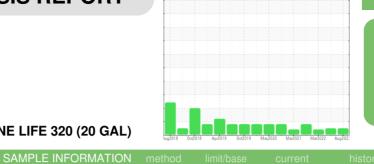


OIL ANALYSIS REPORT

Area South Plant-Fermentation Machine Id A1760G Component

Gearbox

HIGH PERFORMANCE LUBRICANTS TURBINE LIFE 320 (20 GAL)



Sample Rating Trend



NORMAL

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

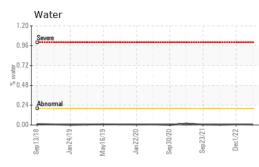
| | | mounou | mmebaso | ounon | motory | matory |
|------------------|--------------|--------------|------------|-------------|-----------------------------|--------------|
| Sample Number | | Client Info | | WC0786793 | WC0723610 | WC0655965 |
| Sample Date | | Client Info | | 15 Aug 2023 | 01 Dec 2022 | 21 Mar 2022 |
| Machine Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | ATTENTION |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >200 | <1 | 2 | 4 |
| Chromium | ppm | ASTM D5185m | >10 | 0 | 0 | 0 |
| Nickel | | ASTM D5185m | >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >10 | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | ppm | | . 05 | | 1 | 1 |
| Aluminum | ppm | ASTM D5185m | | 0 | | |
| Lead | ppm | ASTM D5185m | >50 | 0 | 0 | <1 |
| Copper | ppm | ASTM D5185m | | 3 | 2 | 2 |
| Tin | ppm | ASTM D5185m | >10 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185m | >5 | | | |
| 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 | | 0 | 0 | 0 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | 0 | <1 | 1 |
| Calcium | ppm | ASTM D5185m | 200 | 0 | 3 | 22 |
| Phosphorus | ppm | ASTM D5185m | | 9 | 57 | 10 |
| Zinc | ppm | ASTM D5185m | | 0 | 13 | 2 |
| Sulfur | ppm | ASTM D5185m | 19000 | 29441 | 21361 | 21005 |
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
| Silicon | ppm | ASTM D5185m | >50 | 14 | 1 | 1 |
| Sodium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | 0 | 0 | <1 |
| Water | % | ASTM D6304 | >0.2 | 0.005 | 0.007 | 0.002 |
| ppm Water | ppm | ASTM D6304 | >2000 | 53.8 | 73.5 | 20.0 |
| FLUID CLEANLIN | ESS | method | limit/base | current | history1 | history2 |
| Particles >4µm | | ASTM D7647 | >5000 | 1672 | 49017 | 7 783 |
| Particles >6µm | | ASTM D7647 | >1300 | 257 | 2965 | 754 |
| Particles >14µm | | ASTM D7647 | >160 | 37 | 76 | 26 |
| Particles >21µm | | ASTM D7647 | | 12 | 9 | 5 |
| Particles >38µm | | ASTM D7647 | >10 | 0 | 1 | 0 |
| Particles >71µm | | ASTM D7647 | | 0 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | 18/15/12 | 23/19/13 | ▲ 20/17/12 |
| FLUID DEGRADA | TIO <u>N</u> | method | limit/base | current | history1 | history2 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.19 | 0.42 | 0.41 | 0.38 |
| :33:12) Rev: 1 | ing noning | | 0.10 | V.7£ | Submitted By: Alan Brittain | |

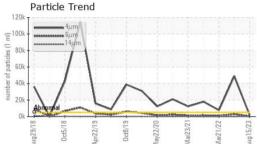
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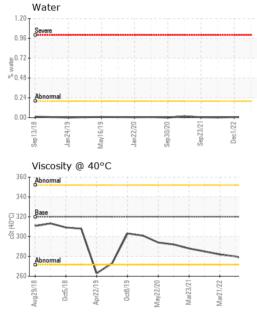
Submitted By: Alan Brittain



OIL ANALYSIS REPORT







120

60

40

20

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les (1 80

| 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 | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
| Visc @ 40°C | cSt | ASTM D445 | 320 | 276 | 280 | 282 |
| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
| Color | | | | | | |
| | | | | | I commenter a | 11 Contraction |

Bottom

