

ONYX 88999

Automotive Engine Oil Additive Package

DESCRIPTION:

ONYX 88999 is a balanced dispersant-inhibitor crankcase oil additive package designed to formulate heavy duty and gasoline engine oils for modern engines operating under severe conditions and heavy loads. ONYX 88999 contains 2nd Generation ash-less dispersants, zinc dithiophosphate and metallic detergents. It provides additional deposit, oil oxidation, wear and rust control in diesel and gasoline engine oils. Formulated for flexibility to use in both higher and lower API performance levels.

PERFORMANCE:

When blended with appropriate base stock(s) and viscosity modifier, the formulated lubricant meets the following performance specifications.

API Specification	Mass%	BN
CF-4/SG	5.5	8
CF/SF	4.1	6
CD/SF	3.5	5.1
CD/SD	3	4.4
CC/SC	2.4	3.5
CB/SB	1.5	2.2

PHYSICAL / CHEMICAL CHARACTERISTICS:

Parameters	Test Methods	Specifications	Typical Value
Viscosity@ 100°C, cSt	ASTM D445	Report	60
BN, mgKOH/g	ASTM D2896	min 145	153
Calcium, % Wt	ASTM D4951	4.0 – 5.92	4.94
Zinc, % Wt	ASTM D4951	1.70 – 2.35	2
Phosphorus % Wt	ASTM D4951	1.36 – 2.0	1.70
Nitrogen % Wt	ASTM D5291	0.60 -0.98	0.82
Flash Point (PMCC), °C	ASTM D93	>180	Report
Specific Gravity @15.6 °C	ASTM D1298	Report	1.04

GENERAL HANDLING INSTRUCTIONS:

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. Maximum handling temperature is 65°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

Temperature Recommendations:

Unloading:	Temperature	
Pumping temperature	60°C	140°F
Maximum temperature	70°C	158°F
Storage:		
Maximum temperature for long term storage	45°C	113°F
Blending:		
Max. 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 lunched, Insulated, Steam Traced Using 107°C/225F Steam Max.
Transfer Line Size	2-3inch/5-8cm.

Heat Source:

Type	Steam 107°C/225°F max.
Storage Tank	Suction Heater Recommended