

OIL ANALYSIS REPORT



NORMAL

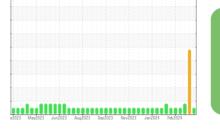


Machine Id Grand Blanc CAT 2 GBLM02BE

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

SAMPLE INFORMATION method





| DI | AGN | IOS | IS | |
|----|-----|-----|----|--|
| | | | | |

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

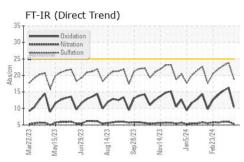
| Sample Number | | Client Info | | WC0905739 | WC0905736 | WC0905730 |
|------------------|----------|-------------|------------|-------------|----------------|--------------|
| Sample Date | | Client Info | | 03 Apr 2024 | 19 Mar 2024 | 13 Mar 2024 |
| Machine Age | hrs | Client Info | | 11989 | 11721 | 11584 |
| Oil Age | hrs | Client Info | | 0 | 933 | 815 |
| Oil Changed | | Client Info | | N/A | Not Changd | Not Changd |
| Sample Status | | | | NORMAL | ABNORMAL | ABNORMAL |
| CONTAMINATION | ٧ | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >.11 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >15 | 2 | 6 | 4 |
| Chromium | ppm | ASTM D5185m | >4 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >6 | 2 | 3 | 3 |
| Lead | ppm | ASTM D5185m | >9 | 2 | 1 3 | 1 0 |
| Copper | ppm | ASTM D5185m | >6 | 2 | 5 | 4 |
| Tin | ppm | ASTM D5185m | >4 | 1 | 4 | 4 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | | 7 | 4 | 4 |
| Barium | ppm | ASTM D5185m | | 0 | 2 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 3 | 3 | 3 |
| Manganese | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | | 10 | 16 | 16 |
| Calcium | ppm | ASTM D5185m | | 1651 | 1959 | 1816 |
| Phosphorus | ppm | ASTM D5185m | | 235 | 272 | 284 |
| Zinc | ppm | ASTM D5185m | | 309 | 375 | 367 |
| Sulfur | ppm | ASTM D5185m | | 2717 | 3270 | 3122 |
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
| Silicon | ppm | ASTM D5185m | >181 | 108 | 196 | 177 |
| Sodium | ppm | ASTM D5185m | >21 | 1 | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | 0 | 3 | 1 |
| INFRA-RED | | method | limit/base | current | history1 | history2 |
| Soot % | % | *ASTM D7844 | | 0 | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | | 5.3 | 6.0 | 6.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | | 18.9 | 23.8 | 23.0 |
| FLUID DEGRADA | TION | method | limit/base | current | history1 | history2 |
| Oxidation | Abs/.1mm | *ASTM D7414 | | 10.4 | 16.3 | 15.4 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.0 | 0.97 | A 3.496 | 2.11 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 5.4 | 3.42 | 2 .60 | 2.76 |
| 2:57:00) Rev: 1 | | | | | Submitted By: | DARREL HILTZ |

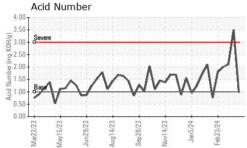
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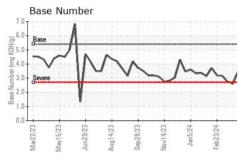
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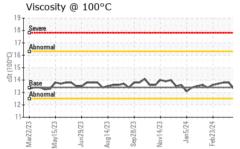


OIL ANALYSIS REPORT









| VISUAL | | method | limit/base | current | history | 1 h | |
|---------------------|------------------|--|---|---|---|--|---------------------|
| Vhite Metal | scalar | *Visual | NONE | NONE | NONE | | DNE |
| ellow Metal | scalar | *Visual | NONE | NONE | NONE | | DNE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | | ONE |
| Silt | scalar | *Visual | NONE | NONE | NONE | | ONE |
| Debris Sand/Dirt | scalar | *Visual *Visual | NONE | NONE NONE | NONE NONE | | ONE |
| ppearance | scalar scalar | *Visual | NORML | NORML | NORML | | |
|)dor | scalar | *Visual | NORML | NORML | NORML | | DRM |
| Emulsified Water | scalar | *Visual | >.11 | NEG | NEG | NE | |
| ree Water | scalar | *Visual | | NEG | NEG | NE | |
| FLUID PROPER | TIES | method | limit/base | current | history | 1 h | istor |
| /isc @ 100°C | cSt | ASTM D445 | 13.4 | 13.3 | 13.8 | 13 | .8 |
| GRAPHS | | | | | | | |
| Iron (ppm) | | | 15 | Lead (ppm) | | | 1111 |
| Abnormal | | | 10 | T | | | A |
| | | | udd 5 | | | 1 | 11 |
| ~~~~ | M | nn | 1 | .~ | | JU | V |
| Mar22/23 | Sep 28/23 | Nov14/23 | 0 | Mar22/23 May15/23 Jun29/23 | Aug 14/23 Sep 28/23 | Vov14/23 - | Feb23/24 - |
| arí n2 | | 5 6 9 | | 1 12 | | | |
| | - | No. | 3 | Man Man Jur | Aug | Nov | Feb2 |
| Aluminum (ppm) | - | No. L | | Chromium (pp | 10790 C 00000 | Nov | Feb2 |
| | - | | 6 | Chromium (pp | 10790 C 00000 | Nov | Feb2 |
| Aluminum (ppm) | - | | 6 5 4 | Chromium (pp | 10790 C 00000 | vov | Feb2 |
| Aluminum (ppm) | - | | 6 5 4 5 | Chromium (pp | 10790 C 00000 | Nov | Febž |
| Aluminum (ppm) | - | | 6 5 4 | Chromium (pp | 10790 C 00000 | non | Febž |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 6 5 4 6 3 2 1 1 0 | Chromium (pp | om) | 2 | |
| Aluminum (ppm) | ~~~~ | Nov14/23 Mo | 6 5 4 6 3 2 1 1 0 | Chromium (pp | 10790 C 00000 | vov 4/23 | Feb23/24 |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 6 5 4 4 4 6 6 3 2 1 0 | Chromium (pr | om) | 2 | |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 6 5 4 4 4 4 3 2 1 0 0 | Chromium (pr | om) | 2 | |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 6 5 4 4 4 4 3 2 1 0 250 200 | Chromium (pp Severe Abnormal E2225µVeW Silicon (ppm) | om) | 2 | |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 6 5 4 4 4 4 3 2 1 0 0 | Chromium (pp Severe Abnormal E2225µVeW Silicon (ppm) | om) | 2 | |
| Aluminum (ppm) | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 250 200 <u>E</u> 150 50 | Chromium (pr | om) | 2 | |
| Aluminum (ppm) | | Nov14/23 Jan5/24 Fear-27/2/2 | 250 200 100 100 100 100 100 100 100 100 10 | Chromium (pp Severe Abnormal E27251/feW Silicon (ppm) Severe Source Severe Silicon (ppm) | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | Sep 28/23 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 250 200 100 100 100 100 100 100 100 100 10 | Chromium (pr Severe Abnormal EZISTRW Silicon (ppm) Silicon (ppm) CZISTRW CZISTRW CZISTRW CZISTRW CZISTRW | om) | 2 | |
| Aluminum (ppm) | Sep 28/23 | Nov14/23 Jan5/24 Fear-27/2/2 | 250 200 E 150 50 0 | Chromium (pr Severe Abnormal EZ752reW Silicon (ppm) Severe EZ751/keW Silicon (ppm) EZ751/keW EZ751/keW EZ762reW EZ762reW | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | Sep 28/23 | Nov14/23 Jan5/24 Fear-27/2/2 | | Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | Sep 28/23 | Nov14/23 Jan5/24 Fear-27/2/2 | | Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | Sep 28/23 | Nov14/23 Jan5/24 Fear-27/2/2 | | Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | Sep 28/23 | Nov14/23 Jan5/24 Fear-27/2/2 | | Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |
| Aluminum (ppm) | | Mov14/23 + / Mov14/23 + / Mov14/23 + / Jan5/24 + / Jan | 6 5 4 4 4 4 4 4 4 3 2 1 0 250 200 200 150 100 50 0 0 150 0 0 0 150 0 0 0 0 | Chromium (pr Severe Abnormal EZZZZEW Silicon (ppm) Severe Severe Silicon (ppm) EZZZZEW Base Number Base Number | Aug14/23 Sep28/23 Aug14/23 Sep28/23 (uc | Nov14/23 + 2/2 Mov14/23 + 1/2 Mov14/ | Feb23/24 C Feb23/24 |
| Aluminum (ppm) | | Nov14/23 Jan5/24 Fear-27/2/2 | 6 5 4 4 4 4 4 4 4 3 2 1 0 250 200 200 150 100 50 0 0 150 0 0 0 150 0 0 0 0 | Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number | 2m) 2m014/23 2ep28/23 2ep28/23 | Nov14/23 | Feb23/24 |

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 **EDL NA Recips-Grand Blanc** Sample No. : WC0905739 Grand Blanc Powerstation, 2361 West Grand Blanc Road Received : 04 Apr 2024 Lab Number : 06138727 Tested : 05 Apr 2024 Grand Blanc, MI Unique Number : 10963535 Diagnosed : 06 Apr 2024 - Don Baldridge US 48439 Test Package : MOB 2 Contact: Tony Saint Marie Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. tony.saintmarie@edlenergy.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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