

## Antioxidants in Edible Oils by AOAC 983.15 on Acclaim® 120 C18

Background Information: Nine antioxidants for AOAC 983.15 spiked into wheat germ oil.

Column: Acclaim 120 C18, 5  $\mu$ m

Dimensions: 4.6  $\times$  150 mm

Mobile Phase: (A) 0.75% HOAc in H<sub>2</sub>O

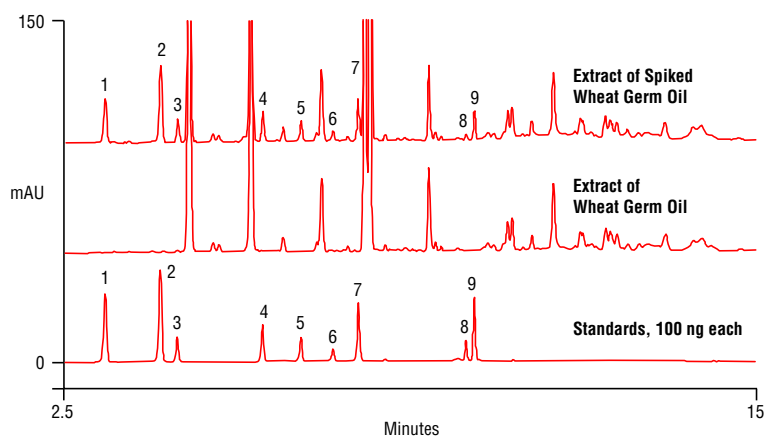
(B) 50/50/0.5 MeOH/acetonitrile/HOAc

Inj. Volume: 10  $\mu$ L

Detection: UV, 280 nm; diode array confirmation

Gradient:	Time	% A	% B	Flow
	0.0	30	70	2.0
	9.6	0	100	2.0
	11.4	0	100	2.0
	12.0	0	100	4.0
	17.0	0	100	4.0

Peaks: 1. Propyl gallate  
2. THBP  
3. TBHQ  
4. NDGA  
5. BHA  
6. Ionox-100  
7. Octyl gallate  
8. BHT  
9. Dodecyl gallate



Note: Ethoxyquin (not shown) has been resolved under the same conditions.

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A number of synthetic antioxidants are approved for the prevention of rancidity in edible oils. AOAC 983.15 is a standard assay for these compounds:

Propyl gallate

Trihydroxybutyrophenone (THBP)

t-Butylhydroquinone (TBHQ)

Nordehydroguaiaretic acid (NDGA) Butylated hydroxyanisole (BHA)

Ionox-100

Octyl gallate

Butylated hydroxytoluene (BHT)

Dodecyl gallate

Here the mobile phase has been modified slightly to make it more compatible with spectrum collection using the diode array detector. This allows the confirmation of the antioxidant peaks even in this highly complex chromatogram of wheat-germ oil.