

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend

### NORMAL





| SAMPLE INFORM   | <b>IATION</b>  | method  | limit/base   | current  | history1   | history2  |
|---|--|---|--|--|--|---|
| Sample Number   |  | Client Info   |  | WC0661678  | WC0570061  | WC0542562   |
| Sample Date   |  | Client Info   |  | 23 Sep 2022  | 04 Apr 2022  | 15 Mar 2022   |
| Machine Age   | hrs  | Client Info   |  | 40000  | 40000  | 40000   |
| Oil Age   | hrs  | Client Info   |  | 500  | 500  | 500   |
| Oil Changed   |  | Client Info   |  | Changed  | Changed  | Changed   |
| Sample Status   |  |   |  | NORMAL   | NORMAL   | ABNORMAL  |
| CONTAMINATIO  | N  | method  | limit/base   | current  | history1   | history2  |
| Fuel  |  | WC Method   | >3.0   | <1.0   | <1.0   | <b>3</b> .8   |
| Glycol  |  | WC Method   |  | NEG  | NEG  | NEG   |
| WEAR METALS   |  | method  | limit/base   | current  | history1   | history2  |
| Iron  | ppm  | ASTM D5185m   | >90  | 12   | 7  | 17  |
| Chromium  | ppm  | ASTM D5185m   | >20  | 1  | <1   | 1   |
| Nickel  | ppm  | ASTM D5185m   | >2   | 0  | 0  | 0   |
| Titanium  | ppm  | ASTM D5185m   | >2   | <1   | 0  | <1  |
| Silver  | ppm  | ASTM D5185m   | >2   | 0  | 0  | <1  |
| Aluminum  | ppm  | ASTM D5185m   | >20  | 2  | <1   | 2   |
| Lead  | ppm  | ASTM D5185m   | >40  | 4  | <1   | 2   |
| Copper  | ppm  | ASTM D5185m   | >330   | 6  | <1   | 2   |
| Tin   | ppm  | ASTM D5185m   | >15  | 2  | <1   | <1  |
| Antimony  | ppm  | ASTM D5185m   |  |  |  |   |
| Vanadium  |  | LOTH DEVOE  |  |  |  |   |
| vanaulum  | ppm  | ASTM D5185m   |  | 0  | 0  | <1  |
| Cadmium   | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m  |  | 0<br>0   | 0  | <1<br><1  |
|   |  |   | limit/base   | -  |  |   |
| Cadmium   |  | ASTM D5185m   | limit/base<br>250  | 0  | 0  | <1  |
| Cadmium<br>ADDITIVES  | ppm  | ASTM D5185m<br>method   |  | 0<br>current   | 0<br>history1  | <1<br>history2  |
| Cadmium<br>ADDITIVES<br>Boron   | ppm<br>ppm   | ASTM D5185m<br>method<br>ASTM D5185m  | 250  | 0<br>current<br>30   | 0<br>history1<br>13  | <1<br>history2<br>15  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium   | ppm<br>ppm<br>ppm  | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m   | 250<br>10  | 0<br>current<br>30<br>0  | 0<br>history1<br>13<br>0   | <1<br>history2<br>15<br>0   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum   | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10  | 0<br>current<br>30<br>0<br>50  | 0<br>history1<br>13<br>0<br>58   | <1<br>history2<br>15<br>0<br>60   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese  | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 250<br>10<br>100   | 0<br>current<br>30<br>0<br>50<br><1  | 0<br>history1<br>13<br>0<br>58<br><1   | <1<br>history2<br>15<br>0<br>60<br><1   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450  | 0<br>current<br>30<br>0<br>50<br><1<br>765   | 0<br>history1<br>13<br>0<br>58<br><1<br>970  | <1<br>history2<br>15<br>0<br>60<br><1<br>988  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160   | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769  | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941   | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br>limit/base  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891   | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br>limit/base  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current  | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14  | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3   | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium                                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158  | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2                                       | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1  | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3<br>4<br>0                                   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium                        | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158<br>>20                                   | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2<br>1                                  | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1<br>0                                   | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3<br>4<br>0                                   |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158<br>>20<br><b>limit/base</b>              | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2<br>1<br>1<br>current                  | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1<br>0<br>history1                       | <1       history2       15       0       60       <1  |
| Cadmium<br>ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot % | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m  | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158<br>>20<br><b>limit/base</b>              | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2<br>1<br>current<br>0.1                | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1<br>0<br>history1<br>0.4                | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3<br>4<br>0<br>history2<br>0.7                |
| Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration                                       | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>limit/base</b><br>>25<br>>158<br>>20<br><b>limit/base</b><br>>6<br>>20 | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2<br>1<br>current<br>0.1<br>8.4         | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1<br>0<br>history1<br>0.4<br>6.3         | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3<br>4<br>0<br>history2<br>0.7<br>7.6<br>20.6 |
| Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br><b>imit/base</b><br>>25<br>>158<br>>20<br><b>imit/base</b><br>>6<br>>20   | 0<br>current<br>30<br>0<br>50<br><1<br>765<br>1160<br>769<br>941<br>2891<br>current<br>14<br>2<br>1<br>current<br>0.1<br>8.4<br>21.6 | 0<br>history1<br>13<br>0<br>58<br><1<br>970<br>1176<br>1060<br>1214<br>2870<br>history1<br>3<br>1<br>0<br>history1<br>0.4<br>6.3<br>19.7 | <1<br>history2<br>15<br>0<br>60<br><1<br>988<br>1095<br>1066<br>1197<br>2861<br>history2<br>3<br>4<br>0<br>history2<br>0.7<br>7.6         |

# OSHKOSH MIXER 111

Component **Diesel Engine** Fluid

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

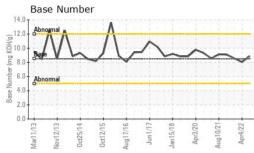
There is no indication of any contamination in the oil.

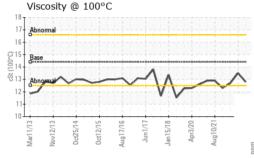
## Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



# **OIL ANALYSIS REPORT**







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

Certificate L2367

Laboratory

Sample No.

Submitted By: JOHN HATZISTEFANOU

F: (508)376-4333