OIL ANALYSIS REPORT



MACK 28
Diesel Engine
DIESEL ENGINE OIL SAE 15W40 (55 QTS)

DIAGNOSIS

## 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.

| SAMPLE INFORMATION |  | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sample Number |  | Client Info |  | WC0875463 | --- | --- |
| Sample Date |  | Client Info |  | 19 Jan 2024 | --- | --- |
| Machine Age | hrs | Client Info |  | 12429 | --- | --- |
| Oil Age | hrs | Client Info |  | 279 | --- | --- |
| Oil Changed |  | Client Info |  | Changed | --- | --- |
| Sample Status |  |  |  | NORMAL | --- | --- |
| CONTAMINATION |  | method | limitbase | current | history 1 | history2 |
| Fuel |  | WC Method | >3.0 | <1.0 | --- | --- |
| Water |  | WC Method | $>0.2$ | NEG | --- | --- |
| Glycol |  | WC Method |  | NEG | --- | --- |


| WEAR METALS |  | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Iron | ppm | ASTM D5185m | >120 | 14 | --- | --- |
| Chromium | ppm | ASTM D5185m | $>20$ | <1 | --- | --- |
| Nickel | ppm | ASTM D5185m | >5 | <1 | --- | --- |
| Titanium | ppm | ASTM D5185m | >2 | 0 | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | <1 | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | 3 | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | <1 | --- | --- |
| Vanadium | ppm | ASTM D5185m |  | 0 | --- | --- |
| Cadmium | ppm | ASTM D5185m |  | 0 | --- | --- |


| ADDITIVES |  | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Boron | ppm | ASTM D5185m | 250 | 2 | --- | --- |
| Barium | ppm | ASTM D5185m | 10 | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 100 | 59 | --- | --- |
| Manganese | ppm | ASTM D5185m |  | <1 | --- | --- |
| Magnesium | ppm | ASTM D5185m | 450 | 426 | --- | --- |
| Calcium | ppm | ASTM D5185m | 3000 | 1589 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | 979 | --- | --- |
| Zinc | ppm | ASTM D5185m | 1350 | 1214 | --- | --- |
| Sulfur | ppm | ASTM D5185m | 4250 | 3176 | --- | --- |
| CONTAMINANTS |  | method | limitbase | current | history1 | history2 |
| Silicon | ppm | ASTM D5185m | >25 | 3 | --- | --- |
| Sodium | ppm | ASTM D5185m | >158 | <1 | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | 0 | --- | --- |
| INFRA-RED |  | method | limitbase | current | history1 | history2 |
| Soot \% | \% | *ASTM D7844 | >4 | 3.1 | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.9 | --- | --- |
| Sulfation | Abs. 1 mm | *ASTM D7415 | >30 | 22.3 | --- | --- |
| FLUID DEGRADATION |  | method | limit/base | current | history1 | history2 |
| Oxidation | Abs. 1 mm | *ASTM D7414 | >25 | 11.3 | --- | --- |
| Base Number (BN) | $\mathrm{mg} \mathrm{KOH} / \mathrm{g}$ | ASTM D2896 | 8.5 | 8.80 | --- | --- |

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| VISUAL |  | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Precipitate | scalar | *Visual | NONE | NONE | --- | --- |
| Silt | scalar | *Visual | NONE | NONE | --- | --- |
| Debris | scalar | *Visual | NONE | NONE | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | --- | --- |
| Appearance | scalar | *Visual | NORML | NORML | --- | --- |
| Odor | scalar | *Visual | NORML | NORML | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | --- | --- |
| Free Water | scalar | *Visual |  | NEG | --- | --- |

FLUID PROPERTIES method limitbase current history1 history2

| Visc @ $100^{\circ} \mathrm{C}$ | cSt | ASTM D445 | 14.4 | $\mathbf{1 4 . 7}$ | --- | --- |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| GRAPHS |  |  |  |  |  |  |



Aluminum (ppm)


Copper (ppm)


Viscosity @ $100^{\circ} \mathrm{C}$



Chromium (ppm)


Silicon (ppm)


Base Number


