

## Methyl Esterification Kit for Fatty Acids Analysis

# Fatty Acid Methylation Kit

Methyl esterification of fatty acids is commonly done prior to gas chromatography analysis to prevent peak tailing and to increase sample volatility. However, the conventional esterification procedure requires specialized equipment and high technical skill.

By using the Fatty Acid Methylation Kit that employs a new reaction technique, followed by the Fatty Acid Methyl Ester Purification Kit, fatty acid methyl esterification procedure is greatly simplified.

\*Patent applicant: Kyoto Prefectural University and GEKKEIKAN



### Features

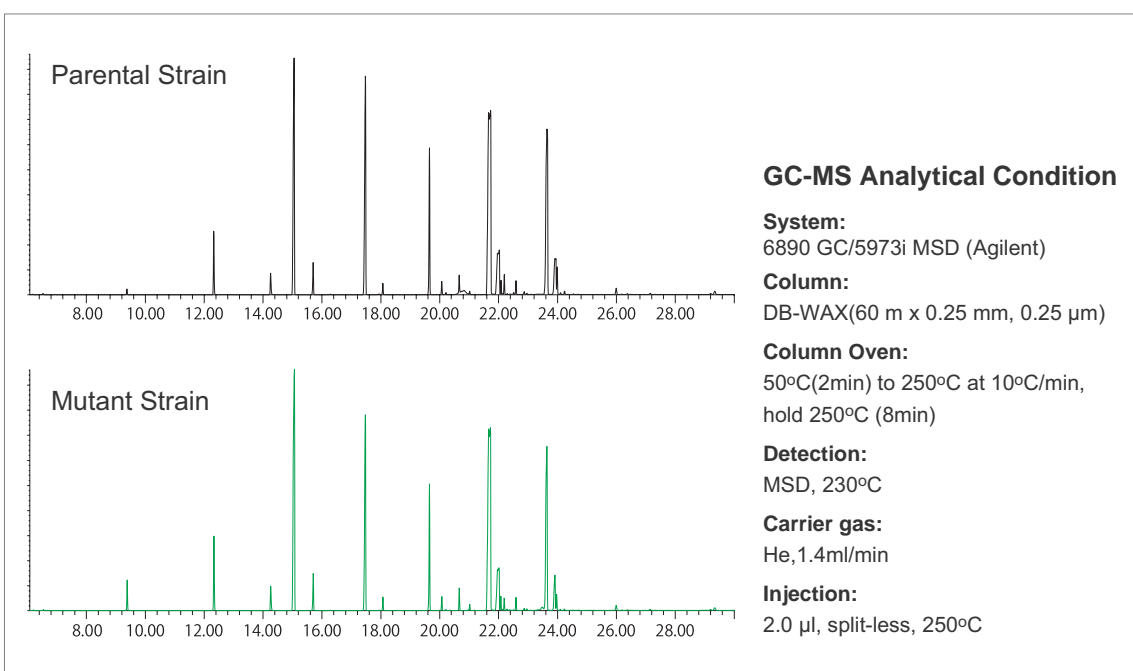
- ▶ For the analysis of volatile free fatty acids, glycerolipids and sterol esters
- ▶ Enables reaction at 37 °C
- ▶ Conducts methyl esterification safely and easily
- ▶ Detects not only long-chain, but also short-chain fatty acids

### Targeted fatty acids

- Free fatty acids
- Glycerolipids such as triglyceride, phospholipid and glycolipid
- Sterol esters

Please note this method is not applicable for sphingolipids.

### Applications

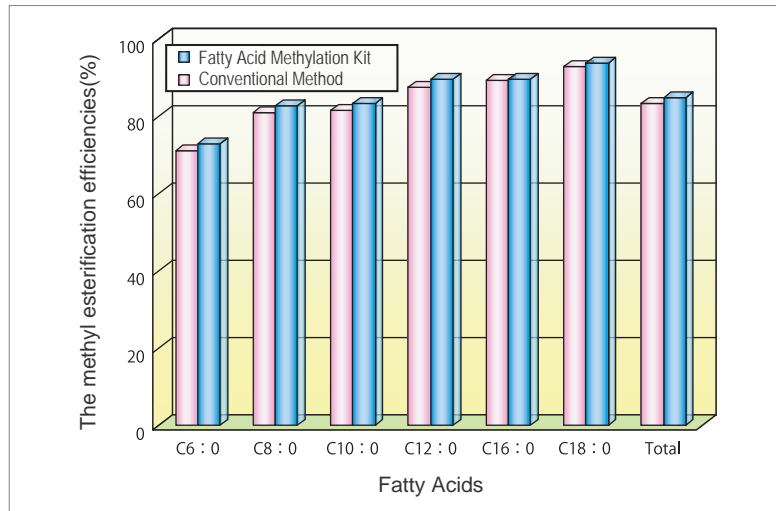


Data courtesy of GEKKEIKAN

## Comparison Data

The methyl esterification efficiencies between the Fatty Acid Methylation Kit and conventional method is about the same independent of fatty acid side-chains.

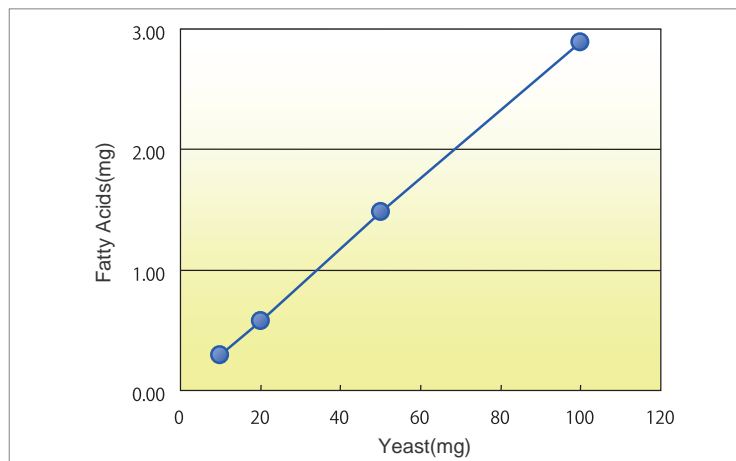
### Comparison of methylation efficiency rate



## Quantitative Analysis

To use Fatty Acid Methylation Kit and Fatty Acid Methyl Ester Purification Kit offers wide dynamic range as shown by the results from dried yeast.

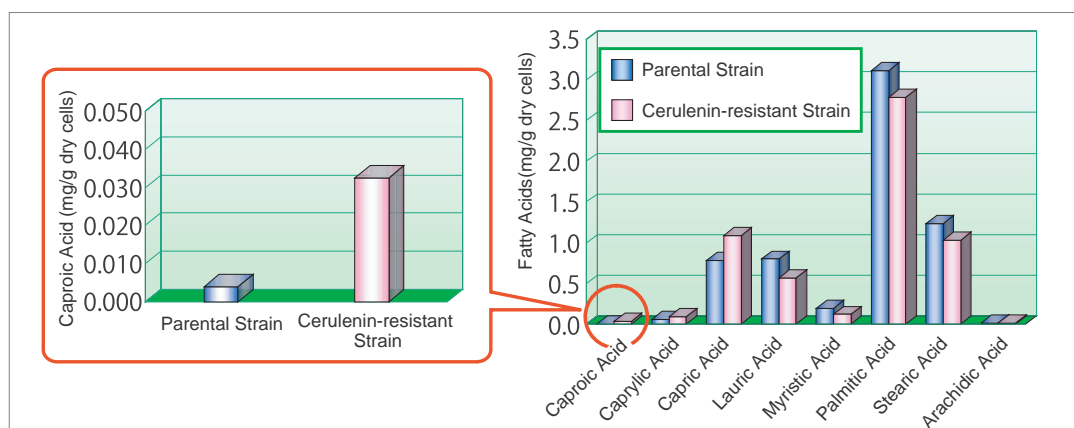
### Quantitative Analysis



## Applications

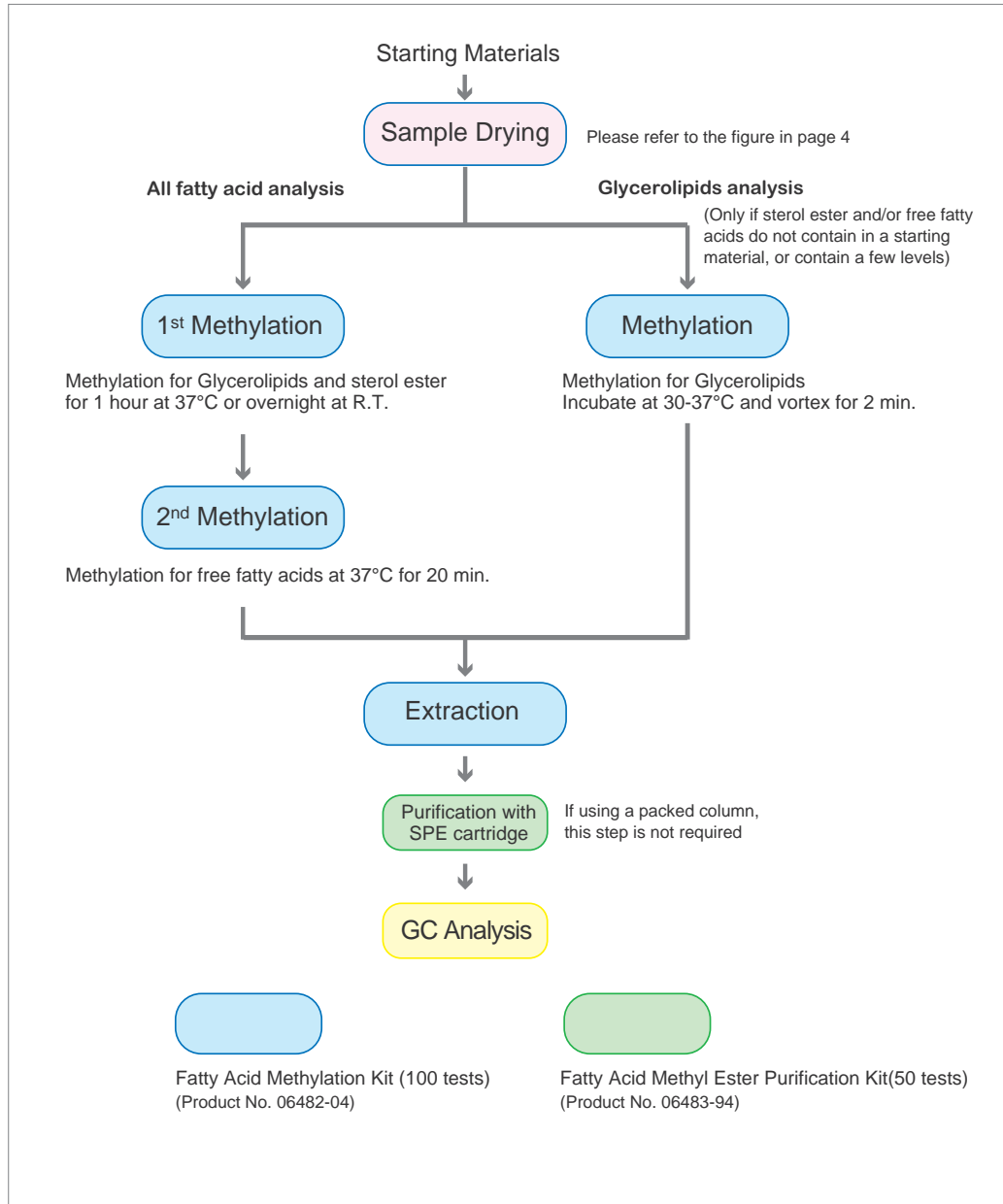
It is important to measure the exact amount of various fatty acids in different yeast strains. By using these kits, it was determined that the cerulenin-resistant strain contains more capronic acids than the parent strain.

### Fatty acid analysis of different Yeast strains



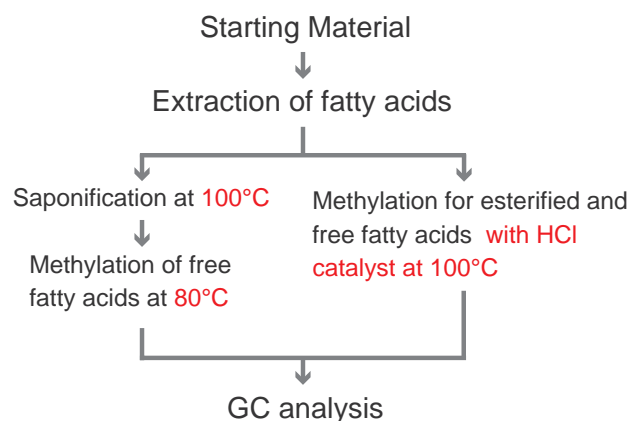
## Procedure

Easy and safe without using HCl .



## Conventional Method

Quantitative capability of the conventional method is questionable due to the high heating requirement. The high temperature causes the degradation of unstable fatty acids (polyunsaturated and cyclopropane fatty acids) and the evaporation of short-chain fatty acid alkyl esters.



## Sample preparation

Starting Material	Procedure
E. coli or Yeast	Centrifuge cell culture medium of E. Coli or Yeast in a centrifuging tube and then freeze-dry about 20 mg of the pellet. An alternate method for the E. coli sample is to dry in a vacuum desiccator for 1-2 hours.
Blood	Apply 0.04 ml of heparin-treated blood to antioxidant agent BHT-treated filter paper and dry it in a vacuum desiccator for 30 min. or let it dry naturally for more than 2 hours. To get complete methylation, spread the heparin-treated blood on filter paper thinly. [How to make antioxidant agent BHT-treated filter paper] Soak filter paper such as Whatman 3M or ADVANTECH No. 2 into Acetone containing 0.05% BHT for several minutes and then repeat this process. (Prepare an alternative new solvent for the second immersing). Let it dry naturally at room temperature, then put it in a vacuum desiccator for 30 min. or in a desiccator overnight. The paper with a square 1.5 cm on a side is suitable for methylation application. Please note that thicker filter papers, e. g., blood collecting filter papers have low methylation efficiency
Rat Liver	Lyophilization of 15 mg of rat liver. Please note that drying rat liver in a vacuum desiccator decreases methylation efficiency.
Edible Oil	Less than 4 mg of edible oil is suitable for the methylation application.
Soybean Flour	Less than 20 mg of soybean flour is suitable for the methylation application.
Fish	Put 200 mg of fish meat, e.g., Japanese horse mackerel, into a test tube, and add 2 ml of Isolation Solution ,then mesh the fish meat with a glass rod. After vortexing, take 0.5 ml of supernatant to a new test tube, and then dry it in a rotary evaporator, vacuum desiccator, or N2 gas.

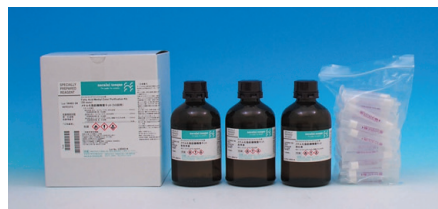
For procedure of sample preparation of Glycerolipids analysis, please refer to its instruction.

## Kit Contents

Product Name	PKG Size	QTY
Methylation Reagent A	50 ml	1
Methylation Reagent B	50 ml	1
Methylation Reagent C	50 ml	1
Isolation Reagent	250 m	1

## Related Products

### Fatty Acid Methyl Ester Purification Kit (50 tests)



Product Name	PKG Size	QTY
Conditioning Solution	200 ml	1
Washing Solution	200 ml	1
Eluting Solution	200 ml	1
SPE Cartridge Column		50 pcs

## Ordering Information

Product Name	Grade	Storage	Product No.	PKG Size
Fatty Acid Methylation Kit (100 tests)	SP	RT	06482-04	100 tests
Fatty Acid Methyl Ester Purification Kit (50 tests)	SP	RT	06483-94	50 tests

For research use only, not intended for diagnostic or drug use.

Prices may change without any notice and do not include VAT.