

Certificate of Analysis

Product	POLYSORBATE 20
Lot #	J30426F17022
Shelf Life	2 years

Properties	Specifications	Results
General Appearance (@25 °C)	Yellow Liquid	Pass
Acid value	2.0 Max	1.12
Color Gardner Method	3.0 Max	1.0
Peroxide Value	10.0 Max	2.0
Saponification Value	40.0 – 50.0	45.0
Hydroxyl Value	96.0 – 108.0	97.0
Water Content %	3.0 Max	2.81
pH (5% aqueous solution)	5.0 – 6.5	6.44
1,4 Dioxane, ppm	10.0 Max	1.3
Residue on Ignition %	0.25 Max	<0.25
Arsenic, ppm	1.0 Max	<1.0
Heavy Metals, ppm	10.0 Max	<10.0
Free Ethylene Oxide, ppm	1.0 Max	0.0
Oxyethylene Content	70.0 – 74.0	Conforms
Identification	Passes Tests A&B	Pass
Caproic %	1.0 Max	<1.0
Caprylic %	10.0 Max	<10.0
Capric %	10.0 Max	<10.0
Lauric %	40.0 – 60.0	Conforms
Myristic %	14.0 - 25.0	Conforms
Palmitic %	7.0 – 15.0	Conforms
Stearic %	11.0 Max	Conforms
Oleic %	11.0 Max	Conforms
Linoleic %	3.0 Max	Conforms

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Certificate of Analysis

Product	POLYSORBATE 20
Lot #	J30426G28068
Shelf Life	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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Certificate of Analysis

Product	POLYSORBATE 20
Lot #	J30426A21471
Shelf Life	2 years

Properties	Specifications	Results
General Appearance (@25 °C)	Yellow Liquid	Pass
Color Gardner Method	3.0 Max	1.0
Acid value	2.0 Max	1.0
pH (5% aqueous solution)	5.0 – 6.5	5.88
Moisture % (KF)	3.0 Max	2.80
Residue on Ignition %	0.25 Max	<0.25
Hydroxyl Value	96.0 -108.0	97.0
Saponification Value	40.0 – 50.0	45.0
1,4 Dioxane, ppm	10.0 Max	1.3
Heavy Metals, ppm	10.0 Max	<10.0
Arsenic, ppm	1.0 Max	Conforms
Myristic %	14.0 – 25.0	Conforms
Palmitic %	7.0 – 15.0	Conforms
Stearic %	11.0 Max	Conforms
Oleic %	11.0 Max	Conforms
Linoleic %	3.0 Max	Conforms
Peroxide Value	10.0 Max	1.5
Free Ethylene Oxide, ppm	1.0 Max	0.0
Identification	Passes test A&B	Pass
Caproic %	1.0 Max	Conforms
Capric %	10.0 Max	Conforms
Caprylic %	10.0 Max	Conforms
Lauric %	40.0 – 60.0	Conforms

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Certificate of Analysis

Product	POLYSORBATE 20
Lot #	J9825D30447
Shelf Life	2 years

Properties	Specifications	Results
Appearance @ 25 Degrees C	Clear Liquid	Conforms
Acid Value	2.0 Maximum	1.2
Saponification Value	40.0 – 50.0	46.8
Hydroxyl Value	96.0 – 108.0	100.8
Moisture % (KF)	3.0 Maximum	2.6
Color (Gardner)	2.0 Maximum	1.1
Heavy metals, PPM	10.0 Maximum	0.4
Arsenic, PPM	1.0 Maximum	0.0
1.4 Dioxane, PPM	10.0 Maximum	1.8
Residue on Ignition % w/w	0.25 Maximum	0.15
Free EO, ppm	1.0 Maximum	0.7
pH (5% Solution)	5.0 – 6.5	6.1
C10 Capric, %	10.0 Maximum	5.2
C12 Lauric, %	40.0 – 60.0	52.0
C14 Myristic %	14.0 – 25.0	20.6
C16 Palmitic %	7.0 – 15.0	10.3
C18:1 Oleic %	11.0 Maximum	2.4
C18:2 Linoleic %	3.0 Maximum	0.0
C18:0 Stearic %	11.0 Maximum	3.3
C6 Caproic %	1.0 Maximum	0.5
C8 Capric %	10.0 Maximum	4.4
Oxyethylene Content %	70.0 – 74.0	70.2
Peroxide Value (meq/kg) @Time of Drumming	10.0 Maximum	2.4
Identification	Pass Test A&B	Conforms

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Certificate of Analysis

Product	POLYSORBATE 20
Lot #	J9824C01889
Shelf Life	2 years

Properties	Specifications	Results
Appearance @ 25 Degrees C	Clear Liquid	Conforms
Acid Value	2.0 Maximum	1.4
Saponification Value	40.0 – 50.0	47.8
Hydroxyl Value	96.0 – 108.0	102.1
Moisture % (KF)	3.0 Maximum	2.6
Color (Gardner)	2.0 Maximum	1.8
Heavy metals, PPM	10.0 Maximum	0.4
Arsenic, PPM	1.0 Maximum	0.0
1.4 Dioxane, PPM	10.0 Maximum	3.1
Residue on Ignition % w/w	0.25 Maximum	< 0.25
Free EO, ppm	1.0 Maximum	< 1.0
pH (5% Solution)	5.0 – 6.5	6.2
C10 Capric, %	10.0 Maximum	6.0
C12 Lauric, %	40.0 – 60.0	51.9
C14 Myristic %	14.0 – 25.0	19.8
C16 Palmitic %	7.0 – 15.0	11.1
C18:1 Oleic %	11.0 Maximum	3.4
C18:2 Linoleic %	3.0 Maximum	0.0
C18:0 Stearic %	11.0 Maximum	2.3
C6 Caproic %	1.0 Maximum	0.1
C8 Capric %	10.0 Maximum	5.2
Oxyethylene Content %	70.0 – 74.0	70.3
Peroxide Value (meq/kg) @Time of Drumming	10.0 Maximum	2.4
Identification	Pass Test A&B	Conforms

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