Purity of Frying Fat Assessed by Agilent PLgel and Gel Permeation Chromatograph

Application Note

Materials Testing and Research, Polymer

Author

Graham Cleaver

Agilent Technologies, Inc.

Introduction

The purity of frying fats can be assessed by gel permeation chromatography (GPC) in organic eluents. The analysis involves a separation of the oligomeric glycerides based on molecular size in solution, using Agilent PLgel 5 µm 500Å, 7.5 × 300 columns.

Frying Fat Analysis

It is possible to separate the major component (monoglyceride) from the minor components (diglyceride, triglyceride) of frying fat (Figure 1 and Table 1), and subsequently perform a quantitative analysis to obtain information relating to the purity of the monoglyceride.

Verified for Agilent
1260 Infinity
GPC/SEC System

Agilent Technologies

Conditions

Columns	2 × Agilent PLgel 5 µm 500Å, 7.5 × 300 mm (p/n PL1110-6525)
Eluent	THF (stabilized)
Flow rate	1.0 mL/min
Conc	0.5%
Inj vol	20 µL
Detector	RI
System	Agilent PL-GPC 50

Table 1. Chromatographic Characteristics of Three Frying Fat Glycerides

Peak	RT (min)	Area (%)
1	12.97	5.3
2	13.55	11.3
3	14.68	83.4

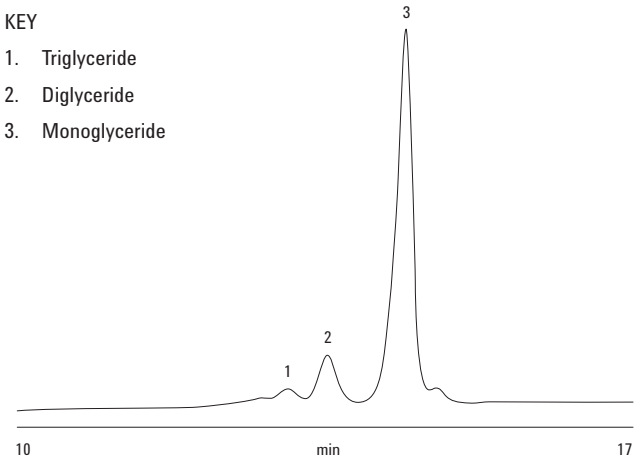

Figure 1. Three glycerides in a frying fat separated by Agilent PLgel 5 µm columns.

Conclusion

Gel permeation chromatography with Agilent PLgel columns can be used to determine the ratio of components in complex materials such as frying fats.

For More Information

These data represent typical results. For more information on our products and services, visit our Web site at www.agilent.com/chem.

www.agilent.com/chem

Agilent shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Information, descriptions, and specifications in this publication are subject to change without notice.

© Agilent Technologies, Inc., 2015
Printed in the USA
April 30, 2015
5990-8417EN

Agilent Technologies