

ENGINE OIL ADDITIVE DI PACKAGE

INTRODUCTION: EOA has been designed to meet the requirements for an economical & cascadable additive system with logistics, for formulating heavy duty diesel engine & Gasoline lubricants meeting API SC/CC to SJ/CF & SG/CF4 as well as API SL (Multigrades and Monogrades) performance levels.

EOA contains special Dispersants, antiwear, anti oxidants, detergents, friction modifiers to imparts excellent deposit control, oil oxidation Resistance, wear & Rust control in all types of engines.

Performance Package	EOA
Performance Level	API SC/CC to SJ/CF & CF4, API SL
Viscosity Index Improver	Non Dispersant V.I. Improver
Base Stocks	Group I/II base oils
SAE Viscosity Grades	15W-40, 20W-40, 20W-50, 10W, 20W, 30W, 30, 40, 50

Engine Test containing desired dosages of EOA in group I/II base oils and Non Dispersant V.I. Improvers is characterized by excellent piston deposits control and low bearing weight loss in CRC L - 38.

EOA can be used in following treat rates to achieve the following credentials.

API Performance	Dosage % w/w
API CC/SC	2.7
API CD/SC	3.1
API CC/SE	3.5
API CD/SE	3.8
API CC/SF	3.8
API CD/SF	3.9
API CF/SF	4.5
API SG/CD/CF**	8.0
API SJ/CF**	8.5
API SG/CF-4	8.4
API SL	10.5

** meets JASO MA PERFORMANCE AT THIS TREAT LEVEL.

TYPICAL PROPERTIES:

Specification Method	Typical values	Test
Density @ 25 °C, gm/cm ³	1.01	ASTM D 4052
Flash Point °C (PM), min	180	ASTM D 92
Viscosity at 100 °C, cSt.	96	ASTM D 445
Total Base Number (TBN)	120	ASTMD 2896

Elements	
Calcium % wt (D 4951/D 4927)	4.10
Nitrogen % wt (D 5291)	0.26
Phosphorus % wt (D 4951)	1.12
Zinc, % wt (D 4951)	1.25
<i>Sulphated ash, % wt (D 874)</i>	13.9