



Certificate of Analysis

(Representative Sample Certificate)

REFINED CASTOR OIL

Properties/Analysis	Result	Range/Limit	UOM	Test Method
Appearance at 20°C	Pass	Clear oily liquid		Visual
Odor	Pass	Very slight, Characteristic		Sensory
Specific Gravity (25°C)	0.957	0.957-0.961	g/ml	USP <841>
Unsaponifiable Matter	0.36	Max. 0.8	%	USP <401>
Moisture	0.12	Max. 0.3	%	USP <921>
Acid Value	0.90	Max. 2.0	mg KOH/g	USP <401>
Peroxide Value	2.40	Max. 10.0	mEq/kg	USP <401>
Hydroxyl Value Identification	164.95	160-168		USP <401>
B-Distinction from other fixed oils	Pass	Meets Requirements		USP
Identification C - Ultraviolet Absorption (270nm)	1.126	0.7-1.5		USP
Elemental Impurities	Pass	Conforms to the limits in USP <232> *		USP <233>
Residual Solvents	No class 1, 2, 3 or any other solvent present			
Identification A:				
Fatty Acid Composition:		Pass	Meets Requirements	
Palmitic acid	C 16:0	1.28	Max. 2.0	% USP
Stearic acid	C 18:0	1.52	Max. 2.5	% USP
Oleic acid	C 18:1	4.70	2.5 - 6.0	% USP
Linoleic acid	C 18:2	5.96	2.5 - 7.0	% USP
Linolenic acid	C 18:3	0.60	Max. 1.0	% USP
<i>cis</i> -11-Eicosenoic acid	C 20:1	0.42	Max. 1.0	% USP
Ricinoleic acid		87.50	85.0 - 92.0	% USP
<i>cis</i> -11-octadecenoic acid or any other unidentified fatty acid		Max. 1.0	Max. 1.0	% USP
Triglyceride Composition:				
RRR		91.65	Min. 90.0	% USP
RRL		3.05	2.0-4.0	% USP
RRO		4.39	2.5-5.0	% USP
RRS		0.62	0.2-0.8	% USP

Complies to current USP Monograph

* This material is reduce-tested for Cadmium, Lead, Arsenic, Mercury, Cobalt, Vanadium, and Nickel, and each element is not detectable at the detection limit of 0.1 ppm. This more than meets the USP limits (0.5, 0.5, 1.5, 3, 5, 10, and 20ppm, respectively).

This information is for general research purposes only and is not a representation or warranty of any kind. This material is not intended to diagnose, treat, cure or prevent any disease. The user of this material is solely responsible for determining fitness for any particular use; requesting and reviewing the applicable Safety Data Sheet; and compliance with all applicable laws and regulations. Standard terms and conditions apply.

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