

## Certificate of Analysis

<b>Product</b>	CASTOR OIL, USP
<b>LOT #</b>	PH/38/E/20
<b>Shelf Life</b>	2 years

Properties	Specifications	Results
Distinction from most other fixed oils	It is only slightly soluble in solvent hexane, Yields a clear liquid with an equal volume of alcohol.	Pass
Identification, UV absorption	0.7 – 1.5	1.14
Fats and fixed oils (AV)	NMT 2.0	0.68
Hydroxyl Value	160 – 168	161.42
Peroxide value	NMT 10.0	2.15
Unsaponifiable matter	NMT 0.8	0.39
Water	NMT 0.3	0.21
Specific Gravity @25°C	0.957 – 0.961	0.958
<b>Triglyceride Composition</b>		
RRR	≥ 90	Conforms
RRL	2.0 - 4.0	Conforms
RRO	2.5 - 5.0	Conforms
RRS	0.2 - 0.8	Conforms
<b>Fatty Acid Composition</b>		
Palmitic Acid (C16:0)	< 2.0	1.28
Stearic Acid (C18:0)	< 2.5	1.34
Oleic Acid (C18:1)	2.5 - 6.0	4.43
Linoleic Acid (C18:2)	2.5 – 7.0	4.64
Linolenic Acid (C18:3)	< 1.0	0.48
Cis-11-Eicosenoic Acid (C20:1)	< 1.0	0.16
Ricinoleic Acid	85 – 92	87.14
Cis-11-Octadecenoic acid or other unidentified fatty acid	< 1.0	0.53

This Certificate of Analysis was created by the manufacturer/distiller of the product. This information is believed to be up-to-date and correct; however, it is provided without any warranty. The customer is responsible for examining the product upon arrival and determining the safe use of the product in order to be in compliance with all applicable laws and regulations. The product must be stored in a cool, dry place away from direct light and heat, tightly sealed and away from children, the mentally infirm and pets. Essential oils shipped in amber plastic pharmaceutical grade bottles must be transferred to amber glass upon arrival, those shipped in aluminum bottles may be stored in such bottles for a minimum of 6 months, tightly sealed. All responsibility (including damage or injury) for the use of this and any other product purchased from Camden-Grey Essential Oils, Inc. rests with the purchaser/user. Camden-Grey's liability is limited to the paid value of this product.

## Certificate of Analysis

<b>Product</b>	CASTOR OIL, USP
<b>LOT #</b>	PH/13/C/20
<b>Shelf Life</b>	2 years

Properties	Specifications	Results
Acid value	≤ 2.0	0.86
Unsaponifiable matter	≤ 0.8	0.36
Peroxide value	≤ 10	1.71
Water By KF	≤ 3	0.14
Ultraviolet Absorbance (Specific Absorption)	0.7 – 1.5	268 nm=1.325 269 nm =1.336 270nm =1.313
<b>Fatty Acid Composition</b>		
Palmitic Acid (C16:0)	≤ 2	1.05
Stearic Acid (C18:0)	≤ 2.5	1.26
Oleic Acid (C18:1)	2.5 – 6.0	3.42
Linoleic Acid (C18:2)	2.5 – 7.0	4.38
Linolenic Acid (C18:3)	≤10	0.54
Cis-11-Eicosenoic Acid (C20:1)	≤1.0	0.26
Ricinoleic Acid	85 – 92	88.46
Others	≤1.0	0.63

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## Certificate of Analysis

<b>Product</b>	CASTOR OIL, USP
<b>Lot #</b>	1121109
<b>Shelf Life</b>	2 years

Properties	Specifications	Results
Flavor/Aroma	Typical	Complies
Acid Value MG KOH/G	0 – 2	0.88
Unsaponifiable matter	0.0 – 0.80	0
Peroxide Value (MEQ/KG)	0 - 10	2.40
Palmitic Acid C 16:0	0.0 – 2.0	1.22
Stearic Acid C18:0	0.0 – 2.5	1.48
Oleic Acid C18:1	2.5 – 6.0	4.65
Linoleic Acid C18:2	2.5 – 7.0	5.32
Linolenic Acid C18:3	0.0 – 1.0	0.57
Eicosenoic Acid C20:1	0 - 1	0.30
Ricinoleic Acid	85 - 92	87.18
Moisture Content	0 – 0.3	0.110
Uv Absorption	0.7 – 1.5	1.126

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