# ONYX 89000

*Heavy Duty Diesel Engine Oil Additive*

## DESCRIPTION:

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 in appropriate viscosity grades.

## PERFORMANCE:

When blended with appropriate base oils and viscosity modifier, the lubricant meets the following performance profiles.

| ONYX 89000 | SAE | 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 | 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 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 | | | ● | | ● | ● | | | | ● | | | | | | | | | | | | | | | | |

For further information contact ONYX representative.

## PHYSICAL / CHEMICAL CHARACTERISTICS

| Parameters | Test Methods | Specifications | Typical Value |
|---|---|---|---|
| Viscosity@ 100°C, cSt | ASTM D445 | Report | 70 |
| BN, mgKOH/g | ASTM D2896 | min 115 | 123 |
| Calcium, % Wt | ASTM D4951 | 3.0 – 4.45 | 3.72 |
| Zinc, % Wt | ASTM D4951 | 1.15 – 1.72 | 1.44 |
| Phosphorus, % Wt | ASTM D4951 | 1.0 – 1.60 | 1.34 |
| Molybdenum, % Wt | ASTM D5185 | min 0.05 | 0.06 |
| Nitrogen, % Wt | ASTM D5291 | min 0.75 | 0.97 |
| Flash Point, °C | ASTM D92 | >180 | 200 |
| Density @ 15.6°C, g/ml | ASTM D1298 | Report | 1.01 |


For further info please contact us at info@rexolcorp.com
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## 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 | 3inch/8cm. min. |

## Heat Source:

| | |
|---|---|
| Type | Steam 107˚C/225˚F max. |
| Storage Tank | Suction Heater Recommended |


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