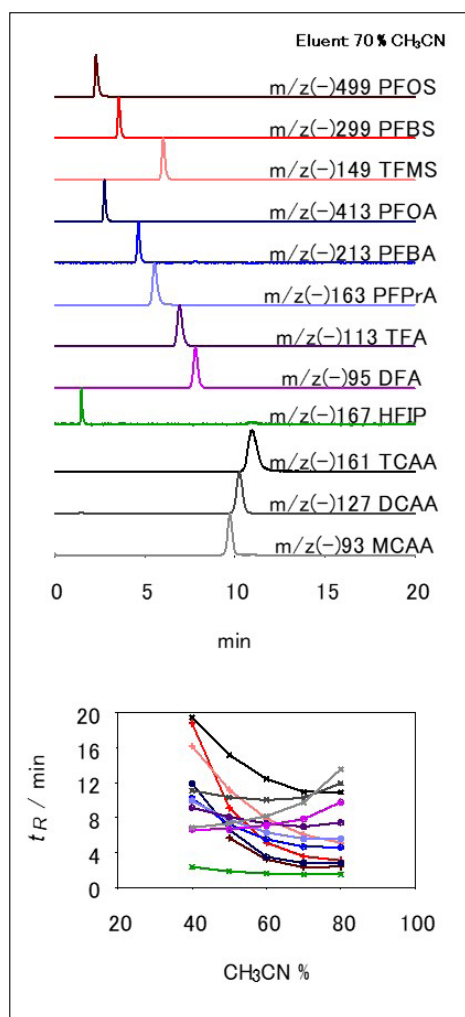


## Analysis of PFAS (VT-50 2D)

PFAS stands for per- and polyfluoroalkyl substances. They are hardly decomposed in the environment and contain substances that are subject of Stockholm Convention on Persistent Organic Pollutants (POPs). Its persistence in the environment and accumulation in living organisms are concerned. HILICpak VT-50 2D, a polymer-based HILIC mode column, was used to analyze 9 kinds of PFAS and 3 kinds of haloacetic acids. VT-50 2D retains polar substances, which are not retained well by regular reversed-phase mode ODS columns. Thus, it is suitable for the analysis of PFAS, short-chain carbon compounds with high polarity. The effects of eluents with different acetonitrile and ammonium ratios were studied under isocratic mode. U-shaped trends were observed when the retention time ( $t_R$ ) was plotted against acetonitrile concentration. The below chromatograms were obtained using 70 % acetonitrile as eluent. PFPrA and DFA sample was prepared separately from the others to avoid the 37Cl peak interference of TCAA and MCAA.



Sample: 1  $\mu$  L

Sample solution 1 (in CH<sub>3</sub>OH/H<sub>2</sub>O=1/1)

PFOS; Perfluorooctanesulfonic acid 100 ng/mL

PFBS; Perfluorobutanesulfonic acid 100 ng/mL

TFMS; Trifluoromethanesulfonic acid 100 ng/mL

PFOA; Perfluorooctanoic acid 100 ng/mL

PFBA; Perfluorobutanoic acid 100 ng/mL

TFA; Trifluoroacetic acid 10  $\mu$ g/mL

HFIP; Hexafluoro-2-propanol 10  $\mu$ g/mL

TCAA; Trichloroacetic acid 10  $\mu$ g/mL

DCAA; Dichloroacetic acid 10  $\mu$ g/mL

MCAA; Monochloroacetic acid 10  $\mu$ g/mL

Sample solution 2 (in CH<sub>3</sub>OH/H<sub>2</sub>O=1/1)

PFPrA; Pentafluoropropionic acid 10  $\mu$ g/mL

DFA; Difluoroacetic acid 10  $\mu$ g/mL

**Column** : Shodex HILICpak VT-50 2D (2.0 mm I.D. x 150 mm)  
**Eluent** : 50 mM CH<sub>3</sub>COONH<sub>4</sub> aq./CH<sub>3</sub>CN=60/40, 50/50, 40/60, 30/70, 20/80  
**Flow rate** : 0.2 mL/min  
**Detector** : ESI-MS (SIM Negative)  
**Column temp.** : 40 °C