

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id Coopersville CAT 7 CPVM07BE **Biogas Engine**

CHEVRON HDAX 6500 LFG G

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal.

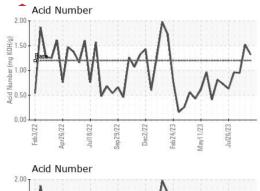
Fluid Condition

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

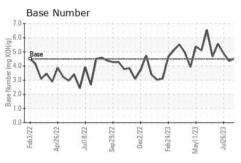
| SAMPLE INFORMATION method limitibase current history1 history2 Sample Number Client Info WC0819463 WC0819467 WC0819448 Sample Date Client Info 18 Sep 2023 07 Sep 2023 22 Aug 2023 Machine Age hrs Client Info 10248 102985 102603 Oil Changed Client Info Changed Changed Not Changd Sample Status SEVERE ABNORMAL SEVERE CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1. | GAS ENGINE OIL (| (GAL) | 52022 Apr20 | 22 Jul2022 Sep2022 | Dec2022 Feb2023 May2023 | Jul2023 | |
|---|------------------|----------|-------------|--------------------|-------------------------|-------------|-------------|
| Sample Date Client Info 18 Sep 2023 07 Sep 2023 22 Aug 2023 Machine Age hrs Client Info 103248 102995 102603 Oil Age hrs Client Info 268 1 634 Not Changed Coll Changed Client Info Changed Changed AND Changed Not Changed Sample Status Certification Changed ABNORMAL SEVERE CONTAMINATION method limit/base current Inistory1 history2 Fuel WC Method >4.0 <1.0 | SAMPLE INFORM | MATION | method | limit/base | current | history1 | history2 |
| Machine Age hrs Client Info 103248 102985 102603 Oil Age hrs Client Info 268 1 634 Oil Changed Client Info Changed Changed Not Changd Sample Status SEVERE ABNORMAL Fuel | Sample Number | | Client Info | | WC0819463 | WC0819467 | WC0819448 |
| Oil Age hrs Client Info 268 1 634 Oil Changed Sample Status Client Info Changed Changed Changed Changed SEVERE Not Changed SEVERE CONTAMINATION method limit/base current history1 history2 Fuel WC Method WC Method WC Method WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >15 2 3 3 Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m >4 <1 0 <1 Silver ppm ASTM D5185m >5 0 0 0 Silver ppm ASTM D5185m >6 4 <1 2 Copper ppm ASTM D5185m >9 4 3 1 Copper ppm ASTM D5185m 0 0 <td>Sample Date</td> <td></td> <td>Client Info</td> <td></td> <td>18 Sep 2023</td> <td>07 Sep 2023</td> <td>22 Aug 2023</td> | Sample Date | | Client Info | | 18 Sep 2023 | 07 Sep 2023 | 22 Aug 2023 |
| Coli Changed Client Info Changed SEVERE ABNORMAL SEVERE | Machine Age | hrs | Client Info | | 103248 | 102985 | 102603 |
| SEVERE ABNORMAL SEVERE | Oil Age | hrs | Client Info | | 268 | 1 | 634 |
| Fuel | Oil Changed | | Client Info | | Changed | Changed | Not Changd |
| Fuel WC Method V4.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1. | Sample Status | | | | SEVERE | ABNORMAL | SEVERE |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >15 2 3 3 Chromium ppm ASTM D5185m >4 <1 | CONTAMINATIO | N | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Irron | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium ppm ASTM D5185m >4 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185m | >15 | 2 | 3 | 3 |
| Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >5 0 0 0 Aluminum ppm ASTM D5185m >6 4 <1 2 Lead ppm ASTM D5185m >9 4 3 1 Copper ppm ASTM D5185m >6 2 2 2 2 Tin ppm ASTM D5185m >6 2 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 2 Boron ppm ASTM D5185m 1 0 0 0 0 Molybdenum ppm ASTM D5185m 1 1 <t< td=""><td>Chromium</td><td>ppm</td><td>ASTM D5185m</td><td>>4</td><td><1</td><td>0</td><td><1</td></t<> | Chromium | ppm | ASTM D5185m | >4 | <1 | 0 | <1 |
| Silver | Nickel | ppm | ASTM D5185m | >2 | 1 | 0 | <1 |
| Aluminum ppm ASTM D5185m >6 4 <1 2 Lead ppm ASTM D5185m >9 4 3 1 Copper ppm ASTM D5185m >6 2 2 2 Tin ppm ASTM D5185m >4 8 7 7 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 1 2 4 4 Manganese ppm ASTM D5185m 12 6 12 Caleium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m | Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Lead ppm ASTM D5185m >9 4 3 1 Copper ppm ASTM D5185m >6 2 2 2 Tin ppm ASTM D5185m >4 8 7 7 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 </td <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>5</td> <td>0</td> <td>0</td> <td>0</td> | Silver | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Copper ppm ASTM D5185m >6 2 2 2 2 Tin ppm ASTM D5185m >4 8 7 7 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m <1 | Aluminum | ppm | ASTM D5185m | >6 | 4 | <1 | 2 |
| Tin | Lead | ppm | ASTM D5185m | >9 | 4 | 3 | 1 |
| Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m <1 2 4 Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 | Copper | ppm | ASTM D5185m | >6 | 2 | 2 | 2 |
| Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 0 2 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m <1 2 4 Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td>Tin</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>4</td> <td>8</td> <td>7</td> <td>7</td> | Tin | ppm | ASTM D5185m | >4 | 8 | 7 | 7 |
| ADDITIVES | Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Boron | Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m <1 2 4 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 12 6 12 Calcium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0.1 </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th> | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185m <1 2 4 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 12 6 12 Calcium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m >0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 | Boron | ppm | ASTM D5185m | | 2 | 0 | 2 |
| Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 12 6 12 Calcium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7414 >20 7.0 9.0 6.2 Sulfation Abs/.1mm | Barium | ppm | ASTM D5185m | | 1 | 0 | 0 |
| Magnesium ppm ASTM D5185m 12 6 12 Calcium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 ▲ 197 ♠ 209 Sodium ppm ASTM D5185m >0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/:mm *ASTM D7615 >30 20.7 19.3 18.7 | Molybdenum | ppm | ASTM D5185m | | <1 | 2 | 4 |
| Calcium ppm ASTM D5185m 1905 2095 1804 Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m >20 2 0 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base | Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Phosphorus ppm ASTM D5185m 270 300 262 Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 </td <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>12</td> <td>6</td> <td>12</td> | Magnesium | ppm | ASTM D5185m | | 12 | 6 | 12 |
| Zinc ppm ASTM D5185m 354 359 335 Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 | Calcium | ppm | ASTM D5185m | | 1905 | 2095 | 1804 |
| Sulfur ppm ASTM D5185m 2397 2127 2445 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 | Phosphorus | ppm | ASTM D5185m | | 270 | 300 | 262 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Zinc | ppm | ASTM D5185m | | 354 | 359 | 335 |
| Silicon ppm ASTM D5185m >181 233 197 209 Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Sulfur | ppm | ASTM D5185m | | 2397 | 2127 | 2445 |
| Sodium ppm ASTM D5185m 0 1 0 Potassium ppm ASTM D5185m >20 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | CONTAMINANTS | 5 | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Silicon | ppm | ASTM D5185m | >181 | 233 | 1 97 | 209 |
| INFRA-RED | Sodium | ppm | ASTM D5185m | | 0 | 1 | 0 |
| Soot % % *ASTM D7844 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Potassium | ppm | ASTM D5185m | >20 | 2 | 0 | 2 |
| Nitration Abs/cm *ASTM D7624 >20 7.0 9.0 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Sulfation Abs/.1mm *ASTM D7415 >30 20.7 19.3 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Soot % | % | *ASTM D7844 | | 0.1 | 0.1 | 0 |
| FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Nitration | Abs/cm | *ASTM D7624 | >20 | 7.0 | 9.0 | 6.2 |
| Oxidation Abs/.1mm *ASTM D7414 >25 14.6 16.0 11.9 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 20.7 | 19.3 | 18.7 |
| Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.32 1.52 0.95 | FLUID DEGRADA | ATION | method | limit/base | current | history1 | history2 |
| | Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 14.6 | 16.0 | 11.9 |
| | Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.2 | 1.32 | 1.52 | 0.95 |
| | | | ASTM D2896 | 4.5 | 4.16 | 4.12 | 4.53 |

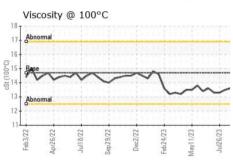


OIL ANALYSIS REPORT



| <u>a</u> | Apr26 | Sling | Sep 2 | Dec | Feb2 | May1 | Jul2 | |
|---|----------|--------|---------|-------|--------|--------|----------|-----|
| 2.00 T | d Num | iber | | | ٨ | | | |
| B 1.50+ | A . | A 1 | | | | | | A . |
| 1.50 - Hass North | N | VA. | 1 | Al | + | | | _ |
| Number of the second | ٧ | A | ~ | V | | Λ | N | |
| 0.50 | | | V V | | V | N | | |
| 0.00 | 22 | 22 | 22 | 22 | 23 | 23 | 23 | |
| Feb3/22 | Apr26/22 | Jul18/ | ep29/22 | Dec2/ | -eb24/ | /11/al | Jul26/23 | |





| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |

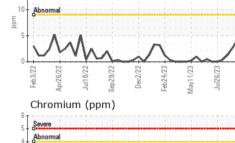
| FLUID PROPER | TIES | method | limit/base | current | history1 | history2 |
|--------------|------|-----------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 14.7 | 13.9 | 14.1 | 13.6 |

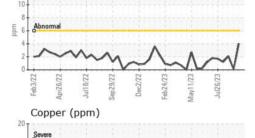
mdd 3

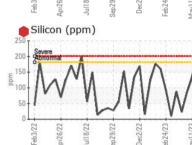
Lead (ppm)

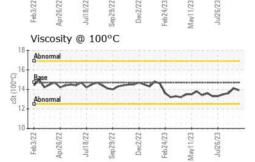
| Sev | ere | | | | | | |
|---------|----------|----------|-----------|----|----------|----------|-------------|
| Abn | ormal | 11 (1) | | | | | |
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| Feb3/22 | Apr26/22 | Jul18/22 | Sep.29/22 | ~~ | Yeb24/23 | May11/23 | Jul26/23 -> |

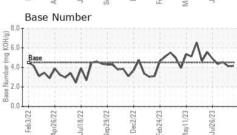
GRAPHS















Certificate L2367

Laboratory Sample No.

Lab Number **Unique Number** Test Package : MOB 2

: WC0819463 : 05960758 : 10661971

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

: 25 Sep 2023 : 27 Sep 2023 Diagnostician : Don Baldridge **EDL NA Recips-Coopersville**

Coopersville Powerstation, 15362 68th Avenue Coopersville, MI US 49404

Contact: Daniel Young

daniel.young@edlenergy.com T:

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: