# HPLC DATA SHEET

## Features of PentaFluoroPhenyl group bonded column - YMC-Triart PFP -

－Effective for separation of polar compounds or isomers provided by unique polar interaction－

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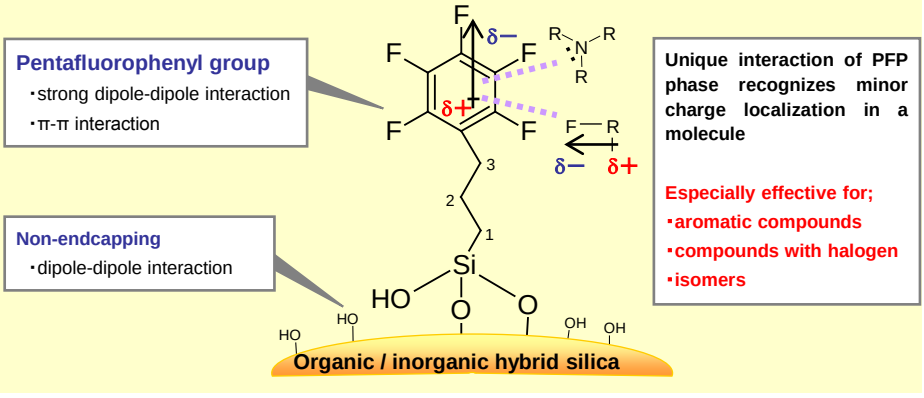
## Features and specifications of YMC-Triart PFP

YMC-Triart PFP is a pentafluorophenyl group bonded phase. YMC-Triart PFP has unique selectivity provided by various interactions such as π-π, and dipole-dipole as well as hydrophobic. YMC-Triart PFP is effective especially for improving separation of aromatic compounds, nitro compounds, and compounds with halogen because its selectivity is very different from other chemistries.

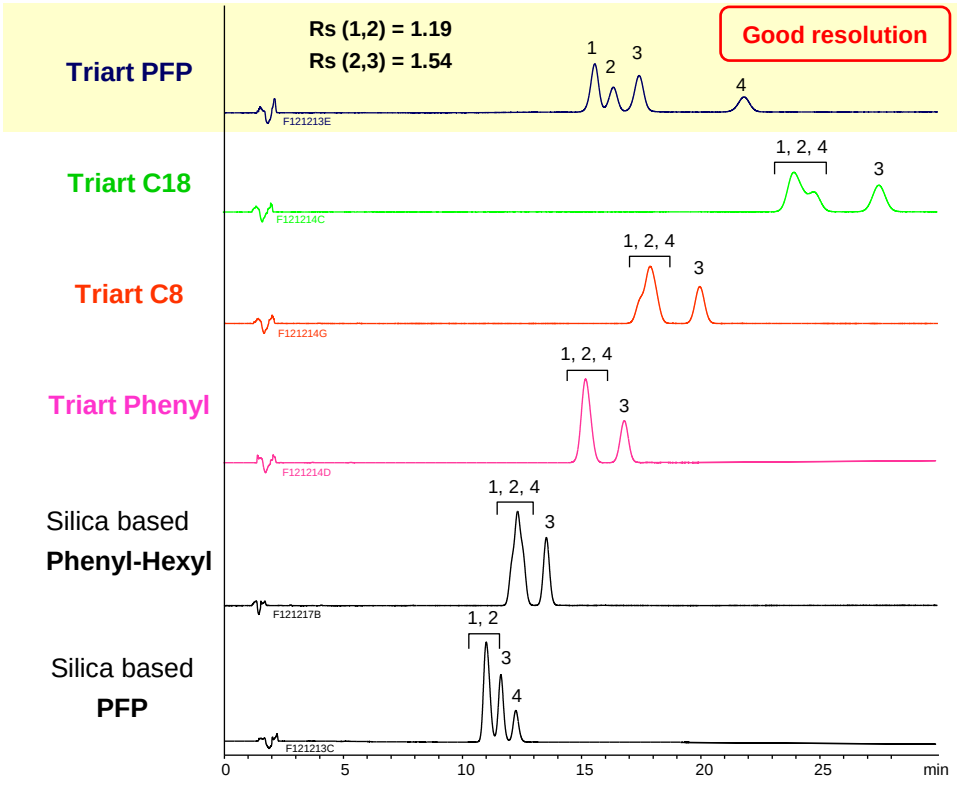
### Image structure for Triart PFP




| YMC-Triart PFP | |
|---|---|
| Functional group | Pentafluorophenylpropyl |
| Base | Organic / inorganic hybrid silica |
| Particle size | 1.9 µm, 3 µm, 5 µm |
| Pore size | 12 nm |
| Bonding | Polymeric |
| Endcapping | No |
| pH range | 1~8 |
| Usable temperature range (upper limit) | 50℃ |
| 100% aqueous compatibility | Yes |
| USP Classification | L43 |

## Effective for separation of isomers

### Piperine *cis-trans* isomers

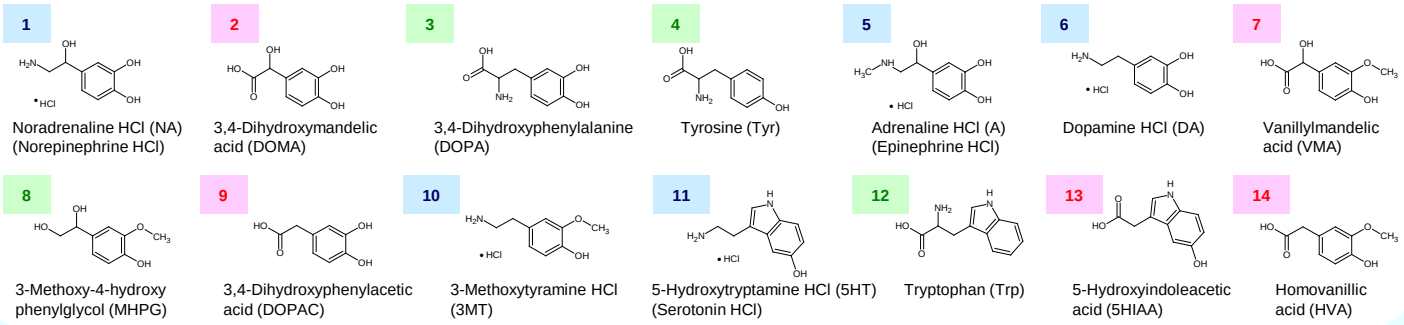




- Even though the difference in hydrophobicity of cis-trans isomers of piperine, which is a pungent component contained in pepper, is very small, YMC-Triart PFP can separate them very well.
- It is considered that YMC-Triart PFP has high recognition ability of minor charge localization in a molecule provided by various interactions such as π-π and dipole-dipole as well as hydrophobicity. Such feature greatly contributes to excellent selectivity of structurally similar compounds
- Under this conditions, Triart PFP showed much better separation than a conventional silica based PFP column.

Column : 5 µm, 150 X 3.0 mmI.D. or 150 X 4.6 mmI.D.
Eluent : acetonitrile/0.1% formic acid (40/60)
Flow rate : 0.425 mL/min for 3.0 mmI.D.
1.0 mL/min for 4.6 mmI.D.
Temperature : 25ºC
Detection : UV at 280 nm

# Simultaneous analysis of 14 biologically active polar compounds

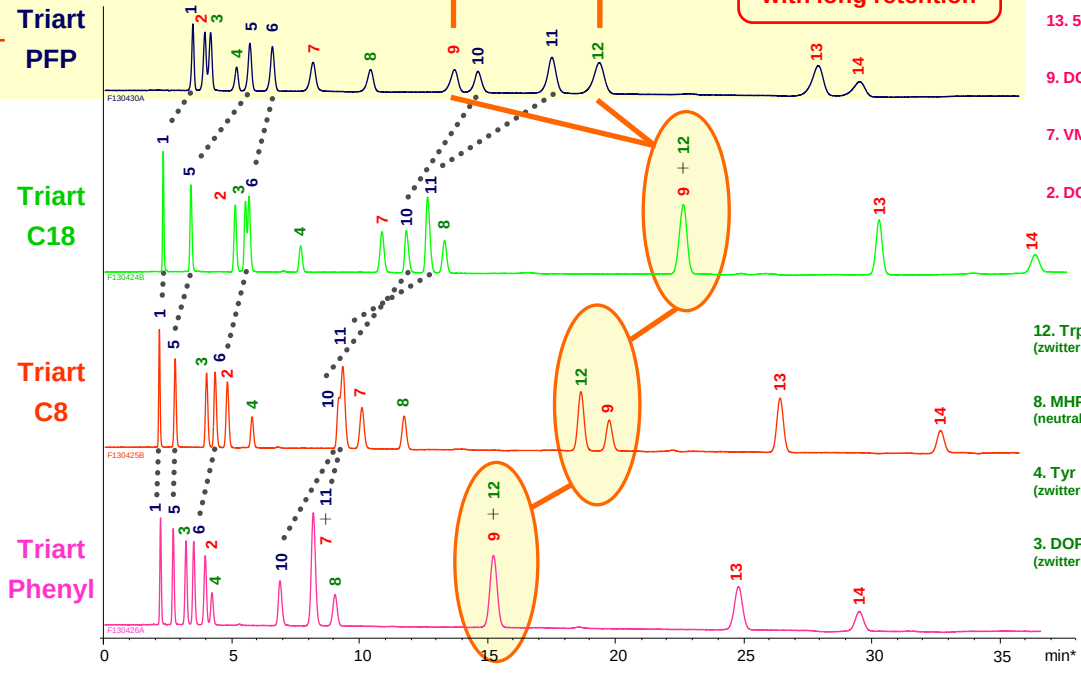
## Catecholamines, serotonin and their precursors and metabolites

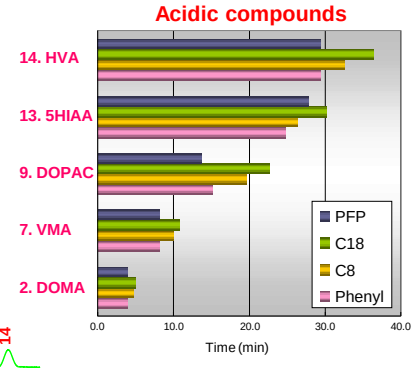


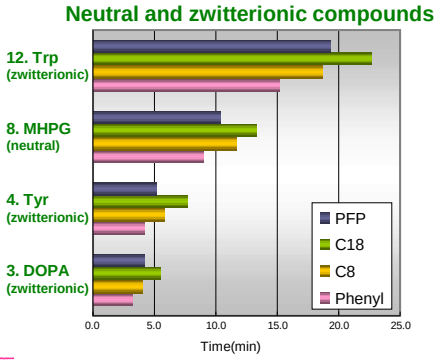

## Comparison of separation selectivity among YMC-Triart RP columns

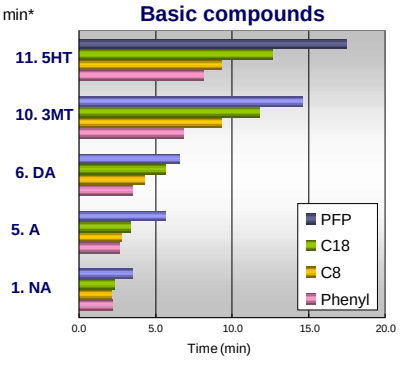
**5 µm, 150 X 3.0 mmI.D.**

Good resolution with long retention



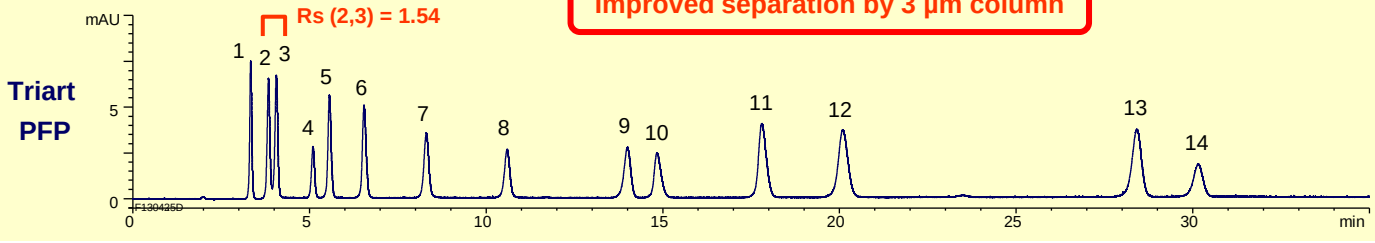




- Separation selectivity of YMC-Triart RP columns is compared on analysis of 14 biologically active amines and their related compounds. Retention time of each compound is summarized by type of compounds. As shown, Triart PFP column shows strong retention of basic compounds. It is considered that basic compounds which has electron-donating characteristic and polarised PFP group/silanol group are strongly interacted, and as a result, Triart PFP shows longer retention time.
- Unique selectivity of Triart PFP provided by polar interactions contributes to separation of polar compounds which are not separated well with other functional groups. Triart PFP is effective as a 2nd choice column for separation of polar compounds, especially in the case where good resolution is not achieved with C18 or other common RP phases.

**3 µm, 150 X 3.0 mmI.D.**

Improved separation by 3 µm column




- By changing the size from 5 µm to 3 µm, separation of DOMA (peak 2) and DOPA (peak 3) is improved.

| | |
|---|---|
| Column | : 150 X 3.0 mmI.D. |
| Eluent | : A) 10 mM formic acid<br>B) methanol containing 10 mM formic acid<br>0-20%B (0-30 min), 20%B (30-35 min) |
| Flow rate | : 0.425 mL/min |
| Temperature | : 25ºC |
| Detection | : UV at 280 nm |