

Lubrication Technologies, Inc.

Lube Base Oils Reference Center Data

API Group V Lube Base Stocks



Base Stock	2	3	4	5	6	8	10	11	12	14	19	24	40	100	150
MONO ESTERS															
Lexolube	IPP, IPO, NBS (all 3 are 2 cSt) T-110, HS-S B-109 (3) (3) (4)														
DIESTER															
Lexolube	2X-114	2X-108		2X-109											
NEOPOLYOL ESTERS															
Lexolube	21-214	31-310	3N-310		4N-415		3G-310								
POE															
Lexolube							POE-68HT	POE-100HT	POE-220HT	POE-350HT					
COMPLEX ESTERS															
Lexolube							CPE-70 (11)				CPE-220 (27)	CP-460LC (46)		CPE-2200 (180)	
PYROMELLITATES															
Lexolube										4PM-114 (15)					
FOOD GRADE POE															
Lexolube							FG-68 HX1	FG-100 HX1	FG-220 HX1	FG-350 HX1					

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<i>Base Stock</i>	10	15	22	32	<i>Nominal Viscosity at 40C, cSt</i>									
					46	68	100	150	220	320		460		
Diesters														
Emery	2958 (10.3)	2970, 2960 (13.7), (17.5)	2971 (26.7)	2961 (33.5)										
<i>Base Stock</i>		68	100	150	<i>Nominal Viscosity at 40C, cSt</i>									
					460			2000						
Dimer Esters														
Emery		2900 (83)		2905 (150)		2908, 2902 (430), (500)		2873 (2030)						
<i>Base Stock</i>					<i>Nominal Viscosity at 40C, cSt</i>									
	10	15		22				32	46	68	100	150	220	
Polyol Esters														
Emery	2917 (8.4)	2930, 2932 (15.3), (18.1)		2925, 2934, 2935, 2965, 2939, 2931, 2995, 2929 (19.8), (21.2), (23.1), (24.3), (25.4), (25.6), (25.7), (26.5)									2918 (32.2)	2921 (249)
<i>Base Stock</i>					<i>Nominal Viscosity at 40C, cSt</i>									
	22	32	46	68	100	150		460						
Polyol Esters														
ProEco	2965 (24.3)	2969 (37.1)	2964 (47.5)	2898, 2951 (65.6), (82.6)										



<i>Base Stock</i>					<i>Nominal Viscosity at 100F, SUS</i>					<i>Primary Applications</i>
		55	100	170	260	660	2000	3520	5100	
PAG (Water Soluble)										
PLURASAFE WS Typical		55 (48)	100 (101)	170 (173)	260 (258)	660 (655)	2000 (1992)	3520 (3560)	5100 (5142)	Hydraulic, Gear, Compressor
<i>Base Stock</i>					<i>Nominal Viscosity at 100F, SUS</i>					
		65	135	165	200	285	625	1715		
PAG (Water Insoluble)										
PLURASAFE WI Typical		65 (58)	135 (130)	165 (174)	200 (203)	285 (291)	625 (617)	1715 (1718)		Hydraulic, Chain, Gear, Compressor

<i>Base Stock</i>			<i>Nominal Viscosity at 40C, cSt</i>								
		32	46	68	100	150	220	460	680	1000	
PAG (Water Soluble)											
PLURASAFE WS VG		32	46	68	100	150	220	460	680	1000	Hydraulic, Gear, Compressor
Typical		(35.1)	(47.2)	(69.4)	(102.1)	(154.1)	(230.1)	(468.9)	(700.4)	(1030)	
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>							
		32	46	68	100	150					
PAG (Water Insoluble)											
PLURASAFE WI VG		32	46	68	100	150					Hydraulic, Chain, Gear, Compressor
Typical		(33.8)	(45.8)	(69.3)	(103)	(153)					
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>							
		32	46	68	100	150	220	460	680	1000	
PAG (Water Soluble)											
PLURASAFE WS D					60-100			60-460		60-1000	Gear, Bearing, Chain
Typical					(110)			(445)		(1118)	
<i>Base Stock</i>	20	32	46	<i>Nominal Viscosity at 40C, cSt</i>							
				68	100	150	220	460	680	1000	
PAG (Water Soluble)											
PLURASAFE WS B	45-20				45-100						Hydraulic, Gear, Compressor
Typical	(20.2)				(99.3)						
<i>Base Stock</i>		32	46	<i>Nominal Viscosity at 40C, cSt</i>							
				68	100		150	220	320	460	
PAG											
PLURASAFE					SRF 2, SRF 216			WS 270 CF			Chain, Gas Compressor
Typical					(102.1), (90.3)			(272)			
<i>Base Stock</i>				<i>Nominal Viscosity at 40F, cSt</i>							
					460	680	1000	1500	90000	270000	
PAG (Water Soluble)											
PLURASAFE WT					450			1400	90000	270000	Quench, FR Hydraulic, Gas Compressor
Typical					(486)			(1397.5)	(88749)	(268800)	
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>							
								20000	60000		
PAG											
PLURACOL V								5	10		FR Hydraulic, Quench
Typical								(18000)	(65000)		




Base Stock

	32	46	<i>Nominal Viscosity at 40C, cSt</i>			
			68	100	150	220
Triaryl Phosphate Ester						
Reolube	140	225, 225S			620B	
	(32)	(46), (46)			(125)	

INEOS Oligomers

Base Stock

					<i>Nominal Viscosity at 100C, cSt</i>									
	4	10	12	15	30	50	100	200	600	3,000	4,000	10,000	40,000	
Polybutene (PIB)														
INDOPOL®	L-14	L-50	H-7	H-8	H-15	H-25	H-35	H-50	H-100	H-300	H-1500	H-1900	H-6000	H-18000
	(4.2)	(9.4)	(12.5)	(15.3)	(30.5)	(52.0)	(74)	(108)	(218)	(630)	(3050)	(4050)	(12,200)	(40,500)



Base Stock

	1	2	3	4	<i>Nominal Viscosity at 100C, cSt</i>											
					5	6	7	8	10	12	14	18	20	40	50	100
Monoesters																
	2976 (1.1)															
	2311 (1.4)															
Diesters		2906	3110	2910	5203, 2901, 2923	2955	2922			2949						
		(2.7)	(3.2)	(3.6)	(4.8), (5.4), (5.5)	(6.9)	(8.2)			(13)						
Triesters									2920	2932	2930		2940			
									(9.4)	(13)	(16)		(20)			
POEs																
					<i>Nominal Viscosity at 100C, cSt</i>											
	2			3	4	5										
HATCOL	2957, 1507, 2962, 3330			2915, 3336, 3337	2925, 2938, 2377	2330, 3505, 3502, 2989, 2960, 2970, 2954, 2965, 3508										
	(2.1), (2..2), (2.5), (2.6)			(3.0), (3.4), (3.6)	(4.0), (4.4), (4.4)	(4.7), (4.7), (4.9), (4.9), (4.9), (5.0), (5.0), (5.1), (5.3),										

Nominal Viscosity at 100C, cSt

6				7		8	9		10		11
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HATCOL	3306, 3506, 3178, 3304, 2352, 2990, 3329, 3146, 3169 (5.5), (5.5), (5.6), (5.6), (5.6), (6.2), (6.2), (6.2), (6.3)	3501, 3354 (6.9), (7.1)	3504 (8.3)	3320, 5068, 1106, 3373 (8.6), (8.7), (8.8), (9.4)	5127, 3391 (9.9), (10)	3503 (11)
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	<i>Nominal Viscosity at 100C, cSt</i>							
	12	14	18	19	20	21	26	36
HATCOL	2999 (12)	2372 (14)	5150 (18)	3507 (19)	3316 (20)	3349, 2300 (21), (21)	3365 (26)	3371 (36)



<i>Base Stock</i>	<i>Nominal Viscosity at 100C, cSt</i>																	
	2	3	4	5	6	7	8	9	10	20	30	40	100	400				
MONOESTERS																		
Nycobase	7100, 8110 (1.3), (1.3)																	
DI-ESTERS																		
Nycobase	ADE (2.3)	SFH (3.2)	ADD (3.6)	ADT (5.3)					3608 (13.6)									
NEOPOLYOL ESTERS																		
Nycobase	8210 (2.5)	7200 (3.4)	5400 (3.7)	8317 (4.0)	8103 (4.4)	7400 (4.7)	8311 (4.9)	5750 (5.1)	8418 (6.6)	8318S (7.6)	3118 (9.4)	1040X (10.0)	1060X (20.0)	9600X (25.0)				
COMPLEX ESTERS																		
Nycobase				8306 (5.7)	2036S (6.0)	8345 (8.0)	8145 (8.5)	8812, (12)	20237 (12)	3645 (17)	8355 (20)	8828 (28)	8361 (22)	4045 (43)	8851 (50)	8896 (110)	4001 (410)	6001 (500)
FOOD GRADE ESTERS																		
Nycobase			30401FG (4.4)	30502FG (4.9)								43203FG (33.2)						
SPECIAL ESTERS																		
Nycobase										619, 618 (18) (19.4)						LPG4000 (450)		

CRODA (continued)

<i>Base Stock</i>				<i>Nominal Viscosity at 100C, cSt</i>								
	<i>1</i>	<i>2</i>	<i>4</i>	<i>6</i>	<i>8</i>	<i>10</i>	<i>40</i>	<i>50</i>	<i>60</i>	<i>80</i>	<i>100</i>	
Mono Ester												
Priolube		1406, 1414, 1451 (2), (2.3), (2.3)		1976 (5.4)								
Priolube	1502 (1.1)	1514, 1540 (1.5), (1.9)										
Prifer	6813 (1.4)											
Tri Ester												
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>								
		<i>32</i>	<i>46</i>	<i>68</i>	<i>100</i>	<i>150</i>	<i>220</i>	<i>320</i>		<i>460</i>		
Priolube		1941	1942 (51.9)	1943 (71.4)	1938 (96.8)	(143)	1939	(306)				
Diester												
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>								
	<i>10</i>	<i>15</i>	<i>22</i>	<i>32</i>	<i>46</i>	<i>68</i>	<i>100</i>	<i>150</i>	<i>220</i>	<i>320</i>		
Priolube	1857 (11.7)	1856 (12.5)					3985 (84)					
Priolube	3959 (7.7)	1935 (14.5)	1936 (26.3)		3972 (41.5)							
Polyol Ester												
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>								
	<i>10</i>	<i>15</i>	<i>22</i>	<i>32</i>	<i>46</i>			<i>68</i>	<i>100</i>	<i>150</i>	<i>220</i>	<i>320</i>
Priolube			3970, (20),	1800, 3971, 1808 (28), (32), (35)			2089, 1973, 1427 (44), (46), (48)	1445 (67),	3999 (90),	1968 (100)	3987 (138)	
Priolube		1527 (14)										
Self Emulsifiable Ester												
<i>Base Stock</i>				<i>Nominal Viscosity at 40C, cSt</i>								
		<i>32</i>	<i>46</i>	<i>68</i>	<i>100</i>	<i>150</i>	<i>220</i>	<i>320</i>		<i>460</i>		
Priolube							3953, 3952 (360), (380)		3955 (420)			



Sepahan Petro Kimia, Tehran, Iran

Base Stock

		Nominal Viscosity at 100C, cSt												
		2	4	6	8	10	12	14	18	24	30	40	100	
Diester	Synester	H2 (2.5)	H4 (4)	H6 (6)										
POE	Synester						P12 (12.5)	P14 (14.5)	P18 (18.8)	P24 (24.5)	P34 (34)	P45 (45)		
Complex Ester	Synester	F4 (4)	F6 (6)	F8 (7.9)										High VI
Complex Ester	Synester	X3 (2.9)	X4 (4.2)	X6 (6)	X7 (6.9)									Low VI



Port Arthur, TX

Base Stock

		Nominal Viscosity at 100C, cSt											
		2	3	4	5	6	8	10	12	14	28	40	100
Star	2	(2.56)											

Note: Star 2 is similar to Motiva's Group II base oils but does not meet all requirements for such.

Naphthenic Oils



Calumet Specialty Products, L.P.

Princeton, LA

Base Stock

		Nominal Viscosity at 100F, SUS											
		40	60	100	150	200	300	500	600	1,000	1,200	2,500	
Hydrocal		38 (37.9)	60 (61.5)	100 (107)				500 (510)			1200 (1226)	2400 (2400)	
Hydrocal		3146 (36)	3147 (52.5)										low pour point
Hydrosol			60 (53.4)	100 (111)			300 (309)	500 (505)			1200 (1260)	2000 (2092)	produced by Houston Refining
HR Tufflo			60-T (53.4)	100 (111)			300 (309)	500 (505)			1200 (1260)	2000 (2092)	



Three Rivers, TX

Base Stock

			<i>Nominal Viscosity at 40C, cSt</i>									
5	10	22	32	46	68	100	150	220	460	680	1000	4,000
T4	T9	T22							T400			T 4000
(4.5)	(9.1)	(22)							(376)			(4445)

The above base oils are made at the Valero Three Rivers, TX refinery, but marketed by Nynas.



Nynashamn, Sweden

Base Stock

			<i>Nominal Viscosity at 40C, cSt</i>									
5	10	22	32	46	68	100	150	220	460	680	1000	
BS 8.5	BS 14	S 25B				S 100B	SR130					
(8.5)	(14)	(25)				(102)	(137)					
NS 3	NS 8					NS 100	BNS 150		BNS 400	BNS 600	BNS 800	
(2.88)	(7.7)					(103)	(150)		(400)	(600)	(800)	
T4	T9	T22				T110		T400	PMBT 30	BBT 28		T 4000
(4.5)	(9.1)	(22)				(114)		(376)	(499)	(700)		(4445)



Smackover, Ark

Base Stock

			<i>Nominal Viscosity at 100F, SUS</i>									
40	60	100	150	200	300	500	600	1,000	1,200	2000	2,500	
L-series												
(43)	(61.2)	(104.6)	(154.8)	(201.8)	(315)	(525)		750		1200	2000	2400
								(772)		(1281)	(2031)	(2421)
B-series	60	100	150	180, 200		550	750					
	(60.2)	(104.9)	(154)	(197) (218)		(550)	(780)					



Vicksburg, MS

<i>Base Stock</i>	<i>Nominal Viscosity at 100F, SUS</i>											
	60	100	150	200	300	500	600	1,000	1,200	2000	3,500	5,000
Hyprene	60 (59.5)	100 (112)	L150 (157)	L200 (209)	L300 (310)	L500 (533)	L750 (772)		L1200 (1236)	L2000 (2093)		V175BS (5091)
Hyprene							MVI750 (769)		MVI1200 (1247)	MVI2000 (2143)	MVI150BS (3528)	
Hygold	60 (59.5)	100 (112)	L150 (157)	L200 (209)	L300 (310)	L500 (533)	L750 (772)		L1200 (1236)	L2000 (2093)		V175BS (5091)
Hygold							MVI750 (769)		MVI1200 (1247)	MVI2000 (2143)	MVI150BS (3528)	



Bakersfield, CA

<i>Base Stock</i>	<i>Nominal Viscosity at 100F, SUS</i>									
	40	60	100	150	200	300	500	1,000	2,000	4,000
HYNAP	N40HT (40.8)	N60HT (60.2)	N100HTS (109)			300 (304)	500 (500)		2000 (1953)	4000 (4140)
<i>Base Stock</i>	40	60	100	150	200	300	500	1,000	2,000	4,000
RAFFENE					200L (199)		750L (876)	1200L (1445)	2000L (2034)	



Petrobras, Fortaleza, Brazil

<i>Base Stock</i>	<i>Nominal Viscosity at 40C, cSt</i>							
	10	20	32	46	68	100	150	500
	NH 10 (10)	NH 20 (20)					NH 140 (140)	