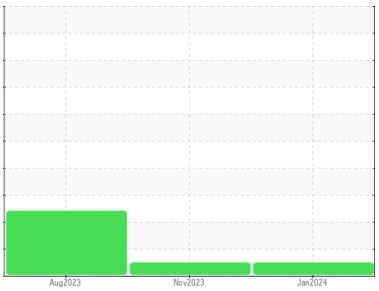
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## INGERSOLL RAND YRD-404
Component
**Reciprocating Compressor**
Fluid
**TULCO LUBSOIL IND MP R&O 150 (--- GAL)**

## 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. 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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **TO60000481** | TO60000479 | TO60000476 |
| Sample Date | | Client Info | | **26 Jan 2024** | 07 Nov 2023 | 09 Aug 2023 |
| Machine Age | hrs | Client Info | | **102322** | 0 | 92102 |
| Oil Age | hrs | Client Info | | **102322** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | Not Changd |
| Sample Status | | | | **NORMAL** | NORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **0** | <1 | 1 |
| Chromium | ppm | ASTM D5185m | >10 | **0** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **0** | 2 | 0 |
| Lead | ppm | ASTM D5185m | >25 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >50 | **14** | 19 | 13 |
| Tin | ppm | ASTM D5185m | >15 | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Calcium | ppm | ASTM D5185m | 0 | **20** | 83 | 28 |
| Phosphorus | ppm | ASTM D5185m | 0 | **21** | 32 | 33 |
| Zinc | ppm | ASTM D5185m | 0 | **6** | 20 | 15 |
| Sulfur | ppm | ASTM D5185m | 2400 | **2177** | 2314 | 2891 |

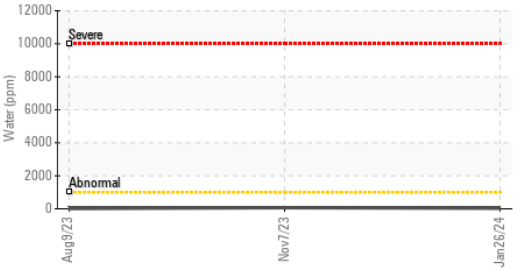
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | 11 | ▲ 45 |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Water | % | ASTM D6304 | >0.1 | **0.003** | 0.006 | 0.002 |
| ppm Water | ppm | ASTM D6304 | >1000 | **34** | 67 | 18.5 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | **3663** | 1475 | ▲ 21740 |
| Particles >6µm | | ASTM D7647 | >2500 | **261** | 209 | 598 |
| Particles >14µm | | ASTM D7647 | >320 | **12** | 12 | 9 |
| Particles >21µm | | ASTM D7647 | >80 | **5** | 2 | 1 |
| Particles >38µm | | ASTM D7647 | >20 | **0** | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >4 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | **19/15/11** | 18/15/11 | ▲ 22/16/10 |

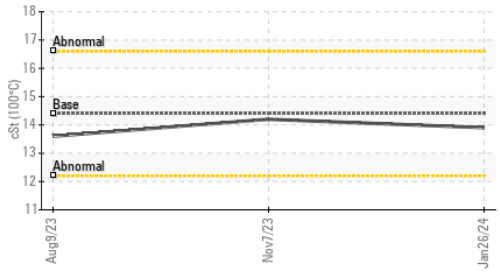
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.23** | 0.014 | 0.188 |

# OIL ANALYSIS REPORT

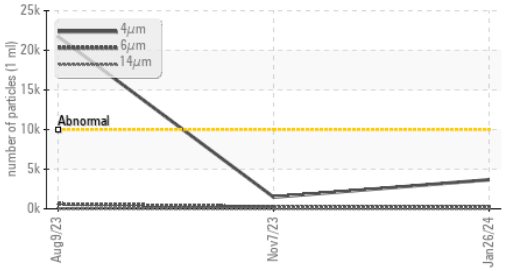
Water (KF)



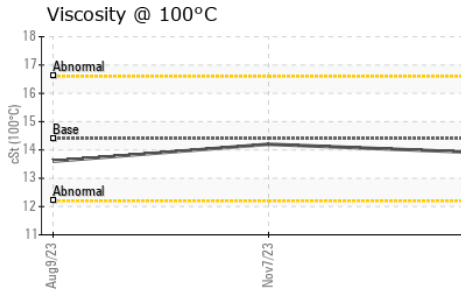

Viscosity @ 100°C



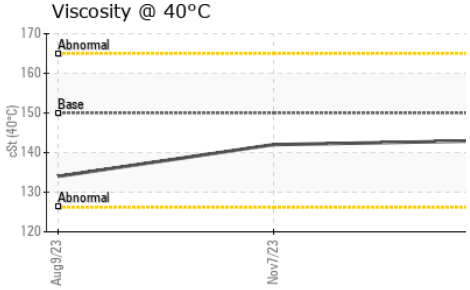

Particle Trend




Viscosity @ 100°C




Viscosity @ 40°C



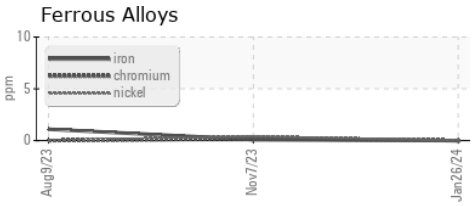

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 150 | **143** | 142 | 134 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **13.9** | 14.2 | 13.6 |
| Viscosity Index (VI) | Scale | ASTM D2270 | 92 | **92** | 97 | 96 |

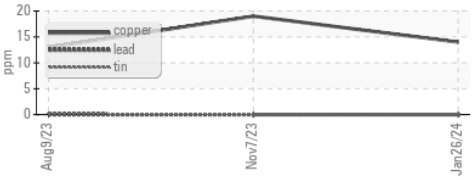
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

## GRAPHS

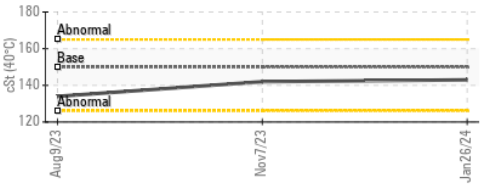
Ferrous Alloys



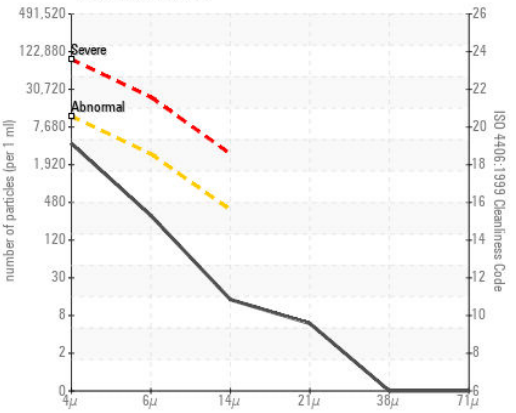

Non-ferrous Metals



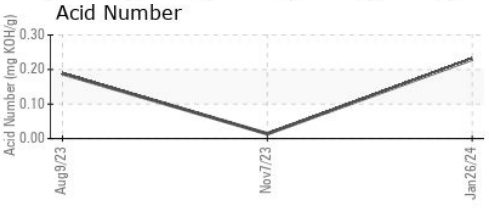

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : TO60000481 **Recieved** : 30 Jan 2024
**Lab Number** : 06073845 **Diagnosed** : 31 Jan 2024
**Unique Number** : 10855936 **Diagnostician** : Don Baldridge
**Test Package** : IND 2 ( Additional Tests: KF, KV100, PrtCount, VI )

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

**EAST TEXAS RENEWABLES**
12942 FM 2767
TYLER, TX
US 75705
Contact: CHASE CLIFFORD
cclifford@morrowrenew.com
T: (903)258-3372
F:

Report Id: EASTYL [WUSCAR] 06073845 (Generated: 01/31/2024 16:20:16) Rev: 1

Submitted By: CHASE CLIFFORD