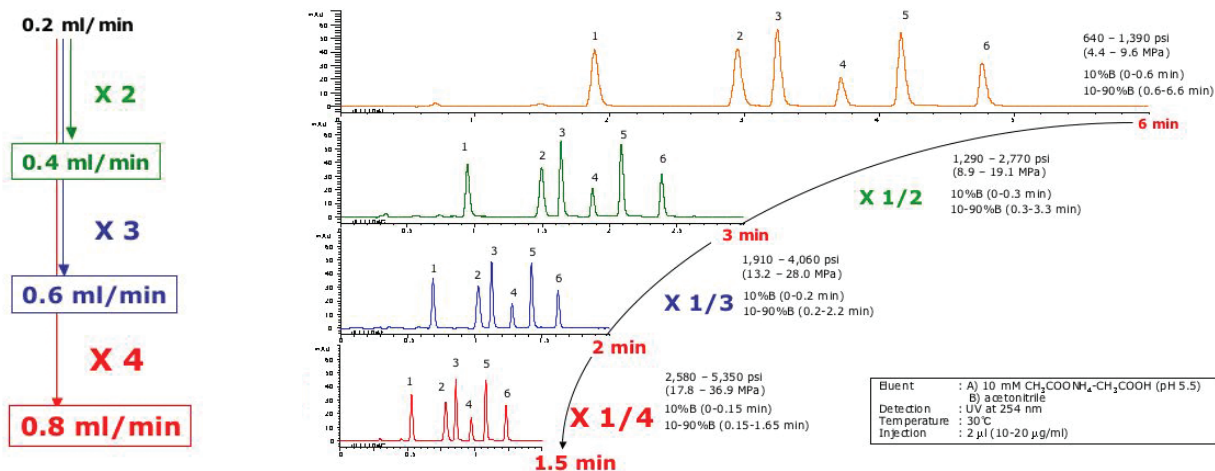
Speed

Development of Ultra Fast separation method for drug substances

Structures of drug substances



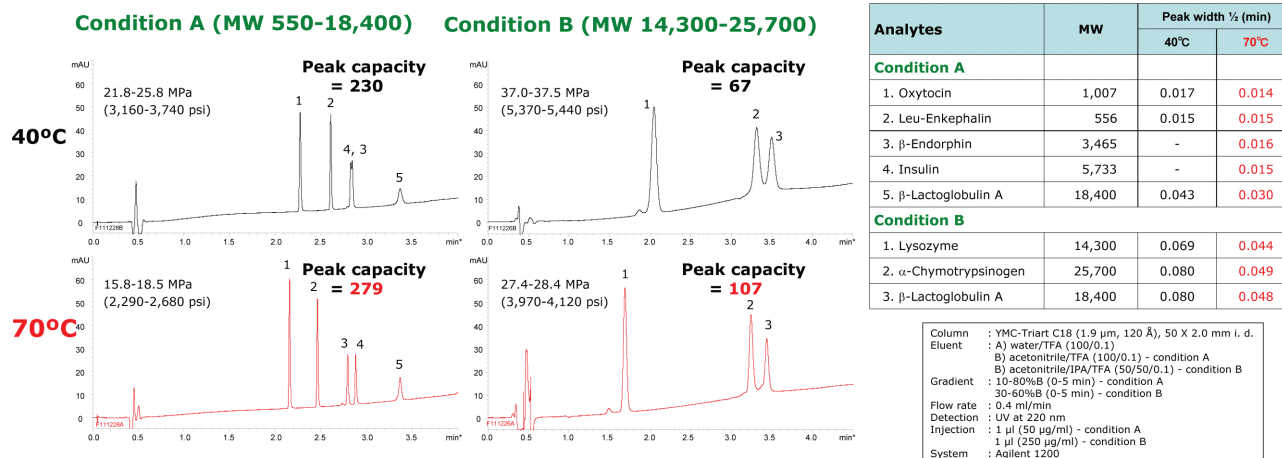
YMC-Triart C8 1.9 μ m 30 X 2.0 mm i. d.



- 1.9 μ m YMC-Triart C8 provides an ultra fast separation of six drug substances which are different in polarity and hydrophobicity within 1.5 minutes by using the short column and increasing flow rate.
- 1.9 μ m YMC-Triart is useful for drug discovery research where a high throughput analysis is required.

Elevated Temperature

Comparison of separation of peptides and proteins at 40°C and 70°C

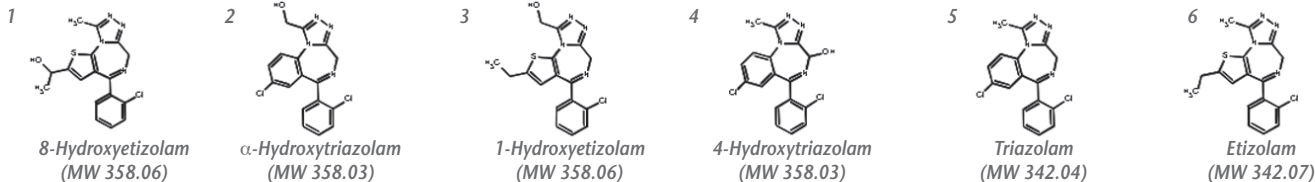


- The separation of peptides and proteins with a variety of molecular weight (MW) is compared increasing column temperature from 40°C to 70°C, under the optimized mobile phase conditions containing 0.1% TFA.
- Although adding stronger solvent like IPA to acetonitrile of the mobile phase (condition B) is effective to reduce larger protein retention and improve peak shape, the molecules with MW >10,000 still result in peak broadening at 40°C, as shown in the upper chromatograms.
- Increasing column temperature to 70°C provides selectivity change, sharper peaks, and therefore, improved resolution especially for larger molecules. Generally, larger molecules diffuse very slowly compared to small molecules. An elevated temperature can improve efficiency and peak shape by lowering mobile phase viscosity and improving mass transfer. Using YMC-Triart C18 at elevated temperature enables improved peak shape for smaller proteins (see Condition B).
- Temperature is a simple and effective tool to increase resolution in separation of proteins and peptides.

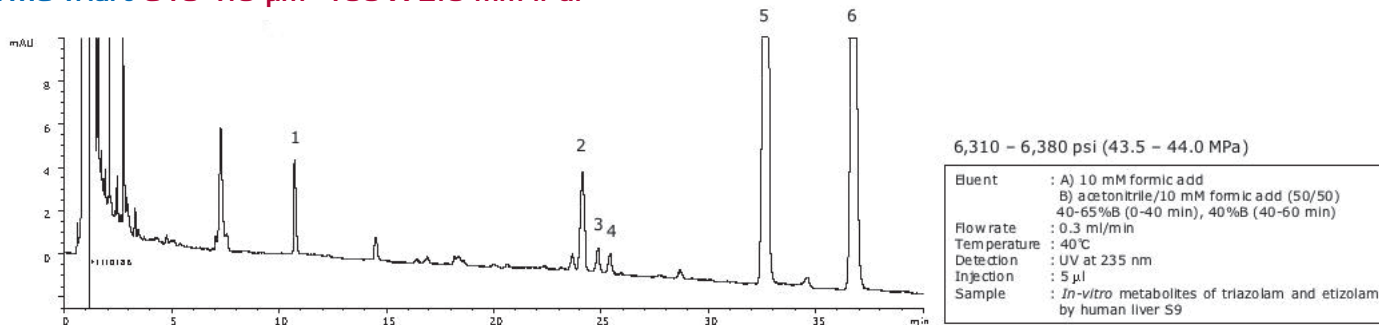
Resolution

Simultaneous separation of benzodiazepines and their metabolites

Structures of triazolam, etizolam, and their metabolites



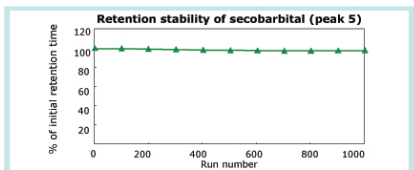
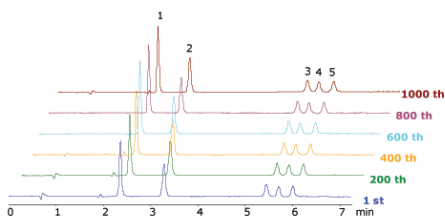
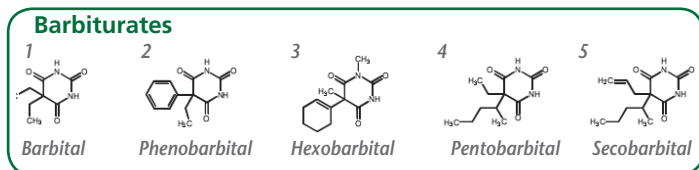
YMC-Triart C18 1.9 μ m 150 X 2.0 mm i. d.



- Triazolam and etizolam are sleep-inducing drugs, and recently focused as abused substances of addicts. The identification of these two drugs and their hydroxylated metabolites is usually very difficult because of the similarity in structure, molecular weight and mass spectra, even by using MS or MS/MS detection. Therefore the distinct separation on an analytical column is required.
- The baseline separation of triazolam, etizolam, and their metabolites formed *in vitro* by human liver S9 can be achieved by 1.9 μ m and 150 mm length of YMC-Triart C18 column which has an extremely high efficiency. The longer length (or coupled) columns packed with 1.9 μ m particle are useful for the screening, identification, and quantification of drugs and their metabolites in a complex biological matrix.

Durability

Analysis of barbiturates at pH 9.5



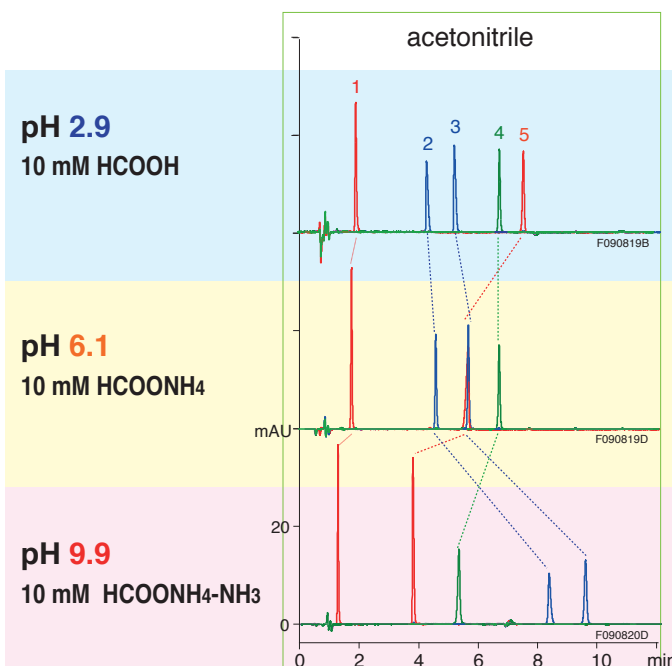
Column: YMC-Triart C18, 5 μ m, 50 x 2 mm i.d.
 Eluent: A) 20 mM HCOONH₄, NH₃ (pH 9.5)
 B) methanol 0-90%B (0-7 min)

Flow Rate: 0.2ml/min
 Detection: UV at 240 nm
 Temperature: 25°C

- No change in retention time of barbiturates was observed even after 1,000 runs at elevated pH.
- High chemical durability of YMC-Triart columns achieved by applying hybrid particles and novel surface modification allows utilization of a wide pH range for better method development.

Versatility

YMC-Triart C18 5 μ m, 50 X 2.0 mm i. d.



Eluent: A) 10mM formate buffer, B) acetonitrile, 8-90%B (0-10min) 90%B (10-15min), Flow: 0.2 mL/min, Temp: 25 °C, Detection, UV at 230 nm.

Sample: 1. Saccharin (pKa=2.2), 2. Dextromethorphan (pKa=8.3), 3. Amitriptyline (pKa=9.4), 4. n-Butylparaben (pKa=8.3), 5. Ibuprofen (pKa=4.4)

Ordering Information

Packed columns are listed in the table at right. YMC welcomes your inquiry for packaging, availability, and pricing of YMC-Triart in bulk containers.

To place an order, please send a Purchase Order:

- By fax: +1 (610) 266-8652
- By email: orders@ymcamerica.com

To place an order with payment by credit card, please call +1 (610) 266-8650, and select Option 1. All major credit cards are accepted.

Product inquiries, requests for quotations, and other communications should be sent to the same fax, email, or phone. We look forward to hearing from you.

Technical Support

For applications assistance and technical support, please contact us:

- By phone: +1 (610) 266-8650, and select Option 3
- By fax: +1 (610) 266-8652
- By email: info@ymcamerica.com

Particle size (µm)	Column size I.D. x length (mm)	Product Number	
		YMC-Triart C18	YMC-Triart C8
1.9	2.0 X 20	TA12SP9-0202PT	TO12SP9-0202PT
	2.0 X 50	TA12SP9-0502PT	TO12SP9-0502PT
	2.0 X 100	TA12SP9-1002PT	TO12SP9-1002PT
	2.0 X 150	TA12SP9-1502PT	TO12SP9-1502PT
	3.0 X 50	TA12SP9-0503PT	TO12SP9-0503PT
	3.0 X 100	TA12SP9-1003PT	TO12SP9-1003PT
	4.6 X 50	TA12SP9-0546PT	TO12SP9-0546PT
3	2.0 X 50	TA12S03-0502WT	TO12S03-0502WT
	2.0 X 100	TA12S03-1002WT	TO12S03-1002WT
	2.0 X 150	TA12S03-1502WT	TO12S03-1502WT
	2.0 X 250	TA12S03-2502WT	TO12S03-2502WT
	3.0 X 50	TA12S03-0503WT	TO12S03-0503WT
	3.0 X 100	TA12S03-1003WT	TO12S03-1003WT
	3.0 X 150	TA12S03-1503WT	TO12S03-1503WT
	3.0 X 250	TA12S03-2503WT	TO12S03-2503WT
	4.6 X 50	TA12S03-0546WT	TO12S03-0546WT
	4.6 X 100	TA12S03-1046WT	TO12S03-1046WT
	4.6 X 150	TA12S03-1546WT	TO12S03-1546WT
4.6 X 250	TA12S03-2546WT	TO12S03-2546WT	
5	2.0 X 50	TA12S05-0502WT	TO12S05-0502WT
	2.0 X 100	TA12S05-1002WT	TO12S05-1002WT
	2.0 X 150	TA12S05-1502WT	TO12S05-1502WT
	2.0 X 250	TA12S05-2502WT	TO12S05-2502WT
	3.0 X 50	TA12S05-0503WT	TO12S05-0503WT
	3.0 X 100	TA12S05-1003WT	TO12S05-1003WT
	3.0 X 150	TA12S05-1503WT	TO12S05-1503WT
	3.0 X 250	TA12S05-2503WT	TO12S05-2503WT
	4.6 X 50	TA12S05-0546WT	TO12S05-0546WT
	4.6 X 100	TA12S05-1046WT	TO12S05-1046WT
	4.6 X 150	TA12S05-1546WT	TO12S05-1546WT
	4.6 X 250	TA12S05-2546WT	TO12S05-2546WT
	10	4.6 X 250	TAP12S11-2546WT
10 X 250		TAP12S11-2510WT	TOP20S11-2510WT*
20 X 250		TAP12S11-2520WX	TOP20S11-2520WX*
30 X 250		TAP12S11-2530WX	TOP20S11-2530WX*
15	4.6 X 250	TAP12S16-2546WT	TOP20S16-2546WT*
	10 X 250	TAP12S16-2510WT	TOP20S16-2510WT*
	20 X 250	TAP12S16-2520WX	TOP20S16-2520WX*
	30 X 250	TAP12S16-2530WX	TOP20S16-2530WX*
20	4.6 X 250	TAP12S21-2546WT	TOP20S21-2546WT*
	10 X 250	TAP12S21-2510WT	TOP20S21-2510WT*
	20 X 250	TAP12S21-2520WX	TOP20S21-2520WX*
	30 X 250	TAP12S21-2530WX	TOP20S21-2530WX*
50	4.6 X 250	TAP12S50-2546WT	-
	10 X 250	TAP12S50-2510WT	-
	20 X 250	TAP12S50-2520WX	-
	30 X 250	TAP12S50-2530WX	-

*Triart C8 Prep material is in 200Å. All other material is 120Å.



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