

		STAR 2		STAR 4		STAR 6		STAR 12		STAR HVI 4		STAR HVI 6	
Sales Code		500009293		500009291		500009290		500009292		500009294		500009295	
Parameter	Method	Code 7249		Code 7239		Code 7234		Code 7242		Code 7248		Code 7250	
		Spec	Typical	Spec	Typical	Spec	Typical	Spec	Typical	Spec	Typical	Spec	Typical
API Base Stock Group (API 1509 E.1.3)				Group II		Group II		Group II		Group III		Group III	
Viscosity, Kinematic													
cSt @ 100°C	D445	-	2.61	3.8 min	4.16	6.1 min	6.49	11.7 min	12.0	4.0 - 4.5	4.41	5.7 - 6.3	5.89
cSt @ 40°C	D445	9.0 - 11.0	10.63	18.0 - 22.0	20.4	40.0 - 46.0	42.3	107 - 120	109	Report	20.5	Report	32.4
SUS @ 100°F	Calculated		64		106		218		569		107		166
Viscosity Index													
	D2270	-	-	95 min	105	95 min	104	95 min	98	120 min	128	120 min	127
Sulfur, ppm													
	D2622	300 max	< 10	300 max	< 10	300 max	< 10	300 max	< 25	Report	< 10	Report	< 10
Aromatics, wt %													
	Motiva	2.0 max	1.0	2.0 max	1.5	2.0 max	1.5	7.0 max	6.0	Report	< 1.0	Report	< 1.0
Volatility													
NOACK, wt%	D5800 (B)	-	-	28.0 max	22.5	13.0 max	10.4	-	2.4	15.5 max	14.4	8.5 max	7.4
GC, Sim Dist at 700°F, %	D6417	-	-	17.0 max	12.0	7.0 max	4.25	-	0.4	-	-	-	-
Dynamic Viscosity													
CCS @ -30°C ⁽¹⁾ , cP	D5293	-	-	-	-	-	-	-	-	Report	1,534	Report	4,084
CCS @ -25°C, cP	D5293	-	-	1,550 max	1,238	-	-	-	-	-	-	-	-
CCS @ -20°C, cP	D5293	-	-	-	-	3,900 max	3,087	-	-	-	-	-	-
Brookfield ⁽²⁾ @ -40°C, cP	Motiva	-	-	-	13,232	-	-	-	-	-	-	-	-
Appearance		Visual		Clear & Bright		Clear & Bright		Clear & Bright		Clear & Bright		Clear & Bright	
Color, ASTM	D1500	-	-	1.0 max	L0.5	1.0 max	L0.5	1.0 max	L0.5	L0.5	L0.5	L0.5	L0.5
Color, Saybolt	D156	Report	+30	-	-	-	-	-	-	-	-	-	-
Pour Point, °C	D5950	-33 max	-35	-12 max	-15	-12 max	-15	-12 max	-21	-12 max	-20	-12 max	-21
Flash Point, COC, °C	D92	170 min	172	199 min	207	216 min	226	250 min	263	200 min	220	215 min	237
API Gravity, °API	D4052	Report	32.1	Report	35.1	Report	32.3	Report	30.4	Report	37.6	Report	36.2
Specific Gravity, 60/60°F	D4052	-	-	-	0.8495	-	0.8640	-	0.8740	-	0.8367	-	0.8438

⁽¹⁾ CCS @ -30°C targeted to max limits:

STAR HVI 4 1,675 cP STAR HVI 6 4,800 cP

⁽²⁾ Product tested with 0.25wt% PPD. Brookfield targeted to limit of 19,000 cP for STAR 4.

Note - for SI units

1 mm²/s = 1 cSt

1 mPa·s = 1 cP

effective 11/01/2018