

Heavy Duty Engine Oil



PRODUCT DESCRIPTION

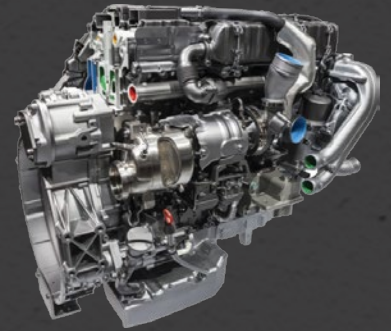
HPL heavy duty engine oil is a HDMO based motor oil designed for those looking for higher performance and better protection. It is formulated to maximize performance and meet the demands of high performance gasoline and diesel engines. HPL engine oil reduces the coefficient of friction resulting in better fuel economy while greatly extending drain intervals. HPL's additive technology contains synthetic esters which helps prevent sludge and varnish deposits resulting in a very clean engine. The high viscosity index provides easy startup at low temperatures plus effective lubrication at high temperatures. The high base number (BN) in HPL engine oil provides longer life in service. Excellent HTHS viscosity provides superior boundary lubrication.

FEATURES

- Excellent wear protection and superior high temperature stability
- Compatible with other conventional and synthetic engine oils
- Extended drain intervals over rivals
- Prevents sludge and varnish
- Exceptional corrosion protection
- Improved fuel economy

Meets or Exceeds:

API CI-4 PLUS, CI-4, CH-4, CF, SL, SJ
ACEA E7-04 Issue 2, E2-96 Issue 5
JASO DH-1
CAT ECF-2, ECF-1A
Cummins 20078
DDC 93K214, 7SE270
MACK EO-N PP-03
MAN 271, 3275
MB 228.3
MTU Type 1, Type 2
Global DHD-1
Navistar
Volvo VDS-3



Heavy Duty Engine Oil Typical Properties



	Method	0W12	0W16	0W20	5W20	5W30	5W40	10W30	10W40	10W50	15W40
Viscosity											
cSt@40°C	ASTM D445	33.99	38.86	48.25	49	65.84	93.45	70.23	98.69	123.4	114.2
cSt@100°C	ASTM D445	6.38	7.16	8.60	8.75	11.25	15.18	10.96	14.68	18.29	15.52
Viscosity Index	ASTM D2270	142	150	158	159	165	172	147	155	166	143
Cold Crank Simulator	ASTM D5293	4207@-35C	4950@-35C	5877@-35C	4294@-30C	5266@-30C	6309@-30C	5272@-25C	6150@-25C	5898@-25C	5641@-20C
Base Number (BN), mg KOH/g	ASTM D2896	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5
Flash Point (°C/°F)	ASTM D92	211/412	215/419	214/418	214/418	215/419	214/418	213/416	218/424	216/420	220/428
Foaming Tendency - Sequence II	ASTM D892	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Specific Gravity	ASTM D1298	0.853	0.855	0.855	0.868	0.862	0.863	0.868	0.870	0.868	0.875
Rust Prevention	ASTM D665	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Corrosion Prev. 3hr/24hr	ASTM D130	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a
Pour Point (°C/°F)	ASTM D97	-61/-78	-61/-78	-61/-78	-34/-29	-37/-35	-37/-35	-31/-24	-31/-24	-31/-24	-37/-35
High Temp High Shear Visc, cP	ASTM D5481	2.144	2.428	2.762	2.907	3.497	4.285	3.576	4.434	4.915	4.374
MRV Viscosity, cP	ASTM D4684	9,219	11,561	11,672	20,610	38,828	55,448	16,379	20,696	23,206	19,881

	Method	20W40	20W50	20W60	25W60	20	30	40	50	60
Viscosity										
cSt@40°C	ASTM D445	113.3	170.7	225.5	228.3	54.82	77.44	127.3	188.2	253.2
cSt@100°C	ASTM D445	14.39	20.25	25.66	25.73	8.74	10.92	15.31	20.30	24.82
Viscosity Index	ASTM D2270	129	138	145	144	136	129	125	126	125
Cold Crank Simulator	ASTM D5293	4969@-15C	6563@-15C	7990@-15C	4884@-10C	-	-	-	-	-
Base Number (BN), mg KOH/g	ASTM D2896	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5	min. 13.5
Flash Point (°C/°F)	ASTM D92	227/440	214/418	223/434	219/426	221/429	221/429	224/435	226/438	220/428
Foaming Tendency - Sequence II	ASTM D892	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Specific Gravity	ASTM D1298	0.877	0.880	0.881	0.883	0.874	0.880	0.888	0.886	0.889
Rust Prevention	ASTM D665	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Corrosion Prev. 3hr/24hr	ASTM D130	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a	1a / 1a
Pour Point, (°C/°F)	ASTM D97	-37/-35	-37/-35	-37/-35	-37/-35	-28/-18	-31/-24	-40/-40	-40/-40	-43/-45
High Temp High Shear Visc, cP	ASTM D5481	4.258	5.654	Exceeds	Exceeds	2.773	3.510	4.404	5.531	Exceeds
MRV Viscosity, cP	ASTM D4684	14,081	16,711	20,832	11,634	-	-	-	-	-

NOTE: Properties above are not a specification, they are typical and may vary.

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