APPLICATION NOTE

YMC EUROPE GMBH

Fatty acid isomers

Detect the small but subtle differences - without derivatisation and in less than 6 minutes!

Fatty acids have a well documented effect on health. On one hand unsaturated fatty acids are essential especially the omega-3 fatty acids which are beneficial in preventing heart diseases. The carbon-carbon double bonds of these essential fatty acids are cis type. On the other hand, fatty acids containing trans type double bonds are harmful to health. They are known to increase the risk of coronary heart diseases. During the industrial processing of foodstuffs such as margarine cis fatty acids are used.

Therefore, it is essential to monitor the types of fatty acids in food. The position as well as the nature of the double bonds needs to be determined.

Analyse fatty acid isomers with YMC-Triart C18 ExRS.

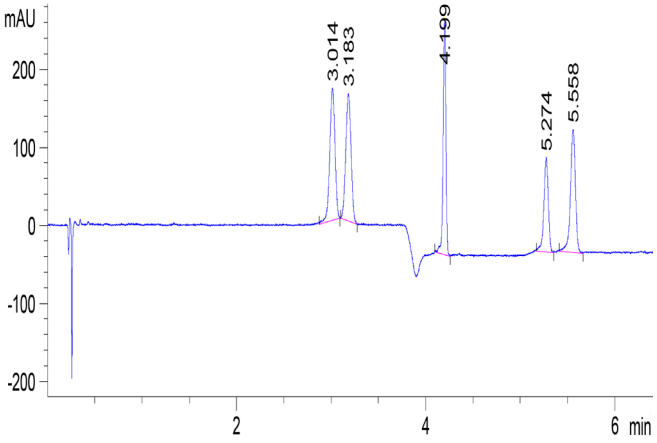
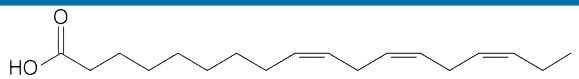
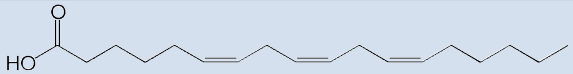
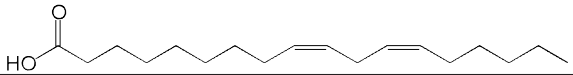
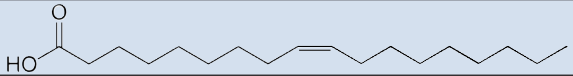
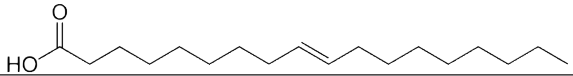


Figure 1: Separation of C18 fatty acids using YMC-Triart C18 ExRS.

Table 1: Method details

Column	YMC-Triart C18 ExRS 1.9 µm, 8 nm, 100 x 3 mm ID	
Part No.	TAR08SP9-1003PT	
Eluent	A: Water + 0.1% formic acid B: Acetonitrile + 0.1% formic acid	
Gradient	Time [min] 0 3.5 3.6 10	Eluent B [%] 77 77 90 90
Flow rate	1.4 mL/min	
Temperature	50°C	
Detection	UV at 205 nm	
Injection	3 µL injection volume, dissolved in acetonitrile	

Table 2: Chlorophenols analysed

Retention time	Analyte	Structure	Concentration
3.0 min	alpha-Linolenic acid (C18:3, 9c,12c,15c)		1 µL/mL
3.2 min	gamma-Linolenic acid (C18:3, 6c, 9c,12c, ω–6)		1 µL/mL
4.2 min	Linoleic acid (C18:2, 9c, 12c; ω–6)		1 mg/mL
5.3 min	Oleic acid (C18:1; 9c)		1 µL/mL
5.6 min	Elaidic acid (C18:1; 9t)		1 mg/mL

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