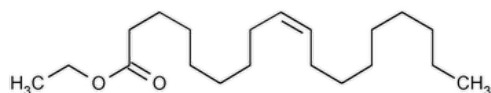


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Ethyl Oleate



$C_{20}H_{38}O_2$ 310.51
 9-Octadecenoic acid, (Z)-, ethyl ester;
 Ethyl (Z)-9-octadecenoate;
 Ethyl *cis*-9-octadecenoate CAS RN®: 111-62-6.

DEFINITION

Ethyl Oleate consists of esters of ethyl alcohol and high molecular weight fatty acids, principally oleic acid. It contains NLT 65.0% of ethyl (Z)-9-octadecenoate ($C_{20}H_{38}O_2$). It may contain suitable stabilizers.

IDENTIFICATION

• A. PRESENCE OF ESTER

Analysis 1: Proceed as directed in [Fats and Fixed Oils, Saponification Value \(401\)](#).

Acceptance criteria: 177–188

Analysis 2: Proceed as directed in [Fats and Fixed Oils, Acid Value \(401\)](#).

Acceptance criteria: NMT 0.5

• B. CHROMATOGRAPHIC IDENTITY

Analysis: Proceed as directed in the Assay.

Acceptance criteria: The retention time of the major peak of the *Sample solution* corresponds to the ethyl oleate peak of the *System suitability solution*.

ASSAY

• PROCEDURE

System suitability solution: 5 mg/mL of [USP Ethyl Oleate RS](#), 1.2 mg/mL of [USP Ethyl Palmitate RS](#), 1.2 mg/mL of [USP Ethyl Linoleate RS](#), and 0.5 mg/mL of [USP Ethyl Stearate RS](#) in *n*-hexane

Sample solution: 5 mg/mL of Ethyl Oleate in *n*-hexane

Chromatographic system

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

Mode: GC

Detector: Flame ionization

Column: 0.25-mm × 25-m capillary; bonded with a 0.2-μm layer of phase G16

Temperatures

Detector: 270°

Injection port: 250°

Column: See temperature program shown in [Table 1](#).

Table 1

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
178	—	178	2
178	3.3	240	2.5

Carrier gas: Hydrogen

Flow rate: 0.7 mL/min

Injection volume: 1.0 µL

Injection type: Split injection; split ratio is 200:1

Run time: 23–24 min

System suitability

Sample: System suitability solution

[NOTE—See [Table 2](#) for the relative retention times.]

Table 2

Component	Relative Retention Time
Ethyl palmitate	0.65
Ethyl stearate	0.96
Ethyl oleate	1.00
Ethyl linoleate	1.08

Suitability requirements

Resolution: NLT 2.0 between the ethyl stearate and ethyl oleate peaks

Analysis

Samples: System suitability solution and Sample solution

Identify each ethyl ester (ethyl palmitate, ethyl stearate, ethyl oleate, or ethyl linoleate) peak in the *Sample solution* based on that in the *System suitability solution*.

Calculate the percentage of each ethyl ester (ethyl palmitate, ethyl stearate, ethyl oleate, or ethyl linoleate) in the portion of Ethyl Oleate taken:

$$\text{Result} = (r_U/r_T) \times 100$$

r_U = peak response of each ethyl ester (ethyl palmitate, ethyl stearate, ethyl oleate, or ethyl linoleate) from the *Sample solution*

r_T = sum of all the peak responses excluding peak responses due to solvent from the *Sample solution*

Acceptance criteria: Disregard peaks that are less than 0.05% for any unspecified impurities, and any peaks due to solvent.

Ethyl Oleate exhibits the composition profiles shown in [Table 3](#) below.

Table 3

Component	Percentage (%)
Ethyl palmitate	≤16.0
Ethyl stearate	≤6.0
Ethyl oleate	≥63.0

