



**HIGH
PERFORMANCE
ADDITIVES**

ENGINE OIL ADDITIVES

DRIVELINE ADDITIVES

INDUSTRIAL ADDITIVES

LUBRICANT COMPONENTS

**PRODUCT
CATALOGUE**



ABOUT US

Onyx Additives Company was established under the Rexol Corporation Brand and has been developing, producing, and providing additives for over 10 years. Our range of technology solutions includes engine oil additives, driveline additives, and industrial additives, in addition to speciality and custom additives. Equipped with our years of expertise and state of the art machinery, we help our customers develop and market additives to achieve their performance goals while considering emission reduction, fuel economy, equipment life, and lower the total cost of operation.



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ENGINE OIL ADDITIVES

- **HEAVY DUTY**
- **PETROL ENGINE**
- **MOTORCYCLE**
- **OFF-ROAD**
- **MARINE**

HEAVY DUTY ENGINE OIL ADDITIVES (HDDEO)



ONYX[™]
Additives

ONYX 99000

ONYX 99000 is a low sulfated ash, phosphorus and sulfur, heavy duty diesel engine oil additive package meeting the performance requirements of API CK-4. Crankcase oils blended with ONYX 99000 are especially effective at sustaining emission control system durability where particulate filters and other advanced after-treatment systems are used.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended at a recommended treat rate with appropriate viscosity modifier and industry-recognized Group II base oils, the finished lubricant meets the following performance levels:

- API CK-4/ API CJ-4
- API SN
- ACEA E9-16
- MB 228.31
- CES 20081
- CAT ECF-3
- VDS-4
- MACK EO-O PP
- RENAULT RLD-
- DDC 93K218
- MAN M3575
- MTU TYPE 2.1
- DEUTZ DQC III-10 LA
- FORD WSS-M2C171-F1

SAE Grades	Treat Rate, Wt.%
SAE 10W-30, SAE 10W-40, SAE 15W-40	13.6

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 55	64
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	Report

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 89700

ONYX 89700 is a versatile additive package designed for formulating heavy duty diesel and gasoline engine oils. It provides a higher level of protection against soot-related viscosity increase and extends oil drain intervals. This product contains multiple dispersant chemistries and synergistic antioxidants for effective handling of soot and sludge in diesel as well as gasoline engines. It meets the stringent performance requirements of North American, European and Japanese OEMs including API CI-4 Plus, ACEA E7 & JASO DH-1 specifications in relevant viscosity grades.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended at a recommended treat rate with appropriate viscosity modifier and industry-recognized Group I and Group II base oils, the finished lubricant meets the following performance levels:

- API CI-4 Plus/ SL
- ACEA E7, ACEA A3/B3/B4
- MAN M3275-1
- MTU Type 2
- VOLVO VDS-3
- RENAULT TRUCKS RLD-2
- MACK EO-N
- CUMMINS CES 20076/77/78
- DEUTZ DQC III-10
- CATERPILLAR ECF 1a. ECF-2
- DETROIT DIESEL DDC 93K215
- TATA Motors TSS 6576
- MB 229.1, MB 228.3
- JASO DH-1
- GLOBAL DHD-1

SAE Grades	Treat Rate, Wt.%
SAE 10W-30, SAE 10W-40, SAE 15W-40 and 20W-50	11.0

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 100	102
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	Report

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 89000

ONYX 89000 is an optimized and cost effective additive system designed to help blenders to rationalize their production of CI-4 performance oils but also the production of lower API performance oils. It meets the stringent performance requirements of North American, European and Japanese OEMs including API CI-4, ACEA E7 & Global DHD-1 specifications with appropriate viscosity grades.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

Treat Rate	SAE Grades	API CI-4/SL	API CH-4/SL	API CG-4/SL	ACEA A3/B3 B4-16	ACEA A3/B3-16	ACEA E2-96	ACEA E7-16	MB 229.1	MB 228.3	MB 228.1	JASO DH-1	Detroit Diesel 93K215
9% wt	SAE 15W-40	•	•	•	•	•	•	•	•	•	•	•	•
9% wt	SAE 10W-30	•	•	•	•	•	•	•	•	•	•	•	•
9% wt	SAE 10W-40	•	•	•	•	•	•	•	•	•	•	•	•
8.2% wt	SAE 15W-40		•	•	•	•	•		•	•	•		
8.2% wt	SAE 10W-30		•	•	•	•	•		•	•	•		
8.2% wt	SAE 10W-40		•	•	•	•	•		•	•	•		
7% wt	SAE 15W-40			•		•	•				•		
7% wt	SAE 10W-30			•		•	•				•		
7% wt	SAE 10W-40			•		•	•				•		

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

Treat Rate	SAE Grades	Deutz DQC III-18	VOLVO VDS-3	VOLVO VDS-2	Renault RD-2	Cummins CES 20076 77/78	Caterpillar EFC-2	GLOBAL DHD-1	MTU TYPE-2	MACK EO-N	MACK EO-L	MACK EO/K2	ALLISON C4	MAN 270/271	MAN 3275-1
9% wt	SAE 5W-40	•	•	•	•	•	•	•	•	•	•	•	•	•	•
9% wt	SAE 10W-30	•	•	•	•	•	•	•	•	•	•	•	•	•	•
9% wt	SAE 10W-40	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8.2% wt	SAE 15W-40			•									•		•
8.2% wt	SAE 10W-30			•									•		•
8.2% wt	SAE 10W-40			•									•		•
7% wt	SAE 15W-40														
7% wt	SAE 10W-30														
7% wt	SAE 10W-40														

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 115	123
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.01

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 88999

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. It 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. This product is formulated for use in both higher and lower API performance levels.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Grades	Treat Rate, Wt. %	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
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 145	153
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.04

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 89400

ONYX 89400 is a premium quality crankcase oil additive package which delivers class leading heavy duty diesel performance. It shows superb cleanliness performance in all critical areas of the engine. This product offers excellent oxidation and corrosion resistance, resulting in better viscosity control and hardware protection throughout extended drain.

RECOMMENDED TREAT RATE & PERFORMANCE

The package is blended at various treat levels in Yubase and Nexbase group III base stocks.

Parameters	SAE Grades	Treat Rate, Wt.%
ACEA E4/ E7-1 API CF DAF – EXTENDED DRAIN MB 228.5 MAN M3277 VOLVO VDS-3 MACK EO-N RENAULT RXD/RLD-2/RLD/RD-2	SAE10W-40	20.5
ACEA E4/ E7-16 API CF DAF – EXTENDED DRAIN MB 228.5 MAN M3277 MTU OIL CATEGORY 3 VOLVO VDS-3 MACK EO-N RENAULT RXD/RLD-2/RLD/RD-2 DEUTZ DQC III-10 SCANIA LDF 3 DEUTZ DQC III-10 MTU OIL CATEGORY 3 CUMMINS CES 20072	SAE10W-40	20.9
ACEA E4/ E7-16 DAF – EXTENDED DRAIN MB 228.5, MB 235.28 MAN M3277 MTU OIL CATEGORY 3 VOLVO VDS-3 MACK EO-N RENAULT RXD/RLD-2/RLD/RD-2 DEUTZ DQC III-10 SCANIA LDF 3 DEUTZ DQC IV-10 MTU OIL CATEGORY 3 CUMMINS CES 20072 VOITH RETARDER OIL-CLASS B FORD WSS-M2C212-A1	SAE5W-30	20.2

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 70	74
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.985

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

PASSENGER CAR MOTOR OIL ADDITIVES (PCMO)



ONYX 51000

ONYX 51000 is a dispersant-inhibitor additive package designed to formulate gasoline and diesel engine oils for vehicles operating under severe conditions and heavy loads. This product contains ash-less dispersants, zinc dithiophosphate and metallic detergents. It provides additional deposit, oil oxidation, wear and rust control in gasoline and diesel engine oils. It is formulated for use in both higher and lower performance levels.

RECOMMENDED TREAT RATE & PERFORMANCE

Cascade system developed to meet lower performances down to API SB/CB.

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Specifications	Treat Rate, Wt. %	BN
SG/CF	4.75	6.3
SF/CF	4.5	6.0
SF/CD, SF/CC	4.08	5.4
SE/CD	3.89	5.2
SE/CC	3.16	4.2
SC/CC	2.94	3.9
SC/CB, SB/CB	1.78	2.3

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 125	132
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.01

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 51555

ONYX 51555 is a treat optimized performance package designed for mid-tier API categories. It exhibits excellent deposits, wear, and oxidation control in severely operated gasoline and diesel engines. This product is developed to meet the requirements for an economical and cascadable additive system with minimum logistics complexity. Cascade system is developed to meet lower performances down to API SB/CB.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Specifications	Treat Rate, Wt. %	BN
SL/CF-4	6.40	9.2
SJ/CF-4	5.71	8.3
CF-4/SG	7.85	11.3
SG/CD	5.0	8
CF/SF	7.14	10
CF	5.35	7.7
CD/SF	5	7
SF/CD	4.28	6
CC/SC	2.86	4
SB/CB	2.14	3

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 130	144
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.03

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 52000

ONYX 52000 is a high performance PCMO package designed for mid to low tier API categories from API CF/SF down to API SB/CB. It contains ash-less dispersant, zinc dithiophosphate, metallic detergents and oxidation inhibitors. This product provides excellent deposit control, oil oxidation resistance, wear and rust control in gasoline and diesel engines.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Specifications	Treat Rate, Wt. %	BN
CF/SF	2.8	5.2
SF/CD	2.4	4.5
SE/CC	2.3	4.3
SD/CD	2.3	4.3
SD/CC	2.2	4.1
SC/CC	1.1	2.0
SB/CB	1.0	1.9

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 175	185
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.09

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 53000

ONYX 53000 is a field-proven engine oil additive system developed for mainstream gasoline and diesel engine lubricants, covering both top-tier and mid-tier API categories. It has excellent detergency, dispersancy and oxidation stability which help to inhibit oil deterioration and prevent engine wear. The optimized formulation of this product brings simplicity at the plant and delivers both inventory and logistical cost savings by eliminating the need of booster package.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Specifications	Treat Rate, Wt. %	BN
SN/CF	7.69	10
SM/CF	7.31	9.5
SL/CF-4	6.67	8.6
SL/CF	5.9	7.6
SJ/CF	5.31	7

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 120	129
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.99

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 53200

ONYX 53200 is a Full-SAPS crankcase oil additive package designed to formulate upper mainline lubricants meeting ACEA A3/B4 performance requirements for gasoline and light duty diesel engines. ACEA A3/B4 lubricants are typically used in newer vehicles as they provide the minimum performance demanded by many OEM specifications.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

15W-40	10W-40	0W-30	5W-30	5W-30	5W-40
(HTHS >3.5 cP) 8.5%	(HTHS >3.5 cP) 8.5%	(HTHS >3.5 cP) 8.5%	(HTHS >3.5 cP) 8.5%	(HTHS >2.9 cP) 9%	(HTHS >3.5 cP) 8.5%
API SN/CF	API SN/CF	API SL/CF	API SL/CF	API SL/CF	API SN/CF
ACEA A3/B4-21	SAE A3/B4-21	ACEA A3/B4-21	ACEA A3/B4-21	ACEA A5/B5-21	ACEA A3/B4-21

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 120	135
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.02

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 53400

ONYX 53400 is a high-tier, low-treat rate package to formulate motor oil meeting API SP performance. It protects turbo-charged gasoline direct injection (GDI) engines from low-speed pre-ignition (LSPI) phenomenon and delivers robust performance over ILSAC GF-6. This product imparts excellent high-temperature detergency, sludge dispersancy, and antioxidation performance to finished lubricants.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets the following performance levels:

Performance level	SAE Grades	Treat Rate, Wt.%
API SP	0W-16, 0W-20, 5W-20, 5W-30, 10W-30, 10W-40, 15W-40, 15W-50, 20W-50	7.6
ILSAC GF-6A	0W-20, 5W-20, 5W-30, 10W-30	7.6
ILSAC GF-6B	0W-16	7.6

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 86	95
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.98

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 53500

ONYX 53500 is a multifunctional engine oil additive package designed to meet the lubrication requirements of gasoline engines. It contains ash-less dispersants, friction modifiers, metallic detergents and oxidation inhibitors. This product also meets JASO MA2 performance requirements for 4-stroke motorcycle engine oils. Cascade system has been developed to meet API performance SN/SM/CF down to API SG/CD.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets the following performance levels:

API Performance Level	SAE Grades	Treat Rate % wt.
SN/SM/CF, JASO MA2		6.80% ONYX 53500
SL/CF, JASO MA2	SAE 10W-30, SAE 10W-40	6.80% ONYX 53500
SJ/CF	SAE 15W-40, SAE 20W-40	5.45% ONYX 53500
SG/CD	SAE 20W-50	4.80% ONYX 53500

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 105	110
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.0

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 55000

ONYX 55000 is a multifunctional performance package that has been developed for the formulation of premium quality Full-SAPS passenger car lubricants. It is a core package that contains the key building blocks necessary to formulate a wide range of engine oils. This product provides improved high temperature deposit build-up protection for pistons, turbochargers and stringent sludge control.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels. For further information, please contact ONYX representative.

Treat Rate 10.7 Wt. %	Treat Rate 11.24 Wt. %	Treat Rate 12 Wt. %	Treat Rate 13.3 Wt. %
API SN/CF ACEA A3/B4-08 MB 229.1 VW 501 01/505 00	API SN/CF ACEA A3/B4-08 MB 229.3 VW 502 00/ 505 00 RN 710/700	API SN/CF ACEA A3/B4-08 MB 229.3 PORSCHE A40 VW 502 00/ 505 00 RN 710/700	API SN/CF ACEA A3/B4-08 MB 229.3, MB 229.5 BMW LL-01 PSA B71 2296 PORSCHE A40 VW 502 00/ 505 00 Ford WSS-M2C937-A RN 710/700

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 74	75
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.96

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 57000

ONYX 57000 is a high-performance PCMO package designed for main tier API categories from API SL/CF-4 down to API SB/CB. It also meets the performance requirements of JASO MA 2 for 4-stroke motorcycle applications at specific booster treat rates.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels:

API Specifications	Treat Rate%	BN
SL/CF-4	6.35	7.0
SL/CF	6.0	6.8
SL, JASO MA 2	5.25	6
SJ, JASO MA2	4.77	5.4
SG/SF/CD	4.60	5.2
SG/SF/CC, JASO MA 2	4.30	5
SE/CC	3.99	4.5
SC/CC	2.22	2.5
SC/CB	2.22	2.5
SB/CB	2	2.3

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 100	113
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.01

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 57300

ONYX 57300 is a versatile PCMO additive package designed to meet the lubrication requirements of gasoline direct injection (GDI) engines which are sometimes susceptible to Low speed pre-ignition (LSPI) events. It has been specially formulated to protect against LSPI. This product in combination with ONYX 57800 booster package, meets the requirements of API SP. Please contact your ONYX representative for more information.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended at a recommended treat rate with suitable base stock and viscosity modifier, the finished lubricant meets the following performance levels:

Performance level	SAE Grades	Treat Rate, Wt. %
API SN PLUS	SAE 0W- 20, SAE 0W-30, SAE 0W-40, SAE 5W-30, SAE 5W-40, SAE 10W-30	7.60

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 82	88
Flash Point, °C	ASTM D92	min 180	200
Densityt @15.6 °C	ASTM D1298	-	0.985

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 57500

ONYX 57500 is a Mid-SAPS crankcase oil additive package which meets the stringent performance requirements of ACEA C3 and API SN. It is specially recommended to be used in formulations of high performance gasoline and light duty diesel engine oils where advanced after-treatment systems such as Diesel Particulate Filters (DPFs) and Three Way Catalysts (TWC) are used.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets the following performance levels:

Performance level	SAE Grades	Treat Rate, Wt.%
ACEA C3 API SN	SAE 10W- 30, SAE 10W-40, SAR 5W-30, SAE 5W-40	8.0

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 80	92
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.979

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 89555

ONYX 89555 is a multifunctional performance package based on leading Mid SAPS technology. It is a core package that contains the key building blocks necessary to formulate a wide range of engine oils. It combines most of the global heavy duty diesel and PCMO requirements of ACEA and API claims in a single, high-performance package. This product provides improved high-temperature deposit build-up protection for pistons and turbochargers, stringent sludge control, improved fuel economy, enhanced emission control system protection, and seal compatibility.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended with appropriate base stock and viscosity modifier, the finished lubricant meets the following performance levels. Please consult with ONYX representative for more details about SAE grades, proper volatility, shear stability, HTHS and other parameters required for specific applications and performance claims.

Treat Rate 8.2 Wt.%	Treat Rate 8.6 Wt.%	Treat Rate 8.7 Wt.%	Treat Rate 8.7 Wt.% + 1.2 Wt.% ONYX 7911HN	Treat Rate 9.4 Wt.%
API SN/ GF-5	API SN/ GF-5 ACEA C2/C3-12 MB 229.31, MB 229.51, MB 229.52 GM Dexos 2 VW 502.00, 505.01 VW 504.00, 507.00 (SAE 5W-30) BMW LL04 Porche C30 JASO DL-1	API SN/ GF-5 ACEA A5/ B5 Chrysler 6395 GM 6094M, GM 4718M Ford WSS M2C946-A Ford WSS M2C929-A HONDA/ACURA HTO-06	PI CJ-4/ SN ACEA E6-12, ACEA E9-12, ACEA E7-12 MB 228.51, 228.31 MAN M 3477/ M 3271-1/ M 3677 MTU Type 3.1 Volvo VDS-3/VDS-4 / Volvo CNG Renault RGD/ RXD/ RLD/ RLD-2/ RLD-3 Mack EO-M Plus/ EO-N Premium Plus/ EO-O Premium Plus-07 JASO DH-2, CAT ECF-3 Deutz DQC IV-10 LA Detroit Diesel DDC 93K218, Cummins CES 20081	API SN/GF-5 DEXOS1

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 92	93
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.985

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

MOTORCYCLE ENGINE OIL ADDITIVES (MCO)



ONYX[™]
Additives

ONYX 39000

ONYX 39000 is an additive package for 4-stroke motorcycle engine oils meeting API SN and JASO MA2 (T903:2016) performance levels. It provides superior wear and oxidation/nitration control in motorcycle engines. This product is suitable for use in both air-cooled and liquid-cooled 4-stroke motorcycle engines.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets the following performance levels:

Performance level	SAE Grades	Treat Rate, Wt. %
API SN JASO MA2	SAE 0W-30, SAE 0W-40, SAE 5W-30, SAE 5W-40, SAE 10W-30, SAE 10W-40, SAE 15W-40, SAE 15W-50, SAE 20W-40, SAE 20W-50	6.6

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 80	90
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.0

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

OFFROAD VEHICLE ADDITIVES



ONYX[™]
Additives

ONYX 44000

ONYX 44000 is a multi-functional additive package designed to formulate transmission and drive train oil, meeting caterpillar TO-4 and Caterpillar TO-4M requirements. It provides balanced frictional characteristics for powershift transmissions and wet brake applications. This product imparts good elastomer compatibility and oxidation stability performances to finished oil to meet the specifications for powershift transmissions, final drive, and hydraulic systems.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets following performance levels:

Performance level	SAE Grades	Treat Rate, Wt. %
Caterpillar TO-4 and TO-4M Allison C4 API CF / CF-2	SAE 10W, SAE 30, SAE 50	6.0

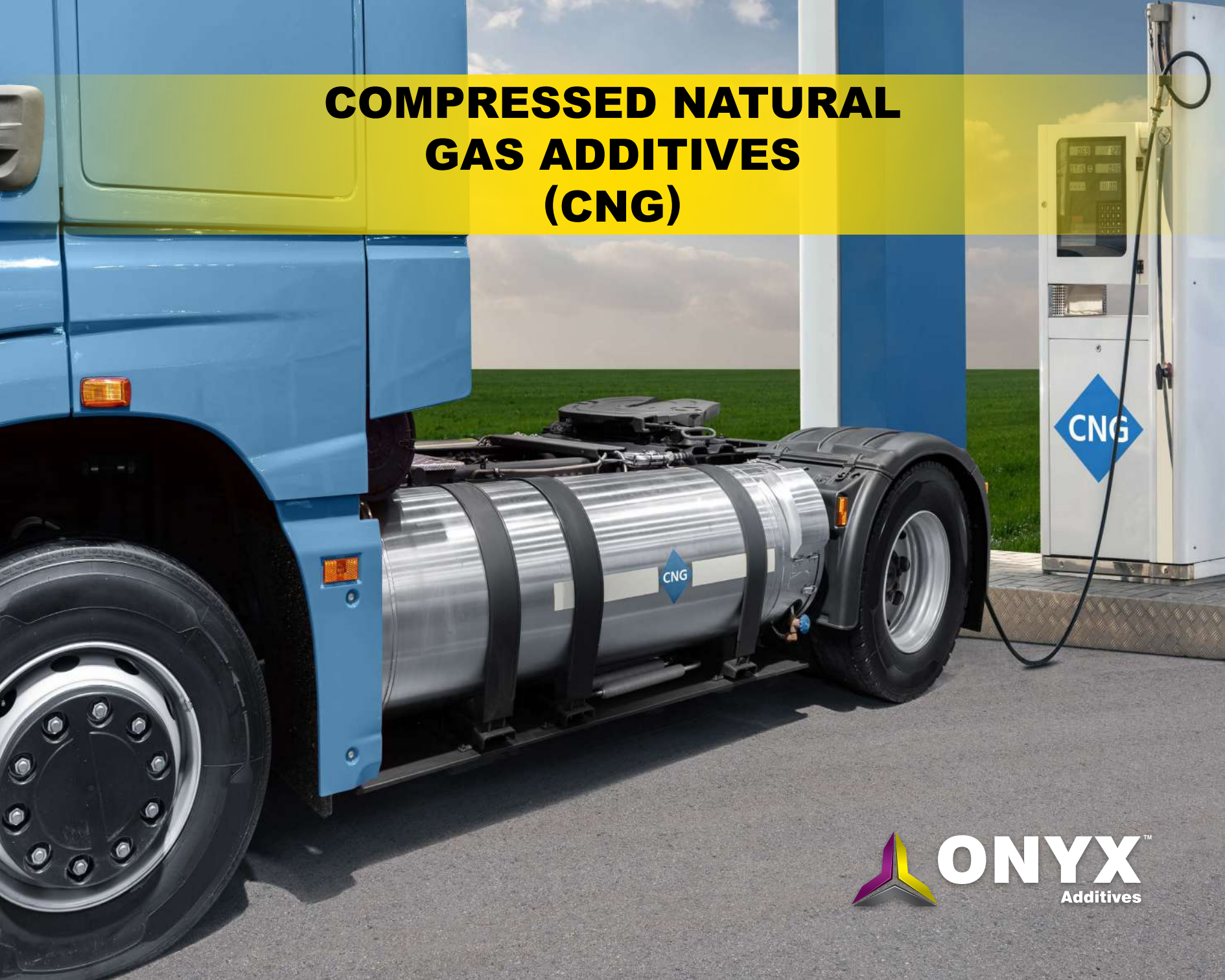
PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 110	116
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.99

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

COMPRESSED NATURAL GAS ADDITIVES (CNG)



ONYX[™]
Additives

ONYX 54300

ONYX 54300 is a medium ash mobile heavy duty natural gas engine oil additive package. It provides improved performance for mobile heavy duty engines fueled with compressed natural gas (CNG) or liquified natural gas (LNG). Oils formulated with ONYX 54300 demonstrate improved oxidation & nitration control in addition to outstanding wear and deposit control.

RECOMMENDED TREAT RATE & PERFORMANCE

When blended at a recommended treat rate with appropriate viscosity modifier and industry-recognized Group I and Group II base stocks, the finished lubricant meets the following performance levels:

Performance level	SAE Grades	Treat Rate, Wt.%
API CF-4 Cummins CES20085 DDC 93K216	5W-40, 10W-40, 15W-40, 20W-50	8.2

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 70	79
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.99

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 54500

ONYX 54500 is a premium low-ash natural gas engine oil additive package. It offers improved performance for engines fueled with compressed natural gas (CNG) as well as Biogas. Oils formulated with ONYX 54500 demonstrate improved oxidation & nitration control in addition to outstanding wear and deposit control. This product is recommended for gas engines.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, the finished lubricant meets the performance levels:

Performance level	SAE Grades	Treat Rate, Wt.%
Caterpillar, Waukesha, GE Jenbacher, MWM, MTU, Wartsila, MAN	SAE 40	8.1

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 65	68
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.983

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

MARINE OIL ADDITIVES



ONYX[™]
Additives

ONYX 69000

ONYX 69000 is a versatile core additive package designed for use in combination with ONYX 69300 or ONYX 69800 to formulate Trunk Piston Engine oils (TPEO) and System Oils (SO). When used with ONYX 69300, the combination is ideally suited for formulating low oil consumption trunk piston engines oils for modern marine and power generation engines running on distillate or residual fuel. This product can be blended with ONYX 69800 to formulate marine system oils for 2-stroke crosshead engines.

RECOMMENDED TREAT RATE & PERFORMANCE

ONYX 69000 can be used at a treat rate of 1.5 Wt% along with ONYX 69300 to blend TPEO to the required base numbers.

ONYX 69000 Wt.%	ONYX 69300 Wt.%	TBN (mg KOH/g)
1.5	4.1	12
1.5	5.1	15
1.5	6.7	20
1.5	10.2	30
1.5	13.5	40
1.5	17.0	50
1.5	18.8	55

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	0.980

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 69300

ONYX 69300 is a part additive package for the formulation of trunk piston engine oils. In combination with the core package ONYX 69000, this product brings superior performance in sludge control and oxidation protection in marine and stationary diesel engines burning low, medium or high sulfur fuel oils.

RECOMMENDED TREAT RATE & PERFORMANCE

ONYX 69300 can be used at varied treat rates along with ONYX 69000 to blend TPEO to the required base numbers:

ONYX 69300 Wt.%	ONYX 69000 Wt.%	BN (mg KOH/g)
4.1	1.5	12
5.1	1.5	15
6.7	1.5	20
10.2	1.5	30
13.5	1.5	40
17.0	1.5	50
18.8	1.5	55

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
BN, mgKOH/g	ASTM D2896	min 295	299
Flash Point, °C	ASTM D92	min 180	200
Density @15.6 °C	ASTM D1298	-	1.073

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



DRIVELINE ADDITIVES

- **AUTOMATIC TRANSMISSION FLUID**
- **AUTOMOTIVE GEAR**

ATF (TRANSMISSION FLUID) ADDITIVES



ONYX 3200

ONYX 3200 is a versatile automatic transmission fluid additive package formulated to meet the performance requirements of General Motors, Ford and Allison transmissions. It provides excellent high temperature oxidative stability, corrosion and wear protection, anti-shudder durability and optimized frictional properties, as well as sludge and deposit prevention performance. This product is recommended for GM DEXRON® IIG/H and Ford MERCON® performance levels. It can also be used at a lower treat rate for lower performance applications satisfied by 'Type A Suffix A' (TASA) fluids as well as DEXRON II D/E®.

8.3 wt% of ONYX 3200 in suitable base stocks meets the requirements of,

GM DEXRON® III-H, III-G, III-F, III-E, III-D	Allison TES, 389
Ford MERCON®	Ford M2C138-CJ, M2C 166-H Fluids
MAN 339 Z1 and V1, Z2 and V2	MB 236.1, 236.5, 236.6, 236.7, 236.9
Voith 55,6335 and 55,6336	Volvo 97340, 97341
ZF TE-ML 02F, 03D, 04D, 09, 11A/B, 14A/B, 16L, 17C	Chrysler transmissions prior to Chrysler MS-9602 or MS-7176
Allison C-4 Fluids	Caterpillar TO-2 Fluids

7.7 wt% of ONYX 3200 in suitable base stocks meets the requirements of,

DEXRON® IIE / DEXRON® IID

6.0 wt% of ONYX 3200 in suitable base stocks meets the requirements of,

DEXRON® II

4.0 wt% of ONYX 3200 in suitable base stocks meets the requirements of,

Type A Suffix A

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 150	190
Density @15.6 °C	ASTM D1298	-	0.920

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 3210

ONYX 3210 is a multipurpose PMA based automatic transmission fluid additive that blends easily to formulate high quality automotive transmission fluids. It is a versatile package that offers flexibility to blend in wide variety of base oil stocks.

RECOMMENDED TREAT RATE & PERFORMANCE

Performance	Treat Rate
DEXRON IID	5.90%
DEXRON III	8.9%

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 150	180
Density @15.6 °C	ASTM D1298	-	0.93

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

MANUAL GEAR OIL ADDITIVES



ONYX 6600

ONYX 6600 is a multifunctional gear oil additive used to formulate high-load carrying, low wear, energy-saving lubricants for automotive gear and bearing applications. Oils formulated with ONYX 6600 have excellent oxidative and thermal stability.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate by weight, the finished lubricant meets below performance levels:

Automotive	Industrial
<p>At a recommended treat rate of 4.4 % by weight, the finished lubricant will meet:</p> <ul style="list-style-type: none"> • API GL-5 (eqv. MIL-L-2105D) MAN 342 M2 (160,000 km. drain) ZF TE-ML 05A, 7A, 12E, 16B, C & D, 17B, 19B, 21A <p>• At a recommended treat rate of 2.2 % by weight, the finished lubricant will meet,</p> <ul style="list-style-type: none"> • GL-4 	<p>At a recommended treat rate of 1.5 % by weight, the finished lubricant will meet:</p> <ul style="list-style-type: none"> • AISE 224, David Brown S1.53.101(E) AGMA 9005-F16 (AS) and strong FAG FE-8 performance

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 90	150
Density @15.6 °C	ASTM D1298	-	1.01

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 6611

ONYX 6611 is a treat optimized high-performance gear oil additive used to formulate high load carrying, low wear, energy saving lubricants for automotive gear and bearing applications. This product has excellent extreme pressure performance, thermal stability and oxidation stability, which extends the drain interval and equipment service life.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate by weight, the finished lubricant meets below performance levels:

Automotive	Industrial
At a recommended treat rate of 3.8% by weight, the finished lubricant will meet: <ul style="list-style-type: none"> • API GL-5, MIL-L-2105D, MAN 342 M2, ZF TE-ML, 05A, 7A, 12E, 16B/C/D, 17B, 19B, 21A 	At a recommended treat rate of 1.8 % by weight, the finished lubricant will meet: <ul style="list-style-type: none"> • L-CKD, AISE 224, AGMA 9005
At a recommended treat rate of 1.9 % by weight, the finished lubricant will meet, <ul style="list-style-type: none"> • API GL-4 	At a recommended treat rate of 1.0 % by weight, the finished lubricant will meet: <ul style="list-style-type: none"> • L-CKC, DIN 51517 CLP-2

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 90	150
Density @15.6 °C	ASTM D1298	-	0.989

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



INDUSTRIAL ADDITIVES

- **HYDRAULIC**
- **METAL WORKING FLUID**
- **AIR COMPRESSORS**
- **TURBINE OIL**

HYDRAULIC FLUID ADDITIVES



ONYX[™]
Additives

ONYX 7200

ONYX 7200 is an antiwear type hydraulic oil additive package with excellent oxidation, rust, and wear-inhibiting properties. It can be used to formulate high-performance hydraulic fluids with high thermal stability (according to Cincinnati Machine P-68/P-69/P-70 requirements), hydrolytic stability (according to ASTM-D 2619 HF-0 requirements), and filtration properties even when extremely fine filters are used (according to ISO 13357 part 1-wet and part 2-dry). It is soluble in mineral and synthetic base oils.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate by weight in appropriate base stock and viscosity grade, the finished lubricant meets the following performance levels:

Performance Levels	VG 32	VG 46	VG 68	VG 100	VG 150	Treat Rate, Wt.%
AFNOR NF-E 48-690/1	•	•	•	•	•	0.8
AFNOR NF-E 48-603 HM	•	•	•	•	•	
Dension HF-0/HF-1/HF-2	•	•	•	•	•	
Vickers I-286-S	•	•	•			
Vickers M-2950-S	•	•	•			
DIN 51524 PART 2/3	•	•	•	•		
ISO 11158 TYPE HM	•	•	•	•	•	
Cincinnati Machine P-68	•					
Cincinnati Machine P-70		•				
Cincinnati Machine P-69			•			

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Results
Appearance	Visual	C&B	C&B
Viscosity@ 40°C, cSt	ASTM D445	Report	-
Flash Point, °C	ASTM D92	Min 140	142
Density @ 20°C, Kg/m3	ASTM D1298	-	Report

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

METAL WORKING FLUID ADDITIVES



ONYX[™]
Additives

ONYX 1100

ONYX 1100 is an additive package to formulate water soluble metal working fluid. It is a cost-effective, combined emulsifier and corrosion inhibitor package.

RECOMMENDED TREAT RATE

- ONYX 1100, Wt. %: 15 – 20

Stability	Concentrate	Emulsion	Stability
Stability at 0°C: Stable fluid	Appearance: Amber Fluid	Appearance: Good milky	200ppm CaCO ₃ Stable
Stability at 40°C Stable fluid	Stable at 0°C: Stable Fluid	IP287, Break Point, %: 5.0	500ppm CaCO ₃ Stable
-	Stable at 40°C: Stable Fluid	pH @ 5%: 9.8	-

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point, °C	ASTM D92	min 150	190
Density @15.6 °C	ASTM D1298	-	0.99

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

AIR COMPRESSOR OIL ADDITIVES



ONYX[™]
Additives

ONYX 7311

ONYX 7311 is an ash-less additive package designed for blending premium air compressor oils which meets the demanding lubrication requirements of rotary screw and reciprocating air compressors. It provides excellent antiwear properties, rust, and oxidation control. These features contribute to longer fluid life and reduced system maintenance.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, Onyx 7311 meets the following performance levels:

Performance Levels	Treat Rate%
DIN 51506 VDL	1.2
DIN 51524-1	0.6

PHYSICAL / CHEMICAL CHARACTERISTICS

Properties	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
Flash Point, °C	ASTM D92	Report	150
Density @ 15.5°C, g/ml	ASTM D1298	Report	0.932

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TURBINE OIL ADDITIVES



ONYX[™]
Additives

ONYX 7322

ONYX 7322 is an ash-less additive package intended for use in high-performance turbine oils. It provides excellent rust and oxidation control, and filterability. These features contribute to longer fluid life and reduced system maintenance.

RECOMMENDED TREAT RATE & PERFORMANCE

At a recommended treat rate, Onyx 7322 meets the following performance levels:

Performance Levels	Treat Rate%
DIN 51515-1	1.2
General Electric GEK 32568, GEK 107395, GEK 46506	
Siemens TLV 9013 04	
Alstom HTGD 90 117 Solar Turbines ES9-224 ISO 8068	
DIN 51524-1	

PHYSICAL / CHEMICAL CHARACTERISTICS

Properties	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
Flash Point, °C	ASTM D92	Report	150
Density @ 15.5°C, g/ml	ASTM D1298	Report	0.932

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



LUBRICANT COMPONENTS

- **DETERGENT/DISPERSANT**
- **ANTIOXIDANT**
- **FRICION MODIFIER/ANTIWEAR**
- **VISCOSITY MODIFIER**

DETERGENT & DISPERSANT ADDITIVES



ONYX 7020

ONYX 7020 is a medium-base alkyl calcium salicylate lubricant additive with a wide application range. This product has excellent high-temperature detergency, hydrolytic stability, antioxidant, and corrosion resistance properties. It is widely used in gasoline engine oils, heavy duty diesel engine oils, and marine oils. This product is a metal detergent and boosts acid neutralization, anti-corrosion, and high-temperature detergency properties.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 160	>160
Flash Point, °C	ASTM D92	≥180	Report
Density @20 °C, Kg/L	ASTM D4052	-	1.01

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7030

ONYX 7030 is an overbased synthetic calcium sulfonate of the sulfonate salt series lubricant additives products. It is made from long-chain alkylbenzene sulfonic acid by means of neutralization and high alkalization reaction. It boosts acid neutralization capacity, anti-rust property, and high-temperature detergency, so it is widely used in different engine oils as a detergent.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 295	300
Flash Point, °C	ASTM D92	≥180	Report
Density @20 °C, Kg/L	ASTM D1298	-	1.10

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7040

ONYX 7040 is a highly alkaline detergent and corrosion inhibitor additive with very good stability at high temperatures. The product has excellent alkaline reserve properties, good oil solubility, and strong acid neutralization capability. Its excellent detergency prevents deposits in engines operating at high temperatures. This product is a preferred additive for blending automotive and marine lubricants.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 395	415
Flash Point, °C	ASTM D92	≥ 180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.19

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7072

ONYX 7072 is a super over-based synthetic magnesium sulfonate which is one of the detergent lubricant additives. As a core metal detergent additive, it provides excellent acid neutralization capacity, good anti-rust properties, and high-temperature detergency. It is widely used for blending different engine oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 395	400
Flash Point, °C	ASTM D92	≥ 180	200
Density @20 °C, KG/L	ASTM D1298	-	1.19

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7900HN

ONYX 7900HN is a polyisobutylene succinimide ash-less dispersant. It is generally used with additive packages in lubricant applications. It provides excellent low temperature sludge and varnish control in gasoline engines, and effective dispersancy in diesel engine, natural gas and marine cylinder lubricants.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 79	80
Flash Point, °C	ASTM D92	≥ 180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.19

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7961

ONYX 7961 is a high molecular weight polyisobutylene succinimide ash-less dispersant prepared from highly reactive polyisobutylene, with better detergency capability than low molecular weight ash-less dispersant and good solubility and high-temperature stability. It inhibits the generation of carbon deposits and can be widely used to formulate high-grade internal combustion engine oils. It doesn't contain chlorine and has preferable compatibility with detergent, antioxidant and corrosion inhibitors.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	20-30	20
Flash Point, °C	ASTM D92	≥180	Report
Density @20 °C, KG/L	ASTM D1298	-	0.92

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7911

ONYX 7911 (Polyisobutylene Succinimide) is an ash-less dispersant prepared from highly reactive Polyisobutylene (Mn=1300), with better detergency capability. It can inhibit the carbon deposit and the formation of varnish film. It doesn't contain chlorine. It has preferable compatibility with detergent, antioxidant, and corrosion inhibitors.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	15-30	20
Flash Point, °C	ASTM D92	≥ 180	Report
Density @20 °C, KG/L	ASTM D1298	-	0.92

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7951

ONYX 7951 is a mono polyisobutylene succinimide ash-less dispersant prepared from highly reactive polyisobutylene. It has excellent low-temperature detergency capability and good soot dispersancy capabilities. It is widely used in formulating high-grade internal combustion engine oils. It doesn't contain chlorine and has preferable compatibility with detergent, antioxidant, and corrosion inhibitor additives.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	min 30	40
Flash Point, °C	ASTM D92	≥ 180	200
Density @20 °C, KG/L	ASTM D1298	-	0.92

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 8081

Onyx 8081 is an over based sulfurized calcium alkyl phenate produced using dodecyl phenol through sulfurization, neutralization, and high alkalization reaction. This product is a kind of widely used lubricant additive of comprehensive performance. It has extremely good acid neutralization capacity and high-temperature detergency, excellent oxidation resistance and corrosion control as well as good emulsion resistance and oil solubility. It is compatible with sulfonates, alkenyl succinimide, zinc, and other additives. It has a prominent effect in reducing top-piston ring carbon and is widely used to blend middle and high-grade engine oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	240 - 285	260
Flash Point, °C	ASTM D92	≥180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.02

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 8084

Onyx 8084 is a super overbased sulfurized calcium alkyl phenate widely used lubricant additive of comprehensive performance, it has extremely good acid neutralization capacity, better antioxidation, abrasion resistance, and a larger base number than similar products. It also has excellent detergency and dispersion effects and hydrolysis stability.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
BN, mgKOH/g	ASTM D2896	295 - 315	305
Flash Point, °C	ASTM D92	≥ 180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.03

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ANTIOXIDANT ADDITIVES



ONYX 3006

ONYX 3006 is an ash-less dinonyl diphenylamine antioxidant additive that possesses good thermal stability, excellent oxidation resistance under high temperatures, good oil solubility as well as compatibility with other additives. It features optimized proportion and control of different alkyl substitutes with a lower free amine content. It has synergistic effects when combined with phenolic ester antioxidants.

APPLICATIONS

ONYX 3006 is widely used in engine lubricants, heat transfer oil, high-temperature chain oil, hydraulic oil, compressor oil, turbine oil, and other industrial lubricant oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
Flash Point, °C	ASTM D92	min 134	Report
Density @20 °C, KG/L	ASTM D1298	-	0.96

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 3033

ONYX 3033 is a high sulfur, high nitrogen containing ash-less antioxidant additive. It exhibits outstanding anti-oxidation properties, great abrasion resistance, and extreme pressure properties. This product has excellent compatibility with other additives.

APPLICATIONS

ONYX 3033 can be used in steam turbine oil, hydraulic oil, gear oil, internal combustion engine oil, and other variety of oils to improve their anti-oxidation and abrasion resistance. It is also an effective extreme-pressure additive for lubricating grease.

PHYSICAL / CHEMICAL CHARACTERISTICS

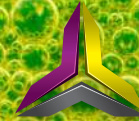
Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	Report	-
Flash Point, °C	ASTM D92	>170	Report
Density @20 °C, KG/L	ASTM D1298	-	0.98

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



**FRICION
MODIFIER & ANTIWEAR AGENT**



ONYX™
Additives

ONYX 3132

ONYX 3132 is a multifunctional oil-soluble molybdenum dithiocarbamate (MoDTC) that acts as a friction reducer, antiwear and antioxidant agent in a variety of formulations. Its unique alkyl group structure allows for improved solubility in less polar base oils which makes it compatible with a wide range of automotive and industrial lubricants.

APPLICATIONS

Passenger car motor oil, heavy duty diesel engine oil, greases, industrial oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D1298	-	Report
Flash Point, °C	ASTM D92	>170	Report
Density @20 °C, KG/L	ASTM D1298	-	1.02
Molybdenum, % Wt	ASTM D4951	4.0 – 5.0	4.6

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 3232

ONYX 3232 is a multifunctional oil-soluble molybdenum dithiocarbamate (MoDTC) which acts as a friction reducer, antiwear and antioxidant agent in variety of formulations. Its unique alkyl group structure allows for improved solubility in less polar base oils which makes it compatible with a wide range of automotive and industrial lubricants.

APPLICATIONS

Passenger car motor oil, heavy duty diesel engine oil, greases, industrial oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D1298	-	Report
Flash Point, °C	ASTM D92	>170	Report
Density @20 °C, KG/L	ASTM D1298	-	1.02
Molybdenum, % Wt	ASTM D4951	min 8.5	9.4

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7002

ONYX 7002 is a zinc butyl octyl primary alkyl dithiophosphate lubricant additive. This product features excellent oxidation resistance, corrosion resistance, anti-wear, and mild extreme pressure properties. It has high thermal stability, favorable oil solubility, and compatibility with other lubricant additives. This product can be compounded with sulfonate detergents and dispersants to formulate high-grade engine oils, or blended with other additives to make anti-wear hydraulic oils.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D1298	-	Report
Flash Point, °C	ASTM D92	>180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.12
Zinc, % Wt	ASTM D4951	8-10	8.5

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX 7003

ONYX 7003 is a zinc mixed 2-ethyl hexanol & secondary butanol dithiophosphate. It inhibits oil oxidation and reduces wear. This product is used extensively in engine oil formulations to prevent the wear of piston rings, cylinder liners, cam, and tappets. It has good anti-oxidation and mild extreme pressure performance, fine hydrolytic, and thermal stability. In combination with other performance additives, It is used for blending a variety of products for industrial and automotive oil applications.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D1298	-	Report
Flash Point, °C	ASTM D92	>180	Report
Density @20 °C, KG/L	ASTM D1298	-	1.12
Zinc, % Wt	ASTM D4951	8-10	8.5

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

VISCOSITY MODIFIER



ONYX[™]
Additives

ONYX LP 5125

ONYX LP 5125 is a cost-effective viscosity modifier manufactured by dissolving an Olefin Co-polymer in Group-I base oil. This high-quality product is designed for use in the formulation of multi-grade oils meeting the stringent performance requirements of modern diesel and gasoline engine oils as well as industrial lubricants. This product imparts excellent shear stability and low-temperature properties to passenger car motor oils and heavy duty engine oils. It exceeds the ACEA, API, and OEM shear stability requirements in a wide range of viscosity grades.

RECOMMENDED TREAT RATE & PERFORMANCE

Recommended supplemental treat rate to make various multi-grade viscosity oils are as follows:

SAE Grade	10W-30	10W-40	15W-40	20W-50	5W-30	5W-40
Treat Rate (% wt.)	7 – 9	10 – 12	7.5 – 10.5	8 – 10	8 – 10	10 – 12

Actual treat rate vary with base stocks and viscosity targets

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D1298	1050 -1400	1150
Flash Point, °C	ASTM D92	>180	200
Density @20 °C, KG/L	ASTM D1298	-	Report
Shear Stability Index (SSI)	ASTM D6278	max 25	24

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TEXAPOL 6578

Texapol 6578 is an olefin co-polymer (OCP), intended for use as viscosity improver (VI) in lubricants. It has excellent thickening power with low treated cost.

CHARACTERISTICS

- Olefin co-polymer (OCP), intended for use as viscosity improver (VI) in lubricants.
- Excellent thickening power with low treated cost.
- Clear solutions in Group I base oils.
- Ideal for automotive and industrial lubricants.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	C&B	C&B
Kinetic Viscosity at 100°C (cSt), 9% polymer in SN150	ASTM D445	1200-1600	1400 cSt
Kinetic Viscosity at 100°C (cSt), 1% polymer in SN150	ASTM D445	-	14.1
Density	ASTM D1505	-	Report
Shear Stability Index (SSI)	ASTM D6278	max 25	45

Dissolving

Polymers should be dissolved under high agitation in oil at 120°C for 7 - 10 hours until totally dissolved.

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TEXAPOL 6022

Texapol 6022 is an olefin co-polymer (OCP), that is polymerized by ethylene and propylene. It is primarily used in blending high-grade internal combustion engine oils. It has a low shear stability index and it is perfect to make viscosity index improver when dissolved in the proper base oil. This product is solid at ambient temperature.

CHARACTERISTICS

- Excellent shear stability and low-temperature properties.
- Excellent thickening power with a low treat rate.
- Excellent compatibility with pour point dispersant.
- Ideal for automotive and industrial lubricants.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Value
Appearance	Visual	Bale	Bale
Mooney Viscosity ML (1+4) 100°C	ASTM D1646	8 - 13	10
Ethylene Content, %Wt.	ASTM D3900	48 - 54	51
Density	ASTM D1505	Report	0.86
Shear Stability Index (SSI)	ASTM D6278	22 - 25	24

Dissolving

The polymer should be dissolved under high agitation in oil at 120°C for 6 - 8 hours until totally dissolved.

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TEXAPOL SV-5

Texapol SV-5 is a partially hydrogenated isoprene (star structure) viscosity modifier. It is designed for use in the formulation of multi-grade oils meeting the stringent performance requirements of modern diesel and gasoline engine oil specifications. This product readily dissolves to form concentrates in commonly available mineral and synthetic (PAO) base oils.

CHARACTERISTICS

- Excellent shear stability and low-temperature properties.
- High thickening power.
- Excellent compatibility with pour point dispersant additive.
- Particularly suitable for heavy duty diesel and PCMO applications.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	Bale	Bale
Density@ 60F lb/cf	ASTM D4052	Report	54
Shear Stability Index	ASTM D6782	0-5	5

Solubilization

ONYX SV-5 should be dissolved under agitation in oil at 120°C for 4 - 6 hours until totally dissolved.

Storage

Store at 20-35°C under cover and avoid direct sunlight.

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TEXAPOL SV-9

Texapol SV-9 is a hydrogenated styrene-diene block copolymer viscosity modifier. This high quality product is designed for use in the formulation of multi-grade oils meeting the stringent performance requirements of modern diesel and gasoline engine oil specifications. This product readily dissolves to form concentrates in commonly available base oils.

CHARACTERISTICS

- Good shear stability and low temperature properties.
- High thickening power.
- Excellent compatibility with pour point dispersant additive.
- Particularly suitable for heavy duty and railroad applications.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	Bale/Crumb	Bale/Crumb
Density@ 60F lb/cf, Bale/Crumb	ASTM D4052	Report	40/17
Shear Stability Index	ASTM D6022	8 - 12	9

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

TEXAPOL SV-15

Texapol SV-15 is a hydrogenated styrene-diene premium viscosity modifier. This high quality product is designed for use in the formulation of multi-grade oils meeting the stringent performance requirements of modern diesel and gasoline engine oil specifications. This product readily dissolves to form concentrates in commonly available base oils.

CHARACTERISTICS

- Excellent shear stability and low temperature properties.
- Excellent thickening power with low treat rate.
- Excellent compatibility with pour point dispersant.
- Ideal for automotive and industrial lubricants.

RECOMMENDED TREAT RATE & PERFORMANCE

Recommended supplemental treat rate to make various multi-grade viscosity oils are as follows:

SAE Grade	10W-30	10W-40	15W-40	20W-50	5W-30	5W-40
Treat Rate (% wt.)	0.8	1	1	0.85	0.8	1

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	White Powder/ crumb	White Powder/ crumb
Density@ 15F, lb/cf	ASTM D4052	Report	13.5
Volatility, %Wt.	ASTM D5480	≤ 1	Report
Shear Stability Index (SSI)	ASTM D6278	15 - 20	20

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX PIB 2400

ONYX PIB 2400 is a high molecular weight polyisobutene used in automotive lubricants and other industrial applications. It is colorless, chemically inert, non-drying and highly resistant to oxidation and UV degradation.

CHARACTERISTICS

- Excellent shear stability and low temperature properties.
- Excellent thickening power with low treat rate.
- Excellent compatibility with pour point dispersant.
- Ideal for automotive and industrial lubricants.

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	4200 – 4900	Report
Flash Point, °C	ASTM D92	Min 170	Report
Density @15 °C	ASTM D1298	-	0.92

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



LUBRICANT COMPONENTS

- **ANTIFOAM**
- **CORROSION INHIBITOR**
- **POUR POINT DISPERSANT**

ONYX AF521

ONYX AF521 is polydimethylsiloxane, a polymeric organosilicon compound that is ideal to be used as a defoaming agent. Very small quantities of the fluid are very effective in controlling foam, especially in lubricating oils. The very high viscosity index, the thermal and chemical stability, shear-breakdown resistance, and the rubber compatibility as well as the compressibility make this fluid outstanding for mechanical and hydraulic uses.

CHARACTERISTICS

- Little change in physical properties over a wide temperature range.
- Thermally stable for extended time intervals.
- Excellent water repellency.
- Low surface tension. The fluid readily wets clean surfaces to impart water repellency and release characteristics.
- Low toxicity.
- Excellent defoaming properties.
- Non-irritant to skin

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity@ 100°C, cSt	ASTM D445	-	Report
Flash Point (COC), °C	ASTM D92	>300	Report
Density 20 °C	ASTM D4052	-	0.985

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

ONYX P-1500

ONYX P-1500 is a PMA-based pour point dispersant/flow improver that provides the most cost-effective solution to keep your automotive lubricants flowing in cold. It provides the versatility you need to effectively treat the wide range of new generation base stocks available in the market today and thus permits product rationalization. It is highly recommended for use in a wide variety of engine oils, gear oils, and hydraulic and transmission fluids.

RECOMMENDED TREAT RATE & PERFORMANCE

Depending on the degree of depression desired and the pour point of the base oil to be treated, the typical treat rates would range as follows:

Applications	Treat Rate%
Engine Oils	0.05 – 0.8
Gear Oils	0.05 – 1
Industrial Oils	0.05 – 1

PHYSICAL / CHEMICAL CHARACTERISTICS

Parameters	Test Methods	Specifications	Typical Values
Appearance	Visual	C&B	C&B
Viscosity @ 100°C, cSt	ASTM D445	300 - 500	Report
Flash Point (COC) °C	ASTM D92	min 180	Report
Density 20 °C	ASTM D4052	-	0.92

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.

BENZOTRIAZOLE

Benzotriazole prevents the corrosion of copper and copper alloys. It also protects steel, cast iron, cadmium, and nickel alloys under certain conditions. This product reduces the corrosive effect of copper ions on various metals.

APPLICATIONS

- Antifreezes/coolant.
- Cooling water in open and closed water circuits.
- Hydraulic fluids, brake fluids, metal-working fluids.
- Cleaning agents and polish for metals.
- Electroplating.
- VCI paper.

Product Specifications

Chemical Name	1,2,3-benzotriazole
Molecular formula	C ₆ H ₅ N ₃
Description	white needles
Assay (GC)	99.8% min

PHYSICAL / CHEMICAL CHARACTERISTICS

Characteristics Data

Density (20oC)	approx. 1.19 g/cm ³
Bulk density	approx. 500 kg/m ³
Flash point	approx. 195oC

GENERAL HANDLING INSTRUCTIONS

Neoprene or nitrile rubber gloves and safety goggles should be worn for handling. The maximum handling temperature is 60°C. Material safety data sheet should be consulted for specific information and for information on health and safety.



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