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LUBRIZOL® ADX1667 Heavy Duty Diesel Engine Oil Additive

A multifunctional additive to formulate engine oil for heavy duty applications.

Application

Recommended for use in suitable base stocks to formulate lubricants meeting the requirements of the following service

Recommended for use at:	15.3 % by weight
API CD,CE,CF; CCMC D5; OEM MB-Approval 228.3 Blanket, VW 505, Volvo VDS	

Recommended for use at:	13.8 % by weight
API CD,CE,CF; CCMC D5; OEM MB-Approval 228.2/3 Blanket, VW 505, Volvo VDS	

Recommended for use at:	11.5 % by weight
API CD,CE,CF,CF4; CCMC D4; ACEA E2-96; OEM MB-Approval 228.0/1 Blanket, VW 505, Volvo VDS, MAN 271	

Recommended for use at:	10.3 % by weight
API CD,CE,CF,CF4; CCMC D4; ACEA E2-96; OEM MB-Approval 228.0/1 Blanket, VW 505, MAN 271	

Recommended for use at:	9.2 % by weight
API CD,CE,CF,CF4; CCMC D4; ACEA E1-96; OEM MB-Approval 227.0/1 Blanket, VS 505	

Recommended for use at:	7 % by weight
API CF (Monograde) API SF is demonstrated by field testing for treatment levels of 9.2%wt and above.	

Physical Characteristics

	Minimum	Target	Maximum
FLASH POINT, C, PMCC		156	
LBS PER U.S. GAL @ 15.6 C		8.11	
LBS PER IMP GAL @ 15.6 C		9.74	
POUR POINT, C		-15	
SPECIFIC GRAVITY @ 15.6 C	0.959	0.974	0.989
VISCOSITY @ 100 C, CST	65	95	125
VISCOSITY @ 40 C, CST		1500	

Chemical Characteristics

	Minimum % Weight	Typical	Maximum % Weight
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CALCIUM	3.16	3.44	3.72
NITROGEN	0.44	0.49	0.54
PHOSPHORUS	0.66	0.72	0.78
SULFATED ASH		12.9	
SULFUR		2.9	
ZINC	0.72	0.80	0.88

Special Handling

Wear appropriate protective clothing. Provide adequate ventilation to minimize inhalation of vapors from hot product. Handle at bulk storage temperatures as low as possible, but not exceeding 60 degrees C. May be blended using conventional equipment and methods. Blend at bulk temperatures not in excess of 65 degrees C. Avoid product skin temperatures above 120 degrees C.

LUBRIZOL® ADX1667 Unloading, storage and blending instructions

General handling instructions - In general, The Lubrizol Corporation recommends, as a minimum, the use of neoprene or nitrile rubber gloves and safety glasses or chemical splash goggles. The Material Safety Data Sheet should be consulted for specific information and for information on health and safety when handling this product.

Fire and explosion hazard data

	Flash Point (method)	Classification
	156°C PMCC	N/A

Temperature recommendations

Unloading	Pumping Temperature	50°C	122°F
	Maximum temperature*	70°C	158°F
Storage			
Maximum temperature for long-term storage		45°C	113°F
Blending			
Maximum base oil temperature for mechanical or in-line mixing		70°C	158°F

Equipment recommendations

Type of Pump	Positive Displacement
Type of transfer line	Ball Launched, Insulated, Steam Traced Using 107°C/225°F Steam Max.
Transfer line size	2-3inch/5-8 cm.

Heat source

Type	Steam 107°C/225°F Max.
Storage tank	Suction Heater Recommended

Viscosity data	cSt	SUS
at 25°C, 77°F	4168	19280
at 40°C, 104°F	1500	6950
at 100°C, 211°F	95	443

Notes

Pour Point	-15°C, 6°F
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Additional Recommendations

* Holding the material in excess of this temperature may cause chemical degradation. Use steam for heating and tracing only when the material is in motion to avoid localized overheating. Cold Temperature Storage - If product has been stored below its pour point temperature it should be heated to 21°C/70°F before using.

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