Bioinert Columns
YMC-Accura Triart

Oligonucleotides
Peptides/proteins
Metal coordinating compounds

Highly accurate results
Exceptional peak shapes
Excellent recoveries
No carry-over

www.ymc.eu
Bioinert coated YMC-Accura Triart

Features
- Exceptional peak shapes with high sensitivities
- Excellent recoveries without column preconditioning
- Superior reproducibility and no carry-over effects
- Ideal for highly sensitive LC/MS analyses
- New surface coated hardware

Ideal choice for
- Oligonucleotides, nucleotides
- Peptides and proteins
- Metal coordinating compounds

Specifications

<table>
<thead>
<tr>
<th>YMC-Triart Phases</th>
<th>C18, C18 ExRS, Bio C18, C8, Bio C4, Phenyl, PFP, Diol-HILIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle Size</td>
<td>1.9, 3, 5 µm</td>
</tr>
<tr>
<td>Hardware</td>
<td>Bioinert coated stainless steel (all wetted parts incl. frits)</td>
</tr>
<tr>
<td>Pressure Limit</td>
<td>1.9 µm: 100 MPa / 1,000 bar / 15,000 psi</td>
</tr>
<tr>
<td></td>
<td>3/5 µm: 45 MPa / 450 bar / 6,525 psi</td>
</tr>
<tr>
<td>Column Connection</td>
<td>No special connections required</td>
</tr>
</tbody>
</table>

**YMC-Accura Triart** columns are an alternative to the already existing YMC-Triart metal-free, PEEK-lined columns from YMC. As the used column coating is less hydrophobic compared to the PEEK-lining, **YMC-Accura** columns are the ideal choice for e.g. more hydrophobic peptides which tend to show pronounced interactions with PEEK.
Available inert stationary phases

YMC-Triart C18
- versatile applications
- first choice for method development
- pH 1–12/90 °C max.
- 100% aqueous eluents

YMC-Triart C18 ExRS
- extended pH and stability
- hydrophobic substances
- positional isomers
- pH 1–12/90 °C max.

YMC-Triart Bio C18
- peptides/proteins/oligonucleotides
- 300 Å widepore
- pH 1–12/90 °C max.
- 100% aqueous eluents

YMC-Triart C8
- alternative to C18
- short retention time
- pH 1–12/90 °C max.

YMC-Triart Bio C4
- proteins/antibodies/peptides
- 300 Å widepore
- pH 1–10/90 °C max.
- 100% aqueous eluents

YMC-Triart Phenyl
- aromatic compounds (π-electron donor)
- conjugated systems
- 100% aqueous eluents

YMC-Triart PFP
- aromatic compounds (π-electron donor)
- cis-trans isomers
- polar halogenated compounds
- 100% aqueous eluents

YMC-Triart Diol-HILIC
- very polar compounds
- less ionic adsorption
- ideal choice for SFC
- 100% aqueous eluents
Ensured sensitivity and recovery

Ideal choice for challenging analytes such as phosphorothioate oligonucleotides

YMC-Accura Triart Bio C18 column provides double peak heights and peak areas for the oligonucleotides compared to those for regular stainless-steel columns. YMC-Accura Triart columns enhance the sensitivity significantly and help to save precious samples without any loss.
Immediate reliability

No preconditioning required for reliable results from the 1st injection

The YMC-Accura Triart Bio C4 column shows stable peak areas from the first injection, while the standard stainless-steel column provides only 10% of the peak area (for the 300 base marker) with the first injection. Even after the tenth injection, the peak areas of the stainless-steel column are considerably less than those of the YMC-Accura Triart column.

Constantly higher peak areas and therefore recoveries

Parameters:
- Column: YMC-Accura Triart Bio C4 (3 μm, 30 nm) 100 x 2.1 mm ID
- Part No.: TA30S03-10Q1PTC
- Eluent: A) 50 mM TEAA* (pH 7.0)/acetonitrile (95/5)
- B) 50 mM TEAA (pH 7.0)/acetonitrile (50/50)
- Gradient: 9–14%B (0–10 min), 80%B (10–15 min)
- Flow rate: 0.2 mL/min
- Temperature: 80 ºC
- Detection: UV at 254 nm
- Injection: 1 μL (0.25 mg/mL)
- Sample: 100–1,000 bases (Century™-Plus RNA Markers)

*m Triethylammonium acetate
Robust coating for high inertness

Durable bioinert coating

The robust bioinert coating used on **YMC-Accura** hardware is 130 to 320-fold thicker making it more durable than other similar hardware concepts. A long-term inertness against sensitive substances is ensured.

In order to demonstrate its robustness, a **YMC-Accura** column was packed multiple times. Even though this is quite a challenge for the column surface, the coating remains unaffected (SEM* picture: top area is bare steel for comparison).

*Scanning Electron Microscope

Other coated columns can lose their inertness over time. This will again lead to adsorption of sensitive compounds on the uncovered metallic surfaces. Peak tailing, loss of recovery and sample carry-over are typical results of the delamination of the coating. After only unpacking a coated competitor column most of the coating is already delaminated (dark spots: remaining coating).

High surface inertness without any adsorption

The **YMC-Accura** hardware with its inert surface area prevents adsorption of oligonucleotides using a range of different buffers. No sample conditioning is required.

**YMC-Accura** columns further provide significantly higher recoveries and sensitivities that cannot be achieved with regular stainless steel columns – even after conditioning with 20 sample injections. These ready-to-use columns ensure high recovery and reproducibility from the very first use.

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**1. TEA-HFIP / methanol**

**YMC-Accura column**

No sample conditioning required!

**2. TEAA / methanol**

**YMC-Accura column**

Substantially higher recoveries!

<table>
<thead>
<tr>
<th>Recovery of Oligonucleotide</th>
<th>Number of Injections</th>
<th>Number of Injections</th>
</tr>
</thead>
<tbody>
<tr>
<td>125%</td>
<td></td>
<td>125%</td>
</tr>
<tr>
<td>100%</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>75%</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>50%</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>25%</td>
<td></td>
<td>25%</td>
</tr>
</tbody>
</table>

Column: Empty **YMC-Accura** (without stationary phase)
Eluent: 1) 8 mM TEA 200 mM HFIP / methanol (82/18)
        2) 100 mM TEAA / methanol (82/18)
Flow rate: 0.42 mL/min
Detection: UV at 260 nm
Temperature: 65°C
Injection: 1 µL
Sample: All PS RNA 20mer (1) (5’-U^C^A^U^C^A^C^A^U^G^A^A^C^C^A^A^U^A^U-3’)

^=Phosphorothioate

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Durable bioinert coating

Coating thickness: 400–1600 nm

Durable bioinert coating

Coating thickness: 3–5 nm
siRNA duplex under denaturing conditions

Column: YMC-Accura Triart Bio C18 (1.9µm, 30 nm) 50 x 2.1 mm ID
Part No.: TA30SP9-05Q1PTC
Eluent: A) 15 mM TEAA (pH 8)
B) methanol
Gradient: 5%–20%B (0–15 min)
Flow rate: 0.42 ml/min
Temperature: 65 °C
Detection: UV at 260 nm
Injection: 1 µl (5 nmol/ml)
Sample: siRNA duplex

siRNA duplex and its single strands under non-denaturing conditions

Column: YMC-Accura Triart Bio C18 (1.9µm, 30 nm) 50 x 2.1 mm ID
Part No.: TA30SP9-05Q1PTC
Eluent: A) 15 mM triethylamine-400 mM HFIP (pH 8)
B) methanol
Gradient: 10%–28%B (0–18 min)
Flow rate: 0.42 ml/min
Temperature: 25 °C
Detection: UV at 260 nm
Injection: 1 µl (5 nmol/ml)
Sample: siRNA duplex & single strands
### YMC-Accura Triart 1.9 µm UHPLC columns (max. pressure 1,000 bar)

<table>
<thead>
<tr>
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<th>Column ID</th>
<th>Column length (mm)</th>
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<tbody>
<tr>
<td></td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>C18</td>
<td>2.1 TA12SP9-05Q1PTC</td>
<td>TA12SP9-10Q1PTC</td>
</tr>
<tr>
<td>C18 ExRS</td>
<td>2.1 TAR08SP9-05Q1PTC</td>
<td>TAR08SP9-10Q1PTC</td>
</tr>
<tr>
<td>Bio C18</td>
<td>2.1 TA30SP9-05Q1PTC</td>
<td>TA30SP9-10Q1PTC</td>
</tr>
<tr>
<td>C8</td>
<td>2.1 TO12SP9-05Q1PTC</td>
<td>TO12SP9-10Q1PTC</td>
</tr>
<tr>
<td>Bio C4</td>
<td>2.1 TB30SP9-05Q1PTC</td>
<td>TB30SP9-10Q1PTC</td>
</tr>
<tr>
<td>Phenyl</td>
<td>2.1 TPH12SP9-05Q1PTC</td>
<td>TPH12SP9-10Q1PTC</td>
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<tr>
<td>PFP</td>
<td>2.1 TPF12SP9-05Q1PTC</td>
<td>TPF12SP9-10Q1PTC</td>
</tr>
<tr>
<td>Diol-HILIC</td>
<td>2.1 TDH12SP9-05Q1PTC</td>
<td>TDH12SP9-10Q1PTC</td>
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</table>

### YMC-Accura Triart 3 µm HPLC columns (max. pressure 450 bar)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Column ID</th>
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</tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td>C18</td>
<td>2.1 TA12S03-05Q1PTC</td>
<td>TA12S03-10Q1PTC</td>
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<tr>
<td>C18 ExRS</td>
<td>2.1 TAR08S03-05Q1PTC</td>
<td>TAR08S03-10Q1PTC</td>
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<tr>
<td>Bio C18</td>
<td>2.1 TA30S03-05Q1PTC</td>
<td>TA30S03-10Q1PTC</td>
</tr>
<tr>
<td>C8</td>
<td>2.1 TO12S03-05Q1PTC</td>
<td>TO12S03-10Q1PTC</td>
</tr>
<tr>
<td>Bio C4</td>
<td>2.1 TB30S03-05Q1PTC</td>
<td>TB30S03-10Q1PTC</td>
</tr>
<tr>
<td>Phenyl</td>
<td>2.1 TPH12S03-05Q1PTC</td>
<td>TPH12S03-10Q1PTC</td>
</tr>
<tr>
<td>PFP</td>
<td>2.1 TPF12S03-05Q1PTC</td>
<td>TPF12S03-10Q1PTC</td>
</tr>
<tr>
<td>Diol-HILIC</td>
<td>2.1 TDH12S03-05Q1PTC</td>
<td>TDH12S03-10Q1PTC</td>
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### YMC-Accura Triart 5 µm HPLC columns (max. pressure 450 bar)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Column ID</th>
<th>Column length (mm)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>C18</td>
<td>2.1 TA12S05-05Q1PTC</td>
<td>TA12S05-10Q1PTC</td>
</tr>
<tr>
<td>C18 ExRS</td>
<td>2.1 TAR08S05-05Q1PTC</td>
<td>TAR08S05-10Q1PTC</td>
</tr>
<tr>
<td>Bio C18</td>
<td>2.1 TA30S05-05Q1PTC</td>
<td>TA30S05-10Q1PTC</td>
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<tr>
<td>C8</td>
<td>2.1 TO12S05-05Q1PTC</td>
<td>TO12S05-10Q1PTC</td>
</tr>
<tr>
<td>Bio C4</td>
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<td>TB30S05-10Q1PTC</td>
</tr>
<tr>
<td>Phenyl</td>
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<td>TPH12S05-10Q1PTC</td>
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<td>PFP</td>
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<td>TPF12S05-10Q1PTC</td>
</tr>
<tr>
<td>Diol-HILIC</td>
<td>2.1 TDH12S05-05Q1PTC</td>
<td>TDH12S05-10Q1PTC</td>
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</table>