

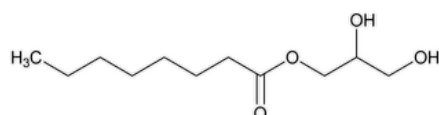
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Glyceryl Monocaprylate

Add the following:

▲ Any article currently titled Glyceryl Monocaprylate Type I will be officially titled Glyceryl Mono and Dicaprylate after May 1, 2025. Any article currently titled Glyceryl Monocaprylate Type II will be officially titled Glyceryl Monocaprylate after May 1, 2025. ▲ (NF 1-May-2020)



C₁₁H₂₂O₄

218.29

Octanoic acid, monoester with 1,2,3-propanetriol;

Caprylic acid monoglyceride;

Glyceryl mono-octanoate;

Monocapryl glyceride CAS RN®: 26402-26-6.

DEFINITION

Change to read:

Glyceryl Monocaprylate is a mixture of glyceryl monoesters, mainly mono-*O*-octanoylglycerol, containing variable quantities of diesters and triesters of fatty acids composed predominately of caprylic acid. ▲ The requirements for monoester, diester, and triester content are: Monoesters: NLT 75.1%; Diesters: NMT 24.9%; and Triesters: NMT 5.0%. ▲ (NF 1-May-2020)

IDENTIFICATION

• A. FATTY ACID COMPOSITION

Boron trifluoride methanol solution: 140 mg/mL of boron trifluoride in methanol

Saturated sodium chloride solution: Mix 1 part sodium chloride with 2 parts water, shake from time to time, 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 either by mixing a commercially available ester mixture with methyl caprylate and methyl caprate or by using [USP Methyl Caproate RS](#), [USP Methyl Caprylate RS](#), [USP Methyl Caprate RS](#), [USP Methyl Laurate RS](#), and [USP Methyl Myristate RS](#). Dissolve a quantity of the prepared ester mixture containing methyl caproate, methyl caprylate, methyl caprate, methyl laurate, and methyl myristate in *n*-heptane to make a solution of about 9.0 mg/mL for methyl caprylate, 1.0 mg/mL for methyl caprate, and 0.05–0.1 mg/mL for each of the other methyl esters.

Sample solution: Transfer 100 mg of Glyceryl Monocaprylate 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 each of 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: 0.53-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 injection; 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 1.3, 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 for 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—The relative retention times for several methyl esters are summarized in [Table 2](#).]**Table 2**

Carbon-Chain Length	Number of Double Bonds	Relative Retention Time
6	0	0.7
8	0	1.0
10	0	1.3
12	0	1.6
14	0	1.9

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 of the main component from *Standard solution 3* P_{MC} = percentage by weight of the main component in *Standard solution 3*