Determination of oleic acid in diesel fuel

Oleic acid in diesel oil was analyzed quantitatively by HPLC, utilizing pre-column derivatization method. 10 µl of pre-treated sample solution was injected. The result indicates that the diesel oil contained 0.205 g of oleic acid per liter. The preparation procedure of the sample and the chromatogram were shown below.

### Preparation procedure of sample

1 ml of light oil

→ Apply on pre-column (silica type)

→ Wash pre-column with n-hexane (5 ml)

→ Elute with 2.5 ml of CHCl₃/MeOH (50/50)

→ Evaporate to dryness

→ Add 1 ml CHCl₃ and 20 µl of 75% KOH in MeOH

→ Evaporate to dryness

→ Add 1 ml of 170 mM p-bromophenacyl bromide in acetone

→ Add 1 ml of 17 mM 18-crown-6-ether in acetone

→ React with 90 °C for 40 min

→ Filtrate with 0.45 µm membrane filter

→ Inject (10 µl)

### Conditions:

Pump: PU-980  
Detector: U/V-970  
Wavelength: 260 nm  
Sensitivity: 0.64 A.U.F.S  
Column: Finepak SIL C18S  
Eluent: CH₃CN/H₂O (90/10)  
Sample: Light oil