



## El Mar® Mid Ash Heavy Duty GEO

Phillips 66® El Mar Mid Ash Heavy Duty GEO is a high-quality, mid-ash, dispersant-detergent gas engine oil designed for use in naturally aspirated and moderately to highly turbocharged 4-stroke cycle natural gas engines. It is particularly recommended for use in natural gas engines and dual-fuel engines burning sour gas or landfill gas.

El Mar Mid Ash Heavy Duty GEO is formulated with field-proven performance additives to provide excellent resistance to oxidation and nitration, protect against piston scuffing and wear, and minimize the formation of sludge and piston deposits for good engine cleanliness. It has a high alkaline reserve (TBN) to protect engines operating under corrosive conditions, such as when burning sour gas, digester gas or landfill gas.

### Applications

- 4-stroke cycle gas and dual-fuel engines burning sour gas or landfill gas
- 4-stroke cycle gas engines in wastewater treatment plants fueled by digester gas
- 4-stroke cycle converted irrigation engines running on natural gas or LPG
- Other 4-stroke cycle natural gas engines where the manufacturer specifies a mid-ash gas engine oil

### Features/Benefits

- Excellent resistance to oxidation and nitration
- High alkaline reserve to combat acidic combustion by-products when burning sour gas
- High dispersancy protects against sludge and varnish formation
- Protects against scuffing and wear
- Protects against rust and corrosion
- Excellent low-temperature performance
- Does not contain any bright stock, which can cause harmful carbon deposits

## Mid-Ash Natural Gas Engine Oil





### El Mar<sup>®</sup> Mid Ash Heavy Duty GEO

Typical Properties			
SAE Grade	30	40	15W-40
Specific Gravity @ 60°F	0.876	0.880	0.877
Density, lbs/gal @ 60°F	7.29	7.32	7.30
Color, ASTM D1500	3.5	3.5	3.0
Flash Point (COC), °C (°F)	234 (453)	260 (500)	232 (450)
Pour Point, °C (°F)	-36 (-33)	-27 (-17)	-45 (-49)
Viscosity, Kinematic			
cSt @ 40°C	85.4	138	114
cSt @ 100°C	11.1	15.1	14.8
Viscosity Index	117	111	134
Cold Cranking Viscosity, cP @(°C)	---	---	6,300 (-20)
Sulfated Ash, ASTM D874, wt %	1.0	1.0	1.0
Total Base Number (TBN), ASTM D2896	7.9	7.9	7.9
Phosphorus, wt %	0.097	0.097	0.097
Zinc, wt %	0.109	0.109	0.109

### Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/EN/products/Pages/MSDS.aspx>.