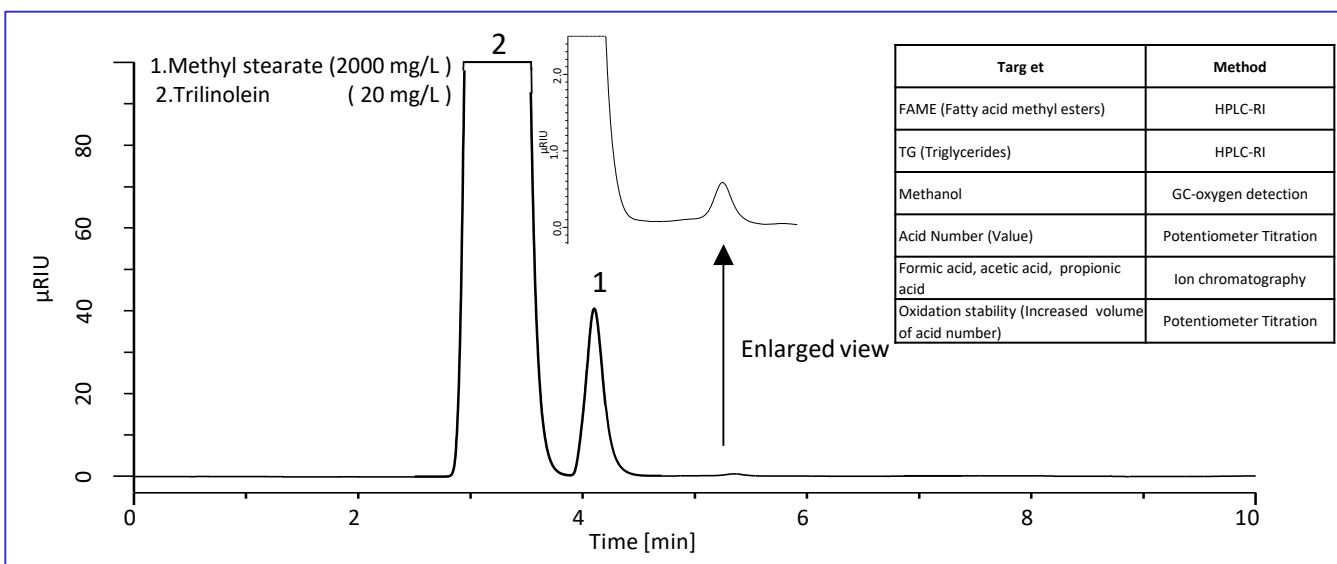


In Japan, Agency for Natural Resources and Energy is considering to amend the law “Enforcement Regulation of controlling the quality of volatile oils”, which is to strictly control the quality of biodiesel fuels (BDF).

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.

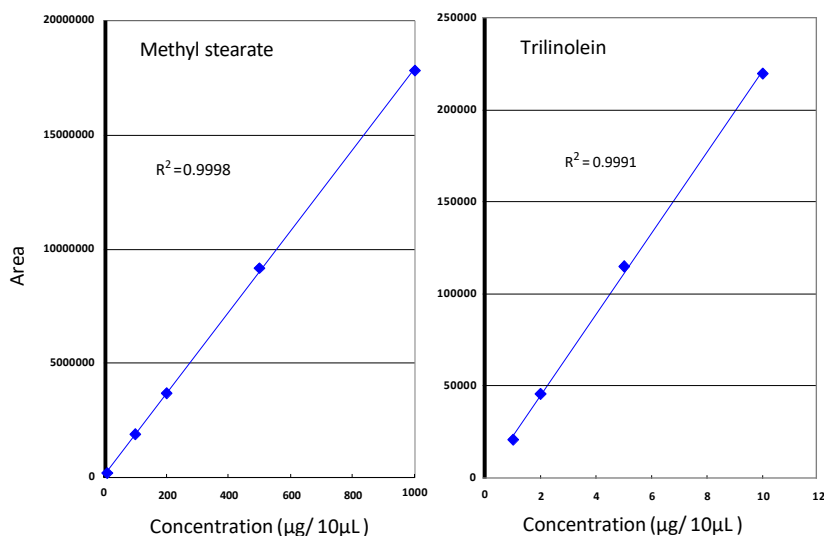
(Both values should be examined with 5 μ L injection.)

- 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**

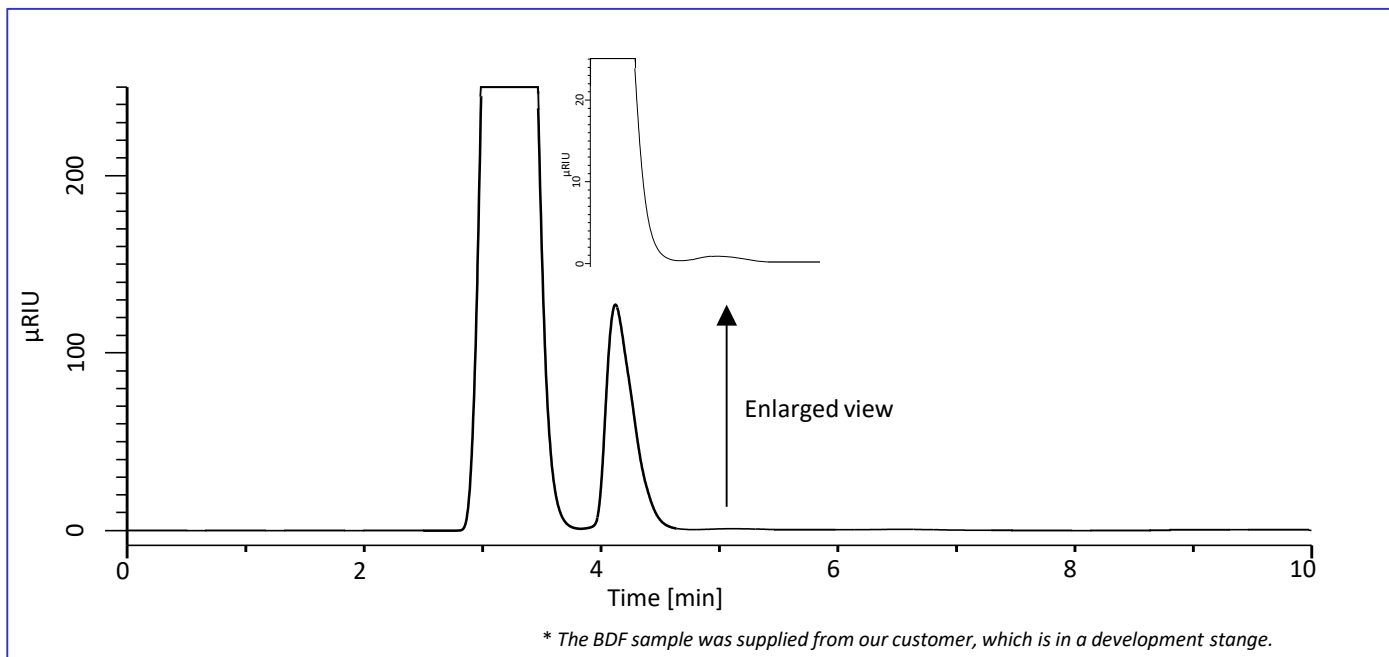


Sample No.	Concentration (μ g/10 μ L)	
	Methyl stearate	Trilinolein
1	10	-
2	100	1
3	200	2
4	500	5
5	1000	10

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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GL Sciences, Inc. Japan

22-1 Nishishinjuku 6-Chome
Shinjuku-ku, Tokyo,
163-1130, Japan
Phone: +81-3-5323-6620
Fax: +81-3-5323-6621
Email: world@glsc.co.jp
Web: www.glsciences.com

GL Sciences B.V.

De Sleutel 9
5652 AS Eindhoven
The Netherlands
Phone: +31 (0)40 254 95 31
Email: info@glsciences.eu
Web: www.glsciences.eu

GL Sciences (ShangHai) Ltd.

Tower B, Room 2003,
Far East International Plaza,
NO,317 Xianxia Road,
Changning District.
Shanghai, China P.C. 200032
Phone: +86 (0)21-6278-2272
Email: contact@glsciences.com.cn
Web: www.glsciences.com.cn

GL Sciences, Inc. USA

4733 Torrance Blvd. Suite 255
Torrance, CA 90503
Phone: 310-265-4424
Fax: 310-265-4425
Email: info@glsciencesinc.com
Web: www.glsciencesinc.com

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