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Polyglyceryl Dioleate

$R-O-(CH_2-CH(OR)-CH_2-O)_3-R$ R = H, or $CO-C_{17}H_{33}$
1,2,3-Propanetriol, homotrimer, di[(9Z)-9-octadecenoate];
Triglyceril dioleate;
Polyglyceryl 3 dioleate CAS RN®: 9007-48-1. $R-O-(CH_2-CH(OR)-CH_2-O)_6-R$ R = H, or $CO-C_{17}H_{33}$
1,2,3-Propanetriol, homohexamer, di[(9Z)-9-octadecenoate];
Hexaglyceril dioleate;
Polyglyceryl 6 dioleate
CAS RN®: 76009-37-5.

DEFINITION

Polyglyceryl Dioleate is a mixture of polyglyceryl diesters of mainly oleic acid, obtained by esterification of poly glycerin and oleic acid. The polyglycerin consists mainly of triglycerin or hexaglycerin.

IDENTIFICATION

Change to read:

- **A.** [▲ SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy: 197F ▲](#) (CN 1-MAY-2020)
- **B.** Meets the requirements of the test for *Content of Fatty Acids*
- **C.** Meets the requirements of the test for [Fats and Fixed Oils \(401\), Hydroxyl Value](#). [NOTE—This test will differentiate for Polyglyceryl 3 Dioleate and Polyglyceryl 6 Dioleate.]

ASSAY

- **CONTENT OF FATTY ACIDS**
0.5 N methanolic sodium hydroxide solution: Dissolve 20 g of sodium hydroxide in 50 mL of water, and mix. Cool to room temperature, and add 950 mL of methanol.
Boron trifluoride methanol solution: Dissolve 14 g of boron trifluoride in methanol to make 100 mL, and mix well.¹
Saturated sodium chloride solution: Dissolve about 375 g of sodium chloride in water to make 1000 mL.
Standard solution: Prepare the calibration ester mixture by mixing up each individual ester component (see [Table 1](#) for the component's composition). Dissolve 500 mg of the calibration ester mixture in *n*-heptane, and dilute with *n*-heptane to 50 mL. [NOTE—Commercially available mixtures of fatty acid methyl esters may also be used.]

Table 1

Component in the Calibration Ester Mixture	Composition (%)
USP Methyl Myristate RS (C14:0)	5
USP Methyl Palmitate RS (C16:0)	15
USP Methyl Palmitoleate RS (C16:1)	10
USP Methyl Stearate RS (C18:0)	10
USP Methyl Oleate RS (C18:1)	20

Component in the Calibration Ester Mixture	Composition (%)
USP Methyl Linoleate RS (C18:2)	15
USP Methyl Linolenate RS (C18:3)	10
Methyl arachidate (C20:0)	10
Methyl gadoleate (C20:1)	5

Sample solution: Introduce 100 mg of Polyglyceryl Dioleate into a 25-mL conical flask fitted with a suitable water-cooled reflux condenser and a magnetic stir bar. Add 2 mL of 0.5 N methanolic sodium hydroxide solution, mix, and reflux for about 30 min. Add 2 mL of Boron trifluoride methanol solution through the condenser and reflux for about 30 min. Add 4 mL of *n*-heptane through the condenser, and reflux for 5 min. Cool, remove the condenser, add about 10 mL of Saturated sodium chloride solution, shake, add a quantity of Saturated sodium chloride solution to bring the upper layer up to the neck of the flask, and allow the layers to separate. Collect 2 mL of the *n*-heptane layer (upper layer), wash with three quantities, each at 2 mL of water, and dry the *n*-heptane phase over anhydrous sodium sulfate.

Chromatographic system

(See [Chromatography \(621\), System Suitability](#).)

Mode: GC

Detector: Flame ionization

Column: 0.32-mm × 30-m fused-silica capillary; 0.25-μm layer of phase G16

Temperature

Detector: 250°

Injection port: 240°

Column: See temperature program table below.

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
150	6	250	6

Carrier gas: Nitrogen

Flow rate: 1.0–1.2 mL/min

Injection size: 1 μL

Injection type: Split injection. The split ratio is about 1:80.

System suitability

Sample: Standard solution

[NOTE—See the relative retention time table below.]

Component	Relative Retention Time
Methyl myristate	0.74
Methyl palmitate	1.00
Methyl palmitoleate	1.03
Methyl stearate	1.29
Methyl oleate	1.33
Methyl linoleate	1.37 ^a



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