

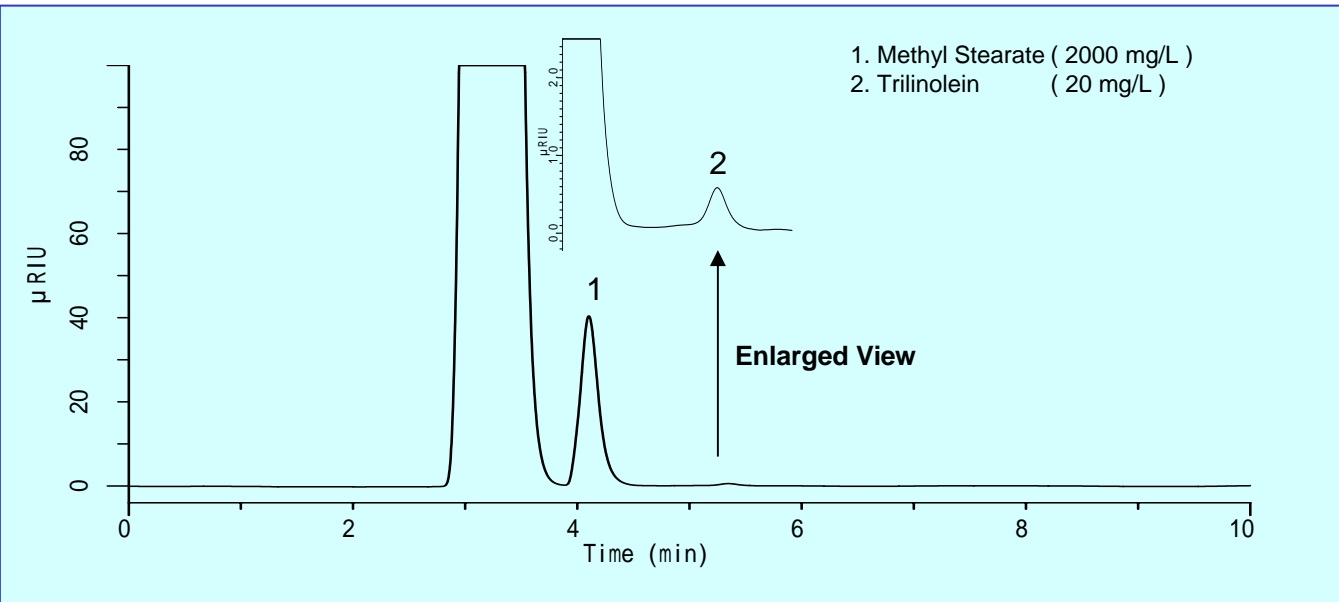
Analysis of Biodiesel Fuel by HPLC

Resources and Energy Agency are considering to amend the following regulation, which is to strictly control the quality of Biodiesel Fuels (BDF). "Enforcement Regulation of controlling the quality of volatile oils"

As a result, a regulation has been added as the chart on the right shows. In an HPLC method, FAME and Triglyceride (TG) are required to be analyzed. Currently, determining the calibration curve of Methyl Stearate (from FAME) and Trilinolein (from TG) are being considered as a method.

Target	Method
FAME	HPLC-RI
Triglyceride (TG)	HPLC-RI
Methanol	Oxygen Detection GC Method
Acid Number (Value)	Potentiometer Titration
Formic Acid, Acetic Acid, Propionic acid	Ion Chromatography
Oxidation Stability (Increased volume of acid number)	Potentiometer Titration

Analysis of Standard Solution



Analytical Conditions:

Column: *Inertsil SIL-100A (5020-01712) (5μm, 250 x 4.6 mm I.D.)*

Mobile Phase:
A) n-Hexane
B) 2-Propanol
A/B = 996 / 4, v/v

Flow Rate: 1.0 mL/min

Column Temp.: 40C

Detector: RI

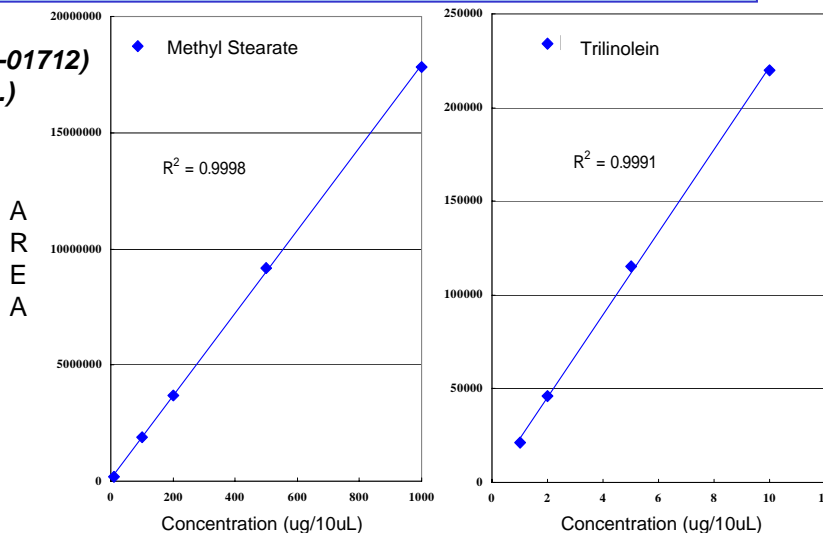
Injection Volume: 10 uL

Column Performance Test

When analyzing the standard solution using the above HPLC condition...

(However, the injection volume shall be 5uL)

- The retention time of Methyl Stearate shall be more than 3.5 minutes.
- Separation between Methyl Stearate and Trilinolein shall be more than 3.



Solution for Calibration Curve	Concentration (ug/10uL)	
	Methyl Stearate	Trilinolein
1	10	-
2	100	1
3	200	2
4	500	5
5 (Standard undiluted solution)	1000	10

Concentration of Standard Solution and Calibration Curve

Results

Retention Time of Methyl Stearate: **4.05 minutes**

Separation: **4.7**

