



OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

412

Machine Id

622 Hydraulic System

Component

Hydraulic System

Fluid

ESSO NUTO H ISO 68 (500 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is 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 | | WC0953716 | --- | --- |
| Sample Date | Client Info | | 10 Jul 2024 | --- | --- |
| Machine Age | hrs | Client Info | 48 | --- | --- |
| Oil Age | hrs | Client Info | 48 | --- | --- |
| Oil Changed | Client Info | | N/A | --- | --- |
| Sample Status | | | NORMAL | --- | --- |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|-------|-----------|------------|------------|----------|----------|
| Water | WC Method | >0.05 | NEG | --- | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|------------|-----------------|--------------|----------|----------|
| PQ | ASTM D8184 | | 14 | --- | --- |
| Iron | ppm | ASTM D5185m >20 | 0 | --- | --- |
| Chromium | ppm | ASTM D5185m >20 | <1 | --- | --- |
| Nickel | ppm | ASTM D5185m >20 | 0 | --- | --- |
| Titanium | ppm | ASTM D5185m | <1 | --- | --- |
| Silver | ppm | ASTM D5185m | <1 | --- | --- |
| Aluminum | ppm | ASTM D5185m >20 | 4 | --- | --- |
| Lead | ppm | ASTM D5185m >20 | <1 | --- | --- |
| Copper | ppm | ASTM D5185m >20 | 6 | --- | --- |
| Tin | ppm | ASTM D5185m >20 | <1 | --- | --- |
| Vanadium | ppm | ASTM D5185m | <1 | --- | --- |
| Cadmium | ppm | ASTM D5185m | <1 | --- | --- |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m 0 | 0 | --- | --- |
| Barium | ppm | ASTM D5185m 0 | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m 0 | <1 | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | --- | --- |
| Magnesium | ppm | ASTM D5185m 5 | 2 | --- | --- |
| Calcium | ppm | ASTM D5185m 50 | 38 | --- | --- |
| Phosphorus | ppm | ASTM D5185m 330 | 310 | --- | --- |
| Zinc | ppm | ASTM D5185m 420 | 389 | --- | --- |
| Sulfur | ppm | ASTM D5185m 3100 | 3540 | --- | --- |

CONTAMINANTS

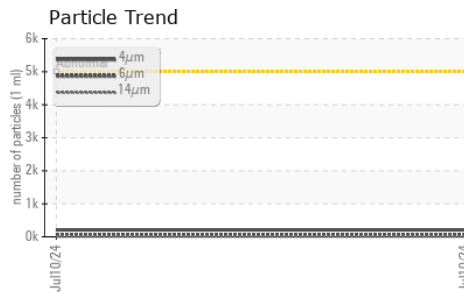
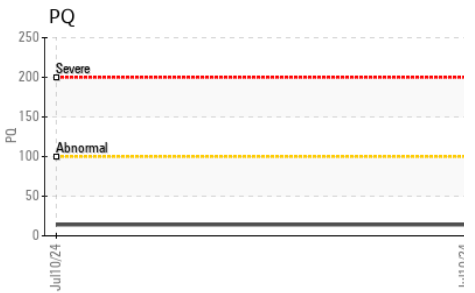
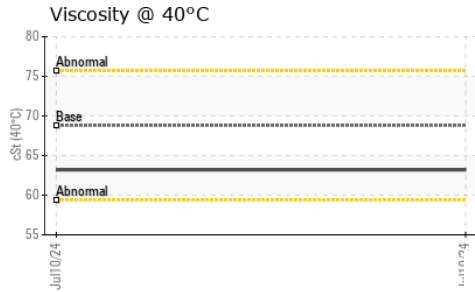
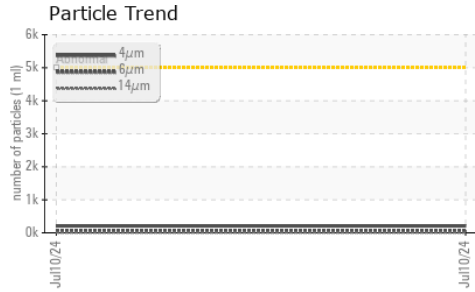
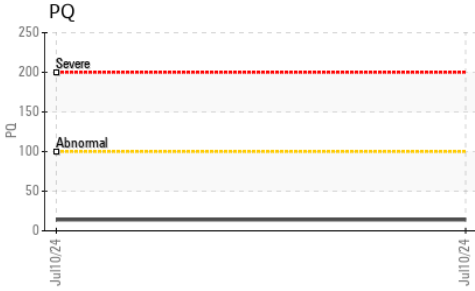
| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon | ppm | ASTM D5185m >15 | 4 | --- | --- |
| Sodium | ppm | ASTM D5185m | 0 | --- | --- |
| Potassium | ppm | ASTM D5185m >20 | 1 | --- | --- |

FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | >5000 | 209 | --- | --- |
| Particles >6µm | ASTM D7647 | >1300 | 63 | --- | --- |
| Particles >14µm | ASTM D7647 | >160 | 9 | --- | --- |
| Particles >21µm | ASTM D7647 | >40 | 3 | --- | --- |
| Particles >38µm | ASTM D7647 | >10 | 0 | --- | --- |
| Particles >71µm | ASTM D7647 | >3 | 0 | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | 15/13/10 | --- | --- |



OIL ANALYSIS REPORT



| FLUID DEGRADATION | method | limit/base | current | history1 | history2 |
|-------------------|----------|----------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 .40 | 0.40 | --- | --- |

| VISUAL | method | limit/base | 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 >0.05 | NEG | --- | --- |
| Free Water | scalar | *Visual | NEG | --- | --- |

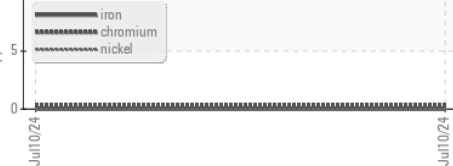
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|----------------|-------------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 68.8 | 63.2 | --- | --- |

SAMPLE IMAGES

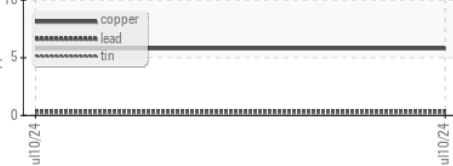
| | method | limit/base | current | history1 | history2 |
|--------|--------|------------|---------|-----------------|-----------------|
| Color | | | | <i>no image</i> | <i>no image</i> |
| Bottom | | | | <i>no image</i> | <i>no image</i> |

GRAPHS

Ferrous Alloys



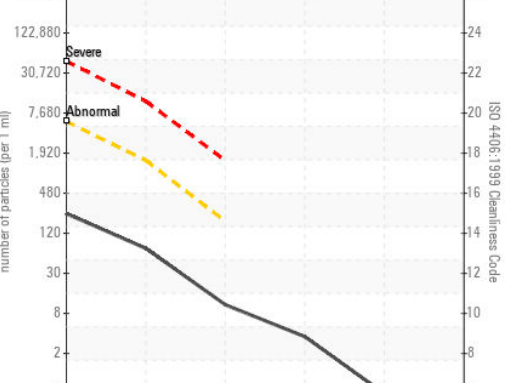
Non-ferrous Metals



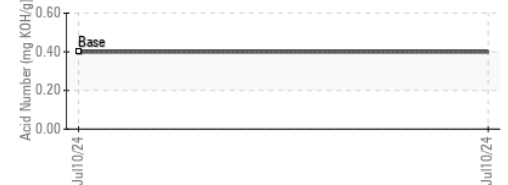
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0953716

Lab Number : **06240186**

Unique Number : 11129020

Test Package : IND 2 (Additional Tests: PQ)

Received : 18 Jul 2024

Tested : 19 Jul 2024

Diagnosed : 19 Jul 2024 - Wes Davis

BRIDGESTONE FIRESTONE - DES MOINES

4600 NW 2ND AVE

DES MOINES, IA

US 50313

Contact: TONY REITANO

reitanoantho@bfusa.com

T:

F:

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)