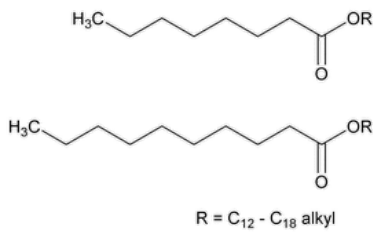


Status: Currently Official on 14-Feb-2025
Official Date: Official as of 01-May-2024
Document Type: NF Monographs
DocId: GUID-D2D584E5-9AB4-4BFF-8AD3-D151E891E9D0_3_en-US
DOI: https://doi.org/10.31003/USPNF_M13737_03_01
DOI Ref: v81vx

© 2025 USPC
Do not distribute

Add the following:

▲Cocoyl Caprylocaprate



CAS RN®: 95912-86-0.

DEFINITION

Cocoyl Caprylocaprate is a mixture of esters of saturated C₁₂–C₁₈ alcohols with caprylic (octanoic) and capric (decanoic) acids obtained by the reaction of these acids with vegetable saturated fatty alcohols.

IDENTIFICATION

- **A.** [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy](#): 197A
- **B.** It meets the requirements of the test for *Fatty Acid and Fatty Alcohol Composition*.

IMPURITIES

- **TOTAL ASH**
Sample: 1.0 g
Analysis: Heat a silica or platinum crucible to redness for 30 min, allow to cool in a desiccator, and weigh. Transfer the *Sample* to the crucible. Dry at 100°–105° for 1 h and ignite to constant weight in a muffle furnace at 600 ± 25°, allowing the crucible to cool in a desiccator after each ignition. Flames should not be produced at any time during the procedure. If after prolonged ignition, the ash still contains black particles, take up with hot water, pass through an ashless filter paper, and ignite the residue and filter paper. Combine the filtrate with the ash, carefully evaporate to dryness, and ignite to constant weight.
Acceptance criteria: NMT 0.1%

SPECIFIC TESTS

- **FATTY ACID AND FATTY ALCOHOL COMPOSITION**
Diluent: [n-Heptane](#)
0.5 N Methanolic sodium hydroxide solution: 20 mg/mL of [sodium hydroxide](#) in [methanol](#)
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 from time to time, and allow to stand. Before use, decant the solution from any undissolved substance and filter, if necessary.
Standard solution A: Prepare a mixture in *Diluent* by dissolving the components listed in [Table 1](#). [NOTE—Consider using a commercially available ester mixture.]

Table 1

Component	Concentration (mg/mL)
Methyl caproate	

Standard solution B: Dilute 1 mL of <i>Standard solution A</i> with <i>Diluent</i> to 10 mL.	9
Sample solution: Transfer 100 mg of Cocoyl Caprylocaprate to a 25-mL conical flask fitted with a suitable water-cooled reflux condenser and a magnetic stir bar or add a few boiling beads. 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 Diluent 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 <i>n</i> -heptane layer (upper layer), wash with 3 quantities each of 2 mL of water, and dry the <i>n</i> -heptane phase over anhydrous sodium sulfate.	1
Chromatographic system	
(See Chromatography (621), System Suitability.)	1
Mode: GC	
Detector: Flame ionization	1
Column: 0.32-mm × 30-m capillary; bonded with a 0.5-µm layer of phase G16	
Temperatures	10
Injection port: 250°	
Detector: 250°	4
Column: See Table 2, USP Cetyl Alcohol RS	3
USP Stearyl Alcohol RS	Table 2
	2

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
70	40	170	—
170	3	230	2.5

Carrier gas: Helium
Flow rate: 1.3 mL/min
Injection volume: 1.0 µL
Injection type: Split, split ratio 1:50

System suitability
Samples: *Standard solution A* and *Standard solution B*
Suitability requirements
Resolution: NLT 5.0 between the capric alcohol and methyl laurate peaks, *Standard solution A*
Signal-to-noise ratio: NLT 100 for the methyl myristate peak, *Standard solution B*

Analysis
Samples: *Standard solution A* and *Sample solution*
Measure the peak areas for fatty alcohols and fatty acid methyl esters. 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 and fatty alcohols are summarized in [Table 3.](#)]

Table 3

Fatty Acid Fraction		Fatty Alcohol Fraction	
Component	Relative Retention Time	Component	Relative Retention Time
Methyl Caproate	0.8	Capric Alcohol	1.6
Methyl Caprylate	1.0	Lauryl Alcohol	2.3
Methyl Caprate	1.3	Myristyl Alcohol	3.1
Methyl Laurate	1.7	Cetyl Alcohol	4.3