

Machine Id
3211571
 Component
Compressor
 Fluid
TULCO LUBSOIL LPG WI 100 (120 GAL)

DIAGNOSIS

Recommendation
 No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
 All component wear rates are normal.

Contamination
 There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

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 | | TO90002441 | TO90002443 | TO90002445 |
| Sample Date | Client Info | | 01 Apr 2024 | 01 Mar 2024 | 01 Feb 2024 |
| Machine Age | hrs | Client Info | 66148 | 67621 | 66765 |
| Oil Age | hrs | Client Info | 0 | 0 | 168 |
| Oil Changed | Client Info | | Filtered | Filtered | Filtered |
| Sample Status | | | ATTENTION | ABNORMAL | ABNORMAL |

WEAR METALS

| | method | limit/base | current | history1 | history2 | |
|----------|--------|-------------|---------|----------|----------|----|
| Iron | ppm | ASTM D5185m | >50 | 0 | 0 | 0 |
| Chromium | ppm | ASTM D5185m | >10 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 0 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >25 | 0 | <1 | <1 |
| Copper | ppm | ASTM D5185m | >50 | 0 | 0 | 0 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <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 | 0 | 0 | 0 | 0 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | 0 | 1 | 2 |
| Calcium | ppm | ASTM D5185m | | <1 | <1 | 2 |
| Phosphorus | ppm | ASTM D5185m | 0 | 0 | <1 | 0 |
| Zinc | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Sulfur | ppm | ASTM D5185m | 0 | 1158 | 1280 | 867 |

CONTAMINANTS

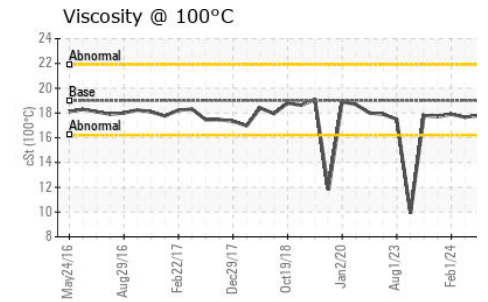
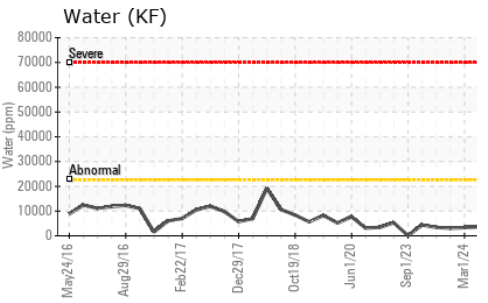
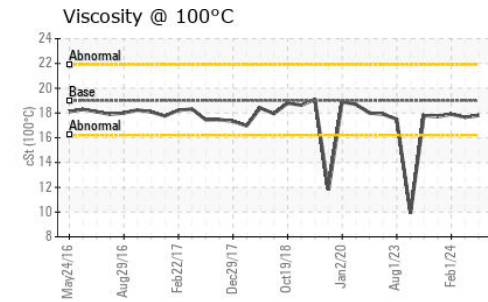
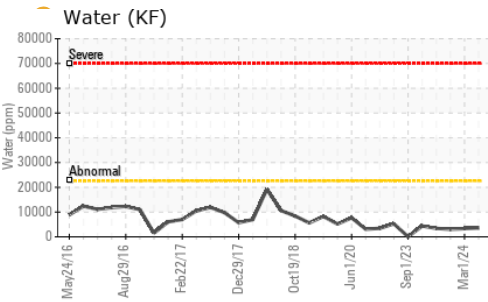
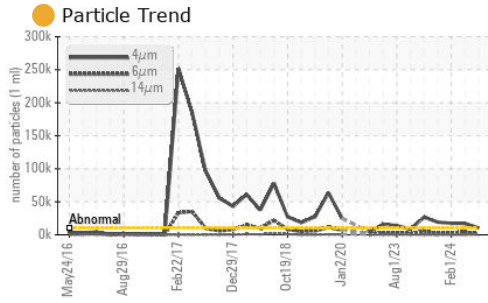
| | method | limit/base | current | history1 | history2 | |
|-----------|--------|-------------|---------|--------------|----------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 15 | ▲ 26 | 14 |
| Sodium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 3 | 3 |
| Water | % | ASTM D6304 | >2.26 | 0.358 | 0.329 | 0.304 |
| ppm Water | ppm | ASTM D6304 | >22600 | 3585 | 3296 | 3048 |

FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|------------|------------|
| Particles >4µm | ASTM D7647 | >10000 | 10278 | 17276 | 17423 |
| Particles >6µm | ASTM D7647 | >1300 | 1612 | ▲ 4297 | ▲ 3076 |
| Particles >14µm | ASTM D7647 | >320 | 78 | 183 | 77 |
| Particles >21µm | ASTM D7647 | >80 | 22 | 32 | 17 |
| Particles >38µm | ASTM D7647 | >20 | 0 | 0 | 0 |
| Particles >71µm | ASTM D7647 | >4 | 0 | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >20/17/15 | 21/18/13 | ▲ 21/19/15 | ▲ 21/19/13 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.11 | 1.23 | 1.16 |



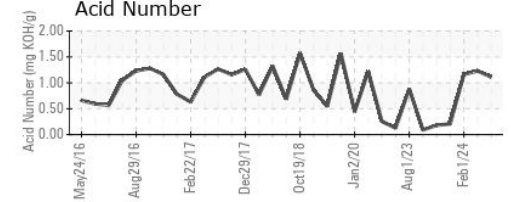
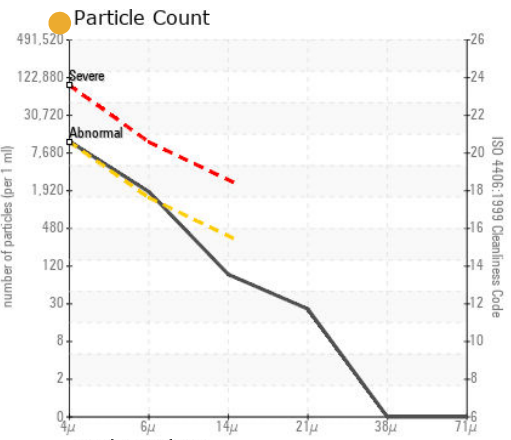
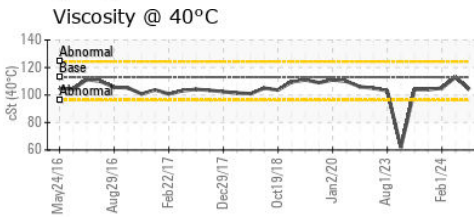
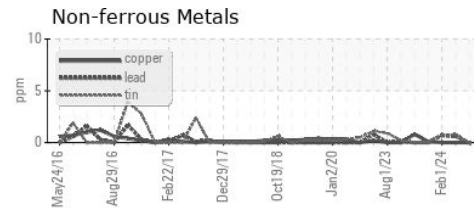
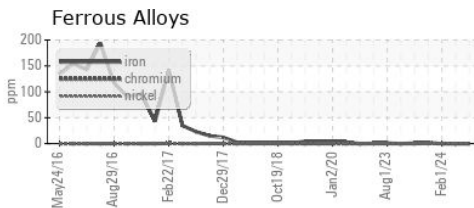
| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >2.26 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|----------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | 113 | 113 | 105 |
| Visc @ 100°C | cSt | ASTM D445 | 19 | 17.66 | 17.9 |
| Viscosity Index (VI) | Scale | ASTM D2270 | 189 | 172 | 188 |

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



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO90002441
Lab Number : 06145944
Unique Number : 10976022
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

MORROW RENEWABLES
 8601 N JASMAN RD
 EDINBURG, TX
 US 78539
 Contact: JESUS CASAREZ
 jcasarez@morrowrenew.com

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)

T:
F: