



# HDAX<sup>®</sup> 6500 LFG Gas Engine Oil SAE 40

## Gas Engine Oil

Product Data Sheet

### Customer benefits

- **Maximizes oil service life**  
Combination of high performance hydrocracked base fluids and specially balanced oxidation inhibitor package and dispersant provides outstanding oxidation and nitration resistance in arduous landfill applications.
- **Lowers operating costs**  
Excellent deposit control on valves and pistons reduces oil consumption. The exceptional oxidation and nitration resistance and deposit control extends oil drain capability so that equipment is in service longer generating revenue.
- **Minimizes maintenance costs**  
Exceptional oxidation resistance and dispersancy minimizes sludge formation, avoids filter plugging, cylinder head sludge, abrasive polishing wear and oil thickening. Special formulation gives excellent corrosion control in engines burning high CFC and / or high sulfur containing fuels where high levels of acidic condensate form. This exceptional corrosion control ensures maximum liner life even in intermittent operation.
- **Extends engine life to overhaul**  
High level of anti-wear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication conditions. Level and type of ash producing additives reduce valve recession and potential for pre-ignition.

### Application

- Four-stroke engines fueled by landfill gas containing elevated levels of chlorofluorocarbons (CFCs) where low ash oils are required or preferred.
- Sour gas applications where corrosive wear is a concern
- Engines where low ash oils are preferred

### Product features:

- Premium quality, high performance, low ash, dispersant/detergent type gas engine oil formulated especially for four stroke landfill gas, biogas, digester gas and sour gas applications.
- Combination of high performance hydrocracked base fluids and a robust inhibitor package provides exceptional protection and maximized oil drain intervals even in the presence of the most aggressive landfill gases.

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## Performance standards

- GE Jenbacher approval for Types 2, 3, 4A&B and 6C&E engines burning landfill gas (Fuel C) and biogas, sewage gas (Fuel B) without oxidation catalytic converter.
- MWM Low Ash approval for all MWM TCG Gas Engines as per Technical Circular TR 2105
- Cummins approval for QSV91 Landfill Gas Engine
- MAN Truck and Bus approval against M 3271-4 (Special Gas) gas engine oil for stationary engines
- Caterpillar approval for all CG gas engines
- MTU preliminary approval MTL 5074
- TEDOM Approval rule 61-0-0281.1 for fuel types L (Landfill), B (Biogas) and S (Sewage gas).
- Suitable for use in Waukesha engines burning landfill gas or biogas
- Proof of performance gained during extensive field trials in Caterpillar engines

## Typical Key Properties

HDAX 6500 LFG GAS ENGINE OIL		
TEST	TEST METHODS	RESULTS
<b>SAE Grade</b>		<b>40</b>
<b>Product Code</b>		<b>530039</b>
<b>Base No., mg KOH/g</b>	ASTM D 2896	4.5
<b>Sulphated Ash, m%</b>	–	0.55
<b>Viscosity,</b>		
mm <sup>2</sup> /s @ 40°C	ASTM D 445	121
mm <sup>2</sup> /s @ 100°C	ASTM D 445	13.9
<b>Viscosity Index</b>	ASTM D 2270	108
<b>Flash Point, °C</b>	ASTM D92	268
<b>Pour Point, °C</b>	ASTM D5950	-27



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### Service Considerations

Chlorine containing compounds from solvent and thinners, and fluorine containing chlorofluorocarbons (CFCs), mostly from aerosol cans and refrigeration and air conditioning units, are the major concern when landfill gas is used as an engine fuel. When burned, these compounds release chlorinated and fluorinated compounds which may, in the presence of moisture, form hydrochloric and hydrofluoric acids. Additive components specific to landfill gas engine oil solubilize the acids in the oil and neutralize them before they attack engine components. To minimize acid condensation, engines in landfill gas service tend to be operated at higher water jacket temperatures. This puts added thermal stress on landfill gas engine oils.

Fuel pre-treatment is generally necessary to make landfill gas suitable for reciprocating engines. Used oil analysis (UOA) will permit oil drain intervals to be adjusted as required to accommodate variances in fuel composition. Additionally, used oil analysis is necessary for new engines to ensure results are kept within the warranty protection limits set by the equipment manufacturer.

As with all gas fuelled, spark ignition engine applications, the choice of lubricant ash level will be a trade-off between prevention of exhaust valve recession, prevention of exhaust valve distress and preignition, and provision of adequate alkalinity reserve.

This bulletin was prepared in good faith from the best information available at the time of issue. While the values and characteristics are considered representative, some variation, not affecting performance, can be expected. It is the responsibility of the user to ensure that the products are used in the applications for which they are intended.

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**Environment, Health and Safety** Information is available on this product in the Material Safety Data Sheet (MSDS) and Customer Safety Guide. Customers are encouraged to review this information, follow precautions and comply with laws and regulations concerning product use and disposal. To obtain a MSDS for this product, visit [www.caltexoils.com](http://www.caltexoils.com).

For more information, go to [www.chevronlubricants.com](http://www.chevronlubricants.com)

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