# INCREASING OPERATIONAL RELIABILITY AND SAVING COSTS BY USING A GAS ENGINE OIL DEVELOPED BY MOL-LUB LTD.

**INDUSTRY:**
power generation
(green energy sector)

**APPLICATION:**
biogas engine

**PRODUCT:**
MOL GMO MA 40

**SERVICE:**
WearCheck oil
and machine diagnostics

**Nowadays, due to the high cost and harmful environmental effects of fossil fuels, there is an ever-growing demand for power generation technologies based on using environmentally considerate fuel. Biogas, produced from agricultural or municipal solid waste and used to generate electric power and thermal energy with the help of gas engines, is one of the ingenious solutions to this challenge. Although biogas-fuelled engines are similar to conventional petrol or diesel engines in terms of operation, they demand special engine oils because of their high operating temperature and the continuously changing composition of their fuels often containing aggressive components such as hydrogen sulphide. MOL-LUB experts, however, offer a perfect solution: they recommend equipment condition monitoring based on oil diagnostics and application of an engine oil specially developed for biogas engines. Users not only can achieve longer oil drain intervals due to regular maintenance and using the suitable engine oil, but they can also enjoy significant cost savings.**

One of MOL-LUB's clients, a Hungarian biogas production plant provides electric and thermal energy supply for its own industrial facilities with the help of biogas engines, and also generates power for the national power supply system. The company faced two substantial problems: gas engine oils demand different tests than regular engine oil diagnostics due to their special operating conditions, while close attention needs to be paid to any increase in engine oil viscosity. Intensive evaporation as the result of high oil temperature contributes to increasing viscosity, along with nitration and oxidation. Acidic compounds are produced as a result of the chemical reactions occurring in the engine oil, which means that the oil must also have a strong reserve alkalinity to neutralize acidic components besides its other special properties. In 2011, the company approached MOL-LUB Ltd.'s lubrication technology specialists to seek their help in meeting these challenges. Based on their suggestions, equipment condition monitoring based on oil diagnostics was introduced as well as the use of MOL GMO MA 40 gas engine oil, specially developed for biogas engines.

Series of tests proved that MOL GMO MA 40 gas engine oil met the requirements of biogas engines in every aspect and perfectly protected the equipment. Its use allowed the extension of oil change intervals for the operating Deutz TBG 616 V16, Deutz TBG 620 V12K and Deutz TCG 2020 V12 type biogas engines by 38-42%, depending on unit, which also resulted in significant cost savings and maximum operational reliability.

## 1 CHALLENGE

Biogas fuelled engines demand special engine oil due to continuously changing fuel quality and their high thermal load.

## 2 SOLUTION

Use of MOL GMO MA 40 gas engine oil, specially developed for biogas engines and machine condition monitoring based on WearCheck lubricant testing.

## 3 RESULTS

Using this product and service resulted in increased equipment reliability and oil change intervals with reduced maintenance costs.

## WEARCHECK OIL AND MACHINE CONDITION MONITORING

WearCheck diagnostics is the world's leading lubricant-analysis process, which helps to precisely identify the degree of lubricant ageing, degradation and any kind of damage to machines well before its consequences might cause significant losses in production and lead to high repair costs.

## STATE-OF-THE-ART LABORATORY

As a pioneer in oil diagnostics and machine condition-monitoring in Central Europe, MOL-LUB Ltd. has been operating a state-of-the art oil testing laboratory for nearly 20 years. The accredited laboratory is a specialist member of WearCheck International and analyses and evaluates several thousand oil samples every year, thus saving its customers significant amounts of money and ensuring more efficient production scheduling.

## WEARCHECK DIAGNOSTICS IN 4 SIMPLE STEPS

| Sampling | Forwarding samples | Analysis | Expert opinion |
|---|---|---|---|
| Please follow the process described in the attached Information booklet to ensure proper sampling! | Following sampling, please fill in the attached form, and forward the oil sample vessel to the MOL-LUB Ltd. WearCheck laboratory! | The samples received are analysed and a diagnosis is made by lubrication engineering experts. | Test results are summarised within 72 hours and the partner receives an e-mail describing any likely problems and effective preventive maintenance actions to be taken. |


## WITH THE HELP OF WEARCHECK DIAGNOSTICS

- potential breakdowns can be recognised and identified at an early stage
- any hidden depreciation and irregular operation of machines can be identified and tested
- production losses can be reduced or eliminated
- machine repair costs can be reduced
- maintenance will be more precise and easier to plan
- machine oil change intervals can be optimised
- machine reliability can be improved

## INDICATORS ARE IMPROVING

- more efficient production scheduling
- optimised lubrication
- significant financial savings
- easy-to-plan maintenance costs

YOUR PARTNER