



## El Mar 3100

Conoco El Mar 3100 is a low-ash natural gas engine oil of proven performance in 4-stroke cycle engines powered by either natural gas or LPG. It is formulated from an advanced dispersant-detergent technology, which provides superior engine cleanliness by controlling sludge and minimizing carbon and lacquer deposits on piston crown landings, grooves and under-crown. The low-ash formulation reduces ash deposits caused by consumption or burning of oil in the power cylinders. It also reduces valve seat recession and provides protection against wear in the critical engine parts such as rings, liners, bearings and valve guides. El Mar 3100 is an API CD level of performance oil manufactured from high quality, high viscosity index base stocks. It is formulated to meet the requirements of engines equipped with exhaust after treatment devices.

### **Applications**

El Mar 3100 is recommended for use in turbocharged, lean burn and naturally aspirated gas engines requiring a low-ash engine oil. Engines operating in this type of service are commonly found in crude oil and gas transmission pipelines, electrical power generation equipment, gas compressors, irrigation water pumps, and well drilling rigs. El Mar 3100 is recommended for use in natural gas engines manufactured by:

- Caterpillar (3500 series engines and smaller)
- Climax
- Colt-Fairbanks Morse
  - 2-Stroke Cycle, Natural Gas
  - 4-Stroke Cycle, Dual-Fuel
- Cooper Bessemer, 4-Stroke Cycle
- Cooper Superior, Spark Ignition
- Dresser Rand (Categories I, II)
- Dresser Rand (Category III, SAE 30)
- Ruston
- Minneapolis Moline
- Nordberg
- Waukesha
  - VR, VGF, VHP, VSG and ATGL Series
  - Clinton/Intermediate Series F817G, F1197G, H2476G, L3712G
- Wartsila
- Worthington, 4-Stroke Cycle

**Low-Ash Natural  
Gas Engine Oil**

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El Mar 3100 is not recommended for use in service beyond the manufacturer's recommended oil drain intervals. For applications requiring extended oil drain capability, Hydroclear El Mar LA4 natural gas engine oil is recommended.

### **Outstanding Features**

- Low-ash formulation provides good deposit control for ports, spark plugs and other critical combustion chamber parts
- Good resistance to oxidation and nitration
- Excellent antiwear protection for reduced ring and liner wear
- Excellent protection against valve stem deposits and valve seat recession
- Compatible with units equipped with catalytic converters for emission control
- Long cylinder head and spark plug life

### **El Mar 3100 Typical Properties**

<b>SAE Grade</b>	<b>30</b>	<b>40</b>	<b>15W-40</b>
Viscosity,			
cSt @ 40°C	96.0	136	107
cSt @ 100°C	11.2	13.9	14.2
SUS @ 100°F	499	712	552
SUS @ 210°F	64.6	75.2	76.0
Viscosity Index	102	99	133
Ash, Sulfated, ASTM D874, wt %	0.42	0.42	0.42
Pour Point, °C (°F)	-21 (-6)	-8 (18)	-30 (-22)
Flash Point (COC), °C (°F)	260 (500)	268 (514)	250 (482)
Density, g/cm <sup>3</sup> @ 15°C	0.888	0.891	.882
Total Base Number, ASTM D2896	5.1	5.1	5.1
Color, ASTM	7.0	7.0	7.0
High Temperature High Shear Viscosity, 150 °C, cP	3.3	4.0	3.8
Viscosity, Cold Cranking (CCS), cP @ °C	—	—	6,570 (-20)
Phosphorus, ppm	250	250	250
Zinc, ppm	310	310	310

Due to continual product research and development, the information contained herein is subject to change without notification.

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