

Heavy Duty Diesel Engine Oils

XLO Ultimate Synthetic-Blend 15W40 - XLO Ultimate Synthetic-Blend 10W40 - XLO Ultimate Full-Synthetic 5W40
XLO Heavy Duty Fleet - HPO Turbo – ALAS+

(12/1/2011 edition)

Amalie XLO Ultimate Synthetic-Blend 15W40 Motor Oil, Amalie XLO Ultimate Synthetic-Blend 10W40 and Amalie XLO Ultimate Full-Synthetic 5W40 Motor Oil are new high performance diesel engine oils developed to offer the ultimate in diesel engine oil protection for your new and expensive equipment by offering a better and stronger armor against wear, improved performance and greater fuel economy. These oils are especially equipped to protect EGR/Low-Emission Diesel Engines while maximizing the durability of Diesel Particulate Filters (DPF's). New additive systems and rigorous laboratory and field testing have proven that these new oils are up to the task of protecting your engine; helping your engine operate within the new emission and pollution requirements as well as meeting or exceeding the OEM requirements for every new engine being built by every engine manufacturer worldwide, including but not limited to: Caterpillar, Cummins, DaimlerChrysler (Mercedes Benz), Detroit Diesel, Volvo, Mack (*including the new and more stringent Mack EO-O Premium Plus 2007*), MAN, and Navistar. These new high performance oils are specifically engineered to meet the manufacturers' prerequisite for performance, TBN, and balanced low ash (1% maximum) requirements. They will deliver superior long lasting protection for both turbocharged and naturally aspirated diesel and gasoline engines whether in highway or off-highway equipment. They are formulated for extended service/extended drain when operated under typical operating conditions and are engineered to help promote fuel economy.

These new oils meet or exceed the new API CJ-4/SN Service Classification and meet prior API specifications for CI-4 Plus, CI-4, CH-4, CG-4, CF-4, CF-2, CF and API SL, SJ, and SH. These oils are registered Mack EO-O Premium Plus '07, and meet prior specifications for EO-N Premium Plus, EO-M Plus, and EO-M. This oil is also registered to Detroit Diesel 93K218, 93K215, and 93K214; Cummins CES 20081, 20078, 20077, 20076. This oil meets Allison C4 and C3 fluids and Caterpillar ECF-3, ECF-2, ECF-1, TO-2. This oil is also registered for the following European and Asian approval standards: Volvo VDS-4, VDS-3, VDS-2 and meets specifications for Global DHD-1; JASO DH-2 and DH-1. This oil is engineered to be robust enough to meet MB 228.5, 228.3, 228.1, 227.1; Man 3275; MTU Type I & II; ACEA E7-04, E4, E2, A3/B4, A3B3; and Renault RLD-3. This highly advanced diesel engine oil is recommended for use in MIL L 2104-G, MIL L 46152-E, and CID A-A-52306 applications.

Amalie XLO Heavy Duty Fleet Engine Oils have been improved and upgraded to be among the best and most efficient diesel engine oils available to the fleet market. New additive systems and rigorous laboratory and field testing have proven that these new Amalie XLO Heavy Duty Fleet Engine Oils are up to the task of protecting your engine; helping your engine operate within the new emission and pollution requirements as well as meeting or exceeding the OEM requirements for almost every new engine being built by every engine manufacturer worldwide. The new high performance Amalie XLO Heavy Duty Fleet Engine Oils are specifically engineered to meet the manufacturers' prerequisite for performance, TBN, and balanced low ash requirements. They will deliver superior long lasting protection for both turbocharged and naturally aspirated diesel and gasoline engines, including those engines that have exhaust gas recirculation (EGR) systems. They

are formulated for extended service/extended drain when operated under typical operating conditions and are engineered to help promote fuel economy.

These new oils meet or exceed the CI-4/SL API Service Classifications as well as the CH-4, CG-4, CF-4, CF-2, CF and CD API Service Classifications; Global DHD-1; and JASO DH-1. Amalie XLO Heavy Duty Fleet engine oils are recommended for use wherever MIL L 2104-G and MIL L 46152-E are recommended; wherever Allison C-3 and C-4 fluids and Caterpillar TO-2 are recommended or required; and are recommended for use wherever the following European approval standards are specified: ACEA A5/B5, A3/B4, A3/B3, A1/B1 / E7, E6, E5, E3, E2 and E1.

Amalie HPO Turbo Motor Oils* are high quality detergent motor oils recommended for diesel and gasoline engines manufactured by American, European, Korean, Japanese and other engine manufactures from around the world. These oils are manufactured to meet the requirements of API SG CF-4, CF-2, CF / SG, SF as well as ACEA A3/B4, A3/B3, A1/B1, E3, E2, and E1. They are manufactured from select blends of high quality base oils and additives to promote long engine life, protect against rust, corrosion and harmful oxidation, and are designed to help reduce engine wear and oil consumption.

The Amalie HPO Turbo Multi-grade Motor Oils are coupled with a premium viscosity modifier to assure easy starts in cold climates, protect against oil thinning at higher temperatures, and are formulated to provide fuel savings to the consumer.

**The Amalie HPO Turbo Motor Oil product line is for export only and minimum order requirements apply.*

Amalie ALAS+ (Amalie Lubricant Analysis System) is Amalie's used oil analysis program designed exclusively for Amalie XLO and Amalie XLO Ultimate customers. It allows them to get an inside look at what is going on in their engine. ALAS+ measures wear metals, contaminants, viscosity and other used oil characteristics to help prevent component failure, determine optimum drain intervals and help to reduce fuel costs. ALAS+ is a comprehensive analysis program using the most modern laboratory equipment available, that provides valuable information about your engine's condition every time the oil is changed for the life of the equipment. ALAS+ supplies clear concise analytical reports in a timely fashion that include the necessary data needed to help you successfully manage your highly expensive equipment investment.

Some performance levels are limited by viscosity grades. Please consult the Amalie Performance Application Chart, the Amalie Inspection Data Table for the appropriate Amalie product or contact your Amalie District Manager for more complete information and recommendations.

TYPICAL INSPECTION DATA

	API Gravity	Flash Point C.	Viscosity cSt @100C	Viscosity cSt @40C	VI	Pour Point, C.	TBN (D-2896)
XLO Ultimate Synthetic Blend							
15W-40 *	29.6	215	15.80	115.0	145	-35	10
10W-40 *	31.2	210	14.00	102.0	140	-38	10
XLO Ultimate Full Synthetic							
5W-40 *	31.7	205	15.00	82.0	180	-45	10
XLO Heavy Duty Fleet							
10W-30	29.5	205	10.40	68.4	140	-36	10
15W-40	28.5	210	15.00	101.0	155	-30	10
20W-50	27.0	220	17.50	158.0	122	-24	10
10W	129.5	190	6.60	37.0	140	-33	10
30	28.5	220	11.20	88.0	116	-21	10
40	28.0	230	14.50	133.0	109	-18	10
50	27.5	240	18.50	192.0	108	-12	10
HPO Turbo **							
5W-30	30.5	190	10.20	60.0	157	-39	report
10W-30	29.5	200	10.50	69.0	140	-35	report
10W-40	30.0	200	13.50	97.0	145	-32	report
15W-40	29.0	210	14.00	100.0	135	-27	report
20W-50	28.9	220	18.00	165.0	125	-18	report
25W-50	29.6	230	18.00	165.0	125	-18	report
10	29.5	190	5.90	37.0	100	-15	report
30	28.5	210	11.80	103.0	100	-15	report
40	28.0	220	14.60	141.0	100	-12	report
50	27.5	230	17.90	189.0	100	-12	report

* Also meets 1% maximum ash requirements

** HPO Turbo Motor Oil Product line is for export only, minimum order requirements apply.

PERFORMANCE APPLICATION CHART

SPECIFICATIONS		XLO Ultimate Synthetic Blend 15W-40/10W-40	XLO Ultimate Full-Synthetic 5W-40	XLO 15W-40 HD Fleet	XLO 10W-30 HD Fleet	XLO 10W, 30, 40, 50 HD Fleet	HPO Turbo
API:	CJ-4/SN	√	√	-	-	-	-
	CI-4 Plus	√	√	-	-	-	-
	CI-4, CH-4, CG-4	√	√	√	√	-	-
	CF-4	√	√	√	√	-	√
	CF-2 [1] CF/CD	√	√	√	√	√	√
	SL/SJ/SH [2]	√	√	√	√	√	-
Allison	C-4, C-3	√	√	√	√	√	-
	Mil-PRF-2104G(AA52306)	√	√	√	√	√	-
	Mil-L-2104-B, Mil-L-46152	√	√	√	√	√	√
Caterpillar	TO-2	√	√	√	√	√	-
	ECF-3	√	√	-	-	-	-
	ECF-2	√	√	√	√	-	-
	ECF-1, SEBU 6250	√	√	√	√	-	-
Mack	EO-O Premium Plus 07	√	√	-	-	-	-
	EO-N Premium Plus 03	√	√	-	-	-	-
	EO-N Premium Plus	√	√	√	-	-	-
	EO-M, EO-M Plus	√	√	√	√	-	-
Cummins	CES 20081	√	√	-	-	-	-
	CES 20078, 76, 71	√	√	√	√	-	-
	CES 20077, 72	√	√	√	-	-	-
JASO	DH-2	√	√	-	-	-	-
	DH-1	√	√	√	√	-	-
Global	DHD-1	√	√	-	-	-	-
Navistar	TSI-99-12	√	√	√	√	SAE 30	-
Detroit Diesel	93K218, 93K215	√	√	-	-	-	-
	93K214	√	√	-	-	-	-
	7SE270 [3]	√	√	√	√	√	-
Daimler Chrysler	228.5	√	√	-	-	-	-
	DC(MB) 228.3, 228.2	√	√	√	√	-	-
	DC(MB) 228.1, 228.0	-	-	-	-	√	mono
ACEA	A5/B5, A3/B4, A3/B3, A1/B1	√	√	√	√	A2, B2	A3/B4
	E7, 6, 5, 4, 3, 2, 1	√	√	√	√	E1, 2	E1, 2, 3
Volvo	VDS-4	√	√	-	-	-	-
	VDS-3	√	√	√	-	-	-
	VDS-2	√	√	√	√	-	-
Renault	RDL-3	√	√	-	-	-	-
Man	3275/3277	√	√	-	-	-	-
	270/271	√	√	√	√	-	-
MTU	Type II, Type III	√	√	-	-	-	-
	Type I	√	√	√	√	√	-

NOTES:

[1]= CF-2 primary recommendation for two-cycle engines; single grades.

[2]= Above Preferred Phosphorus level of API SL/SJ (10W-30).

[3]= Multigrade oils recommended for four-cycle engines, single grade oils for two-cycle engines