HDAX® 9300 SAE 40

Premium Performance Gas Engine Oil

Product Data Sheet

Customer benefits

HDAX® 9300 provides the following potential benefits:

Extended drain capability and low oil consumption

Exceptional oxidation/nitration resistance and base number retention characteristics enable extended drain capability, even in high BMEP, steel piston engines designed to use a very low oil feed rate.

Promotes engine cleanliness

Dispersant/detergent system allied to oxidation/nitration resistance minimizes oil thickening and sludge formation, protecting against filter plugging.

Long component life

Excellent control of carbonaceous deposits on pistons, ensuring correct piston ring operation and providing scuffing protection to cylinder liners. Protects against abrasive wear.

Optimized ash level

Provides excellent valve recession control and controls potential for pre-ignition.

Catalyst compatible

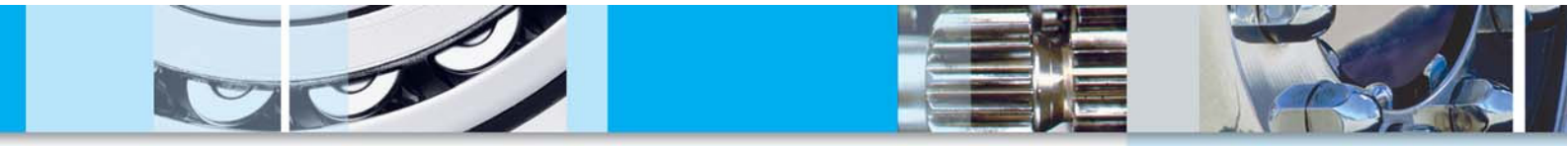
Low phosphorus additive system optimized for use with catalysts.

Applications

- HDAX® 9300 is designed for use in latest generation high output, low emission four-stroke engines burning natural gas. It has a medium ash level, high performance in high Brake Mean Effective Pressure engines with steel pistons (BMEP greater or equal to 22 bar) with long drain. HDAX® 9300 will also deliver excellent performance in lower BMEP engines with aluminium pistons.
- Four-cycle gas engines in cogeneration applications
- Four-cycle medium-speed stationary spark ignition engines and dual-fuel pilot injection engines operating on sweet natural gas or LPG
- Suitable for use with fuels containing low levels of sulphur and chloro-fluoro-carbons (CFC). In sour gas/high CFC applications, lubricants with higher base reserve may be required – for example, HDAX 9500 SAE 40 and HDAX 6500 SAE 40.

Product features:

- **HDAX® 9300** is a premium performance medium ash, dispersant/ detergent type gas engine oil formulated specifically for natural gas applications even under heavily loaded conditions, including high output engines in the 10 MW_e class. The optimized ash level provides protection against valve recession, while avoiding the formation of ash deposits in the combustion chamber that could lead to pre-ignition.
- **HDAX® 9300** is formulated with premium base oils which contain extremely low sulphur, nitrogen and aromatics. **HDAX® 9300** prevents sludge formation on cylinder liners, which could interfere with oil flow and lead to higher oil consumption. It is approved by Jenbacher for use in various engine models using natural gas, associated petroleum gas, mine gas and bio-gas.



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Performance standards

HDAX 9300 has the following approvals:

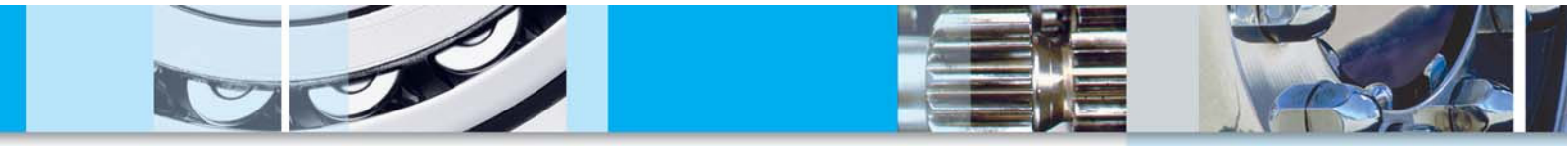
- Bergen Engines All engine types, natural gas operation[2]
- Caterpillar CG Gas Engines[3]
- Jenbacher TA 1000-1108, Fuel Class A[1] for the following engine types/versions
  - Type 9 (All Versions)
- Jenbacher TA1000-1109 Fuel Class A[1] for the following engine types/versions
  - Type 6 (versions H and K)
  - Type 6 (versions F and J)
  - Type 6 (versions C and E)
  - Type 4 (version C)
  - Type 2 and 3

MWM (Caterpillar Energy Solutions) TCG Gas Engines[3]

[1] Natural gas, associated petroleum gas, abandoned mine methane gas, biogas (sulphur <200 mg/10 kWh).

[2] Engine types K-G1, K-G2, K-G3, K-G4, C26:33, B35:40, B36:45

[3] Technical circular TR 2105 - approved lubricants with sulphated ash 0.6-1.0 weight%



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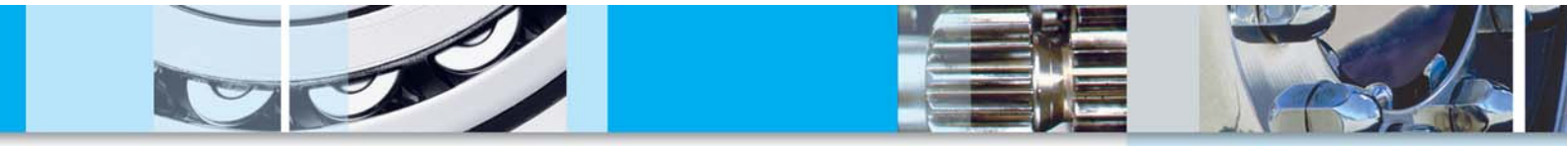
Typical test data

HDAX® 9300	TEST METHOD	RESULTS
Typical Shelf Life: 48 months from date of filling indicated on the product label*		
SAE Grade	**ASTM**	**SAE 40**
Product Code		**530041**
Density, 15 °C kg/l	D4052	0.88
Kinematic viscosity,		
@ 40°C mm^2/s	D445	119
@ 100°C mm^2/s	D445	13.5
Viscosity Index	D2270	113
Pour Point °C	D97	-33
Flash Point, COC °C	D92	270
Total Base Number mg KOH/g	D2896	6.2
Sulphated Ash %wt	D874	0.70

* Typical Shelf Life: (a) if stored under normal conditions and (b) can be extended aft er re-testing.

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.

Produced by Chevron Global Lubricants: Africa, Middle East and Pakistan



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Service considerations

The sulfated ash, alkalinity reserve and phosphorus content of gas engine oils can be properly matched to the needs of individual applications, taking account of engine design, operating conditions, fuel type and quality, with particular reference to sulfur content and whether or not the engine is fitted with an exhaust catalyst for emission control purposes.

Spark ignition, gas-fuelled engines may be sensitive to the sulfated ash level of the lubricant and to the chemical nature of the ash. Excessive ash can lead to problems such as spark plug fouling, exhaust valve guttering and build-up of pre-ignition-inducing combustion chamber deposits. On the other hand, many engines require a certain amount of lubricant ash to ensure satisfactory valve seat lubrication and to minimize valve seat recession.

Always confirm that the product selected is consistent with the original equipment manufacturer's (OEM's) recommendation for the equipment operating conditions and customer's maintenance practices.

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.

For more information, go to www.chevronlubricants.com

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