

# APPLICATION



## Analyzing FAME in Soybean Oil Using Zebron<sup>™</sup> ZB-FAME

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### Overview

This application note described the extraction and analysis of FAMES in soybean oil using a Zebron ZB-FAME column. Soybean oil is a common ingredient in most types of dressings and must be tested for the composition of fatty acids to ensure that it is compliant with regulatory standards. This method can be analyzed using ZB-FAME in less than 25 minutes without sacrificing cis/trans separation or peak shape.

### Sample Preparation

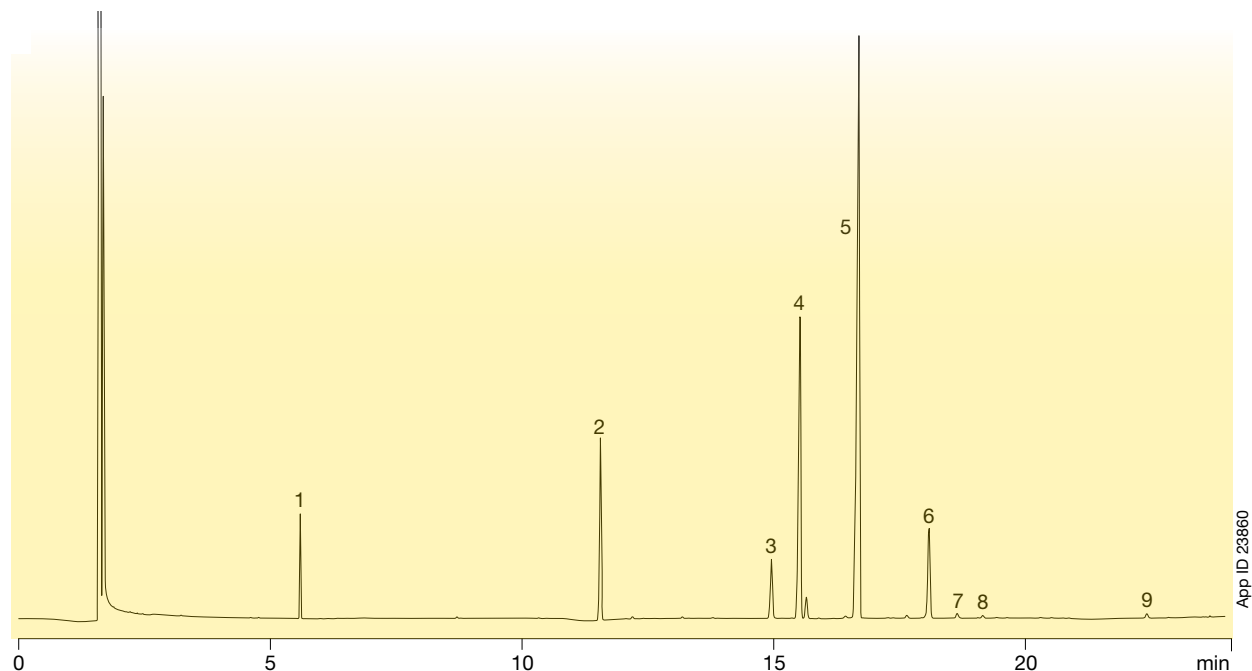
#### Extraction and Derivatization Protocol:

1. Strata<sup>®</sup>-Si-1 1 g/ 6mL Cartridge (Part No.: 8B-S012-JCH) on a vacuum or positive pressure manifold
2. Wash cartridge with 6 mL of Hexane
3. Load oil solution (0.12 g of oil in 0.5 mL of Hexane)
4. Elute with 10 mL of Hexane/Diethyl ether (87:13)
5. Evaporate eluate under nitrogen, steady stream
6. Dissolve purified oil residue in 1mL of Heptane
7. Add 0.1 mL of 2N Potassium hydroxide in Methanol to purified oil solution
8. Cap tube and shake vigorously for 15 seconds
9. Leave to separate until upper layer becomes clear
10. Extract upper layer for GC analysis.

### GC Conditions

**Column:** Zebron ZB-FAME  
**Dimensions:** 30 meter x 0.25 mm x 0.20 μm  
**Part No.:** 7FD-G033-10  
**Injection:** Split 50:1 at 240 °C, 1 μL  
**Carrier Gas:** Helium @ 1.2 mL/min (constant flow)  
**Oven Program:** 100 °C for 2 min to 140 °C @ 10 °C/min to 190 °C @ 3 °C/min to 260 °C @ 30 °C/min for 2 min  
**Detector:** FID @ 260 °C  
**Recommended Liner:** Zebron PLUS Single Taper with Wool (for Agilent<sup>®</sup> systems)  
**Liner Part No.:** AG2-0A11-05 (for Agilent<sup>®</sup> systems)  
**Sample:** Analytes diluted 5:1 in heptane

1. C11:0
2. C16:0
3. C18:0
4. C18:1 cis 9
5. C18:2 cis 9,12
6. C18:3 cis 9,12,15
7. C20:0
8. C20:1 cis 11
9. C22:0



App ID 23860




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## Ordering Information

### Zebron™ ZB-FAME GC Columns




Length (m)	ID (mm)	Film (µm)	Temp Limits (°C)	Part No.	5m Guardian™ Part No.
20	0.18	0.15	-60 to 280	7FD-G033-05	—
30	0.25	0.20	-60 to 280	7HG-G033-10	7HG-G033-10-GGA
60	0.25	0.20	-60 to 280	7KG-G033-10	—

### Zebron PLUS GC Inlet Liners

Description	Dimensions ID x L (mm)	Part No.	Unit.
<b>For Agilent® or Thermo Scientific® GC Systems</b>			
Single Taper with Wool	4 x 78.5	AG2-0A11-05	5/pk
		AG2-0A11-25	25/pk

Find more Zebron GC columns and accessories at [www.phenomenex.com/GC](http://www.phenomenex.com/GC)

### Silica (Si-1)

Format	Sorbent Mass	Part Number	Unit
<b>Tube</b>			
	100 mg	8B-S012-EAK	1 mL (100/box)
	200 mg	8B-S012-FBJ	3 mL (50/box)
	500 mg	8B-S012-HBJ**	3 mL (50/box)
	500 mg	8B-S012-HCH**	6 mL (30/box)
	1 g	8B-S012-JCH**	6 mL (30/box)
<b>Giga™ Tube</b>			
	500 mg	8B-S012-HDG	12 mL (20/box)
	1 g	8B-S012-JDG	12 mL (20/box)
	2 g	8B-S012-KDG	12 mL (20/box)
	5 g	8B-S012-LEG	20 mL (20/box)
	10 g	8B-S012-MFF	60 mL (16/box)
	20 g	8B-S012-VFF	60 mL (16/box)
	50 g	8B-S012-YSN	150 mL (8/box)
	70 g	8B-S012-ZSN	150 mL (8/box)
<b>96-Well Plate</b>			
	50 mg	8E-S012-DGB	2 Plates/Box
	100 mg	8E-S012-EGB	2 Plates/Box

\*\*Tab-less tubes available. Contact Phenomenex for details.

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