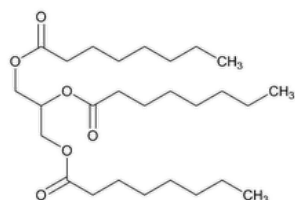


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Add the following:

^Glyceryl Tricaprylate



$C_{27}H_{50}O_6$ 470.68

Octanoic acid, 1,1',1''-(1,2,3-propanetriyl) ester;
 Octanoic acid, 1,2,3-propanetriyl ester;
 1,3-Di(octanoyloxy)propan-2-yl octanoate;
 Glyceryl trioctanoate;
 Tricapryloylglycerol CAS RN®: 538-23-8.

DEFINITION

Glyceryl Tricaprylate contains NLT 90.0% of triglycerides of saturated fatty acids, chiefly glyceryl tricaprylate ($C_{27}H_{50}O_6$).

IDENTIFICATION

• A. FATTY ACID COMPOSITION

Boron trifluoride methanol solution: 140 mg/mL of [boron trifluoride](#) in [methanol](#)

Saturated sodium chloride solution: Mix 1 part of [sodium chloride](#) with 2 parts of water, shake intermittently, and allow to stand. Before use, decant the solution from any undissolved substance and filter, if necessary.

Standard solution 1: 1.0 mg/mL of [USP Methyl Caproate RS](#), 1.0 mg/mL of [USP Methyl Caprylate RS](#), and 2.0 mg/mL of [USP Methyl Caprate RS](#) in [n-heptane](#)

Standard solution 2: 0.1 mg/mL of [USP Methyl Caproate RS](#), 0.1 mg/mL of [USP Methyl Caprylate RS](#), and 0.2 mg/mL of [USP Methyl Caprate RS](#) in [n-heptane](#), diluted from *Standard solution 1*

Standard solution 3: Prepare an ester mixture by mixing a commercially available ester mixture with methyl caprylate and methyl caprate, or prepare an ester mixture by using [USP Methyl Caproate RS](#), [USP Methyl Caprylate RS](#), [USP Methyl Caprate RS](#), and [USP Methyl Laurate RS](#). Dissolve a quantity of the prepared ester mixture containing methyl caproate, methyl caprylate, methyl caprate, and methyl laurate in [n-heptane](#) to make a solution of about 9.0 mg/mL for methyl caprylate, 0.5 mg/mL for methyl caprate, and 0.1 mg/mL for each of methyl caproate and methyl laurate.

Sample solution: Transfer 100 mg of Glyceryl Tricaprylate to a 25-mL conical flask fitted with a suitable water-cooled reflux condenser and a magnetic stir bar. Add 2 mL of a 20-mg/mL solution of [sodium hydroxide](#) in [methanol](#), 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 of water, 2 mL each; and dry the *n-heptane* phase over [anhydrous sodium sulfate](#).

Chromatographic system

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

Mode: GC

Detector: Flame ionization

Column: 0.53-mm × 30-m capillary bonded with a 1.0-μm layer of phase [G16](#)

Temperatures

Injection port: 250°

Detector: 250°**Column:** See [Table 1](#).**Table 1**

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
50	20	180	—
180	9	240	12

Carrier gas: Helium**Flow rate:** 10 mL/min**Injection volume:** 2 µL**Injection type:** Split ratio, 4:1**System suitability****Samples:** *Standard solution 1* and *Standard solution 2*

[NOTE—The relative retention times for methyl caproate, methyl caprylate, and methyl caprate are about 0.7, 1.0, and 1.4, respectively.]

Suitability requirements**Resolution:** NLT 4.0 between the methyl caprylate and methyl caprate peaks, *Standard solution 1***Signal-to-noise ratio:** NLT 10 for the methyl caproate peak, *Standard solution 2***Analysis****Samples:** *Standard solution 3* and *Sample solution*Measure the peak areas of the methyl esters of the fatty acids. Disregard any peaks with an area less than 0.05% of the total area and any peak due to the solvent. [NOTE—Relative retention times for several methyl esters are summarized in [Table 2](#).]**Table 2**

Carbon-Chain Length	Number of Double Bonds	Relative Retention Times
6	0	0.7
8	0	1.0
10	0	1.4
12	0	1.7

Take the main component in *Standard solution 3* as a reference component, and calculate the calibration factor (F_{FA}) for each fatty acid methyl ester:

$$F_{FA} = [(F_{MC} \times P_{FA1} \times A_{MC}) / (P_{MC} \times A_{FA1})]$$

 F_{MC} = factor for the main component, 1 P_{FA1} = percentage by weight of the fatty acid methyl ester in *Standard solution 3* A_{MC} = peak area for the main component in *Standard solution 3* P_{MC} = percentage by weight of the main component in *Standard solution 3* A_{FA1} = peak area for the fatty acid methyl ester in *Standard solution 3*

Calculate the percentage of each fatty acid methyl ester by weight in the portion of Glyceryl Tricaprylate taken:

$$\text{Result} = [(A_{FA2} \times F_{FA}) / A_T] \times 100$$

 A_{FA2} = peak area for the fatty acid methyl ester in the *Sample solution*