

## Certificate of Analysis

<b>Product</b>	POLYSORBATE 80
<b>Lot #</b>	478397
<b>Manufacturing Date</b>	02/2022
<b>Retest Date</b>	02/2024

Properties	Specifications	Results
Appearance	Clear Yellow Liquid	Pass
Acid value	0.0 – 2.0	0.6
1,4 Dioxane	<1 ppm	< 1 ppm
Color (Gardner)	0.0 – 5.0	5.0
Water %	0.0 - 3.0	2.63%
Heavy Metals, ppm	<10.0 ppm	<10.0 ppm
Hydroxyl Value	65.0 – 80.0	71.4
POE % Anhydrous Basic	65.0 - 69.5	68.3
Saponification Value	45.0 – 55.0	48.1

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.

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<b>Product</b>	POLYSORBATE 80
<b>Lot #</b>	528
<b>Manufacturing Date</b>	01/2022
<b>Expiration Date</b>	12/2023

Properties	Specifications	Results
Appearance	Yellow to amber oily liquid	Conform
Color (Gardner)	6 G max	3 – 4 G
Acid value	2 Max	0.1
Saponification Value	45 – 55	48
Hydroxyl Value	65 – 80	71
pH ( 5%)	6.0 – 8.0	7.1
Moisture Content (%)	3 max	2.78

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<b>Product</b>	POLYSORBATE 80
<b>Lot #</b>	J30426G28068
<b>Shelf Life</b>	2 years

Properties	Specifications	Results
General Appearance (@25 °C)	Yellow Liquid	Pass
Specific Gravity (@25 °C)	1.06 – 1.09	1.06
Color Gardner Method	5.0 Max	4.0
Acid value	2.0 Max	1.22
pH (5% aqueous solution)	6.0 – 7.0	6.44
Hydroxyl Value	65.0 – 80.0	78.0
Saponification Value	45.0 – 55.0	50.0
Identification Test A,B&C (NF method)	Meets NF Requirements	Pass
Viscosity @ 25 Degrees C (Cannon-Fenske)	300.0 – 500.0	424.0
Residue on Ignition %	0.25 Max	<0.25
1,4 Dioxane, ppm	10.0 Max	0.7
Heavy Metals, ppm	10.0 Max	<10.0
Arsenic, ppm	1.0 Max	<1.0
Myristic %	5.0 Max	Conforms
Palmitic %	16.0 Max	Conforms
Palmitoleic %	8.0 Max	Conforms
Stearic %	6.0 Max	Conforms
Oleic %	58.0 – 95.0	Conforms
Linoleic %	18.0 Max	Conforms
Linolenic %	4.0 Max	Conforms
Peroxide Value	10.0 Max	0.0
Free Ethylene Oxide, ppm	1.0 Max	0.0
Water Content % KF	3.0 Max	1.82

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<b>Product</b>	POLYSORBATE 80
<b>Lot #</b>	J9823L08121
<b>Shelf Life</b>	2 years

Properties	Specifications	Results
Appearance (@25 °C)	Clear Yellow Liquid	Pass
Acid value (USP <401>)	2.0 Max	0.9
Saponification Value (USP <401>)	45.0 – 55.0	47.8
Hydroxyl Value (USP <401>)	65.0 – 80.0	68.4
Water %	3.0 Max	2.6
pH ( 5%)	6.0 – 7.0	6.7
Color (Gardner)	5.0 Max	2.5
Viscosity @ 25 °C	300.0 – 500.0	404.2
Residue on Ignition %	0.25 Max	<0.25
1,4 Dioxane, ppm	10.0 Max	0.5
Heavy Metals, ppm	10.0 Max	2.0
Arsenic, ppm	1.0 Max	<1.0
Specific Gravity @ 25 °C	1.06 – 1.09	1.076
Identification Test A,B&C	Meet NF Requirements	Pass
Fatty Acid Composition %		
Myristic	5.0 Max	0.7
Palmitic	16.0 Max	5.4
Palmitoleic	8.0 Max	0.0
Stearic	6.0 Max	1.6
Oleic	58.0 – 95.0	82.8
Linoleic	18.0 Max	0.0
Linolenic	4.0 Max	0.0
Peroxide Value	10.0 Max	3.7
Free Ethylene Oxide, ppm	1.0 Max	0.6

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