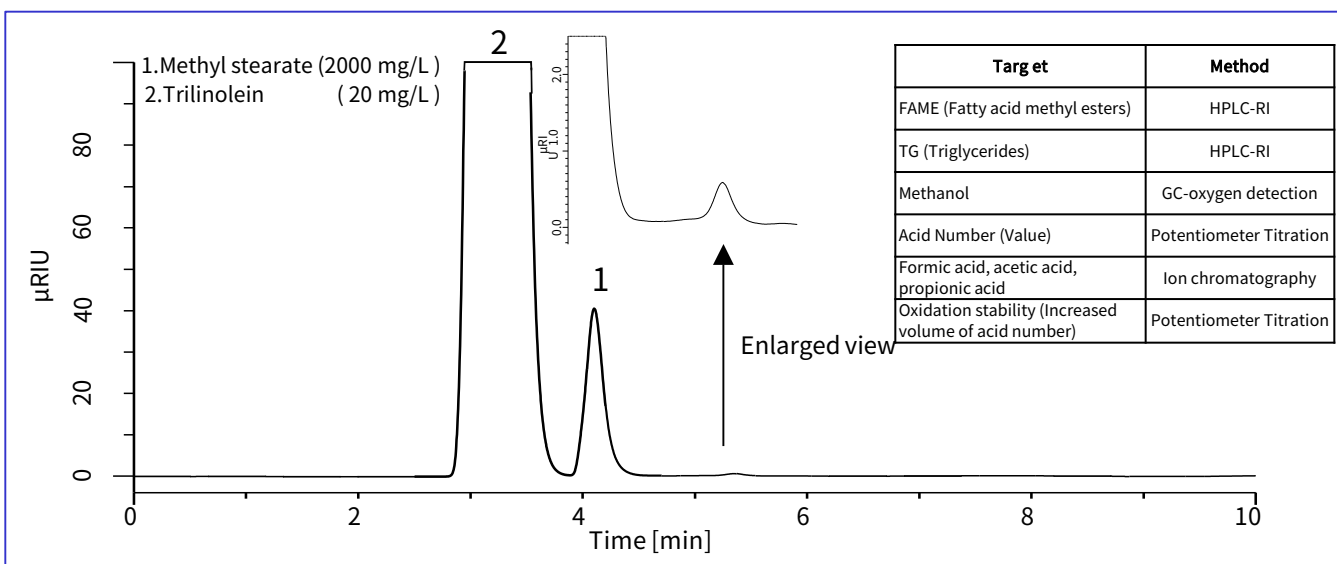


In Japan, Agency for Natural Resources and Energy is considering to amend the law “Enforcement Regulation of controlling the quality of volatile oils”, which is to strictly control the quality of biodiesel fuels (BDF).

As a result, a regulation of the compounds shown in the right table has been added. FAME (Fatty acid methyl esters) and TG (Triglycerides) in BDF are required to be analyzed using the HPLC method. Concentrations of FAME and TG are obtained from their calibration curves that have been already prepared using methyl stearate and trilinolein as their standard, respectively.

(K.Suzuki)

A Chromatogram Obtained from Standard Solution



Conditions

Column : Inertsil SIL-100A
(5 μ m, 250 x 4.6 mm I.D.)
Column Cat. No. : 5020-01712
Eluents : A) *n*-Hexane
B) 2-Propanol A/B = 996 / 4, v/v
Flow rate : 1.0 mL/min
Column Temp. : 40 °C
Detector : RI
Injection volume : 10 μ L

Column performance test

In the HPLC method, following requirements should be fulfilled.

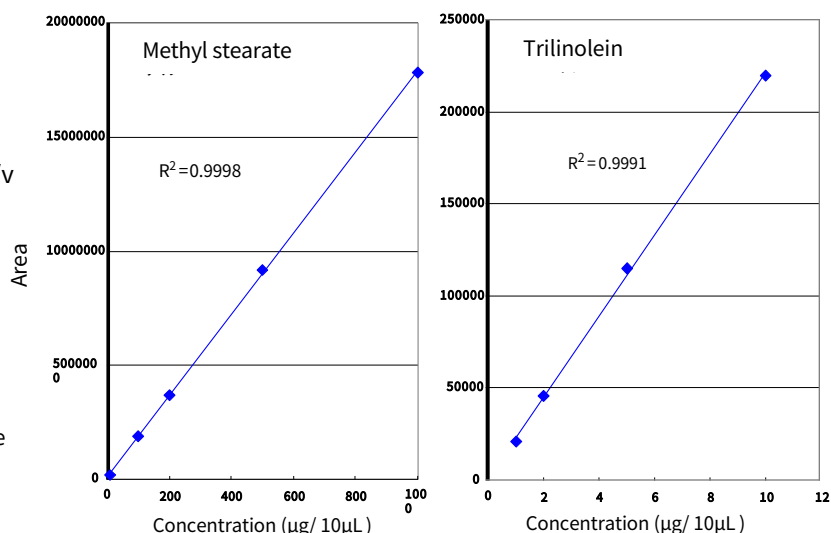
(Both values should be examined with 5 μ L injection.)

- The retention time of methyl stearate is more than 3.5 minutes.
- Resolution factor (R_s) between the methyl stearate peak and trilinolein peak is more than 3.

Results

Retention time of methyl stearate: **4.05 min**

Resolution factor: **4.7**

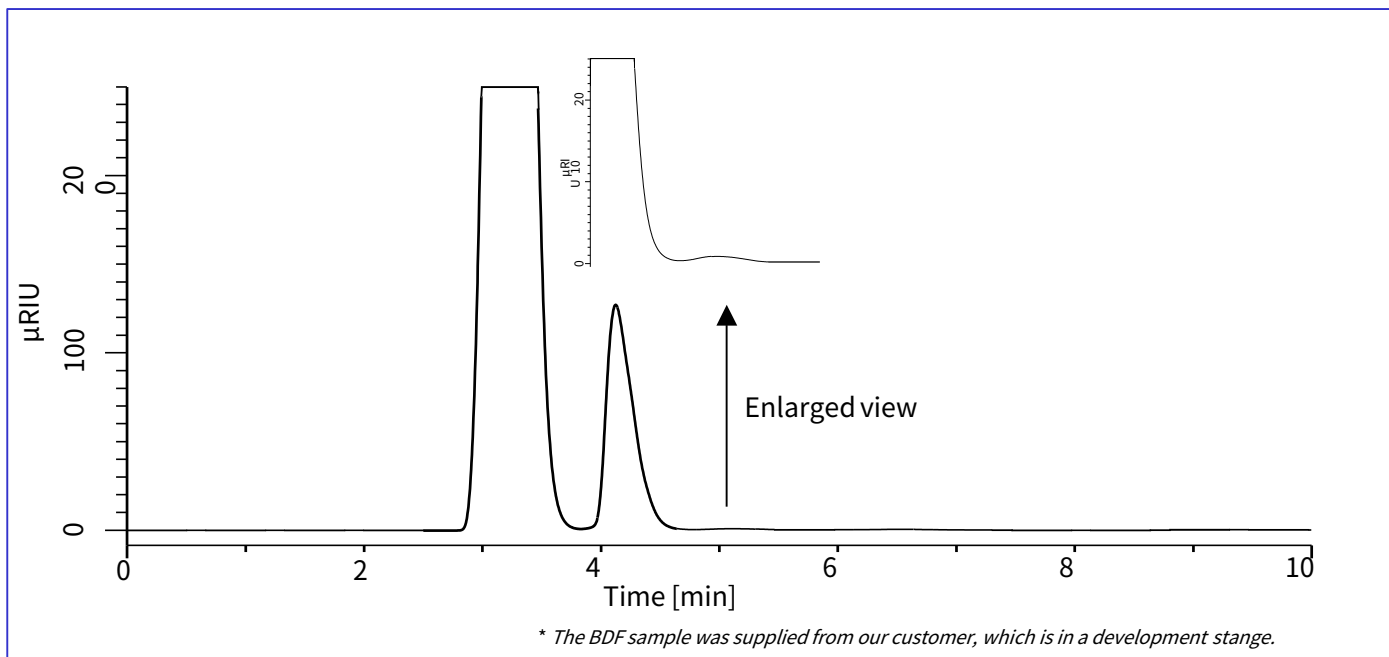


Sample No.	Concentration (μ g/10 μ L)	
	Methyl stearate	Trilinolein
1	10	-
2	100	1
3	200	2
4	500	5
5	1000	10

Calibration curves and concentrations of standard solutions

A chromatogram obtained from BDF

The sample solution was injected after filtration using a 0.45 μm membrane filter and dilution with light oil.



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