

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
024 - MOBIL TRANS AST 20W
 Component
New (Unused) Oil
 Fluid
{not provided} (--- GAL)

DIAGNOSIS

Recommendation

This is a baseline read-out on the submitted sample.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info | | PCA0108271 | --- | --- |
| Sample Date | Client Info | | 04 Oct 2023 | --- | --- |
| Machine Age | hrs | Client Info | 0 | --- | --- |
| Oil Age | hrs | Client Info | 0 | --- | --- |
| Oil Changed | Client Info | | N/A | --- | --- |
| Sample Status | | | NORMAL | --- | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|-------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m | 4 | --- | --- |
| Chromium | ppm | ASTM D5185m | 2 | --- | --- |
| Nickel | ppm | ASTM D5185m | <1 | --- | --- |
| Titanium | ppm | ASTM D5185m | 0 | --- | --- |
| Silver | ppm | ASTM D5185m | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m | 1 | --- | --- |
| Lead | ppm | ASTM D5185m | 0 | --- | --- |
| Copper | ppm | ASTM D5185m | <1 | --- | --- |
| Tin | ppm | ASTM D5185m | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185m | <1 | --- | --- |
| Cadmium | ppm | ASTM D5185m | <1 | --- | --- |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 0 | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | <1 | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | --- | --- |
| Magnesium | ppm | ASTM D5185m | 8 | --- | --- |
| Calcium | ppm | ASTM D5185m | 47 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 161 | --- | --- |
| Zinc | ppm | ASTM D5185m | 187 | --- | --- |
| Sulfur | ppm | ASTM D5185m | 1966 | --- | --- |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m | 2 | --- | --- |
| Sodium | ppm | ASTM D5185m | 15 | --- | --- |
| Potassium | ppm | ASTM D5185m >20 | <1 | --- | --- |

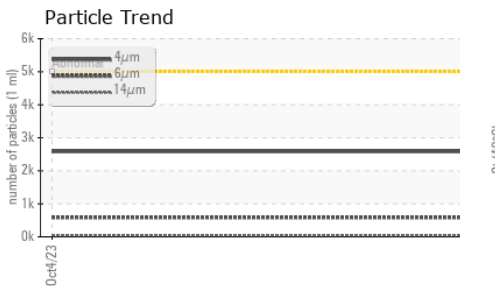
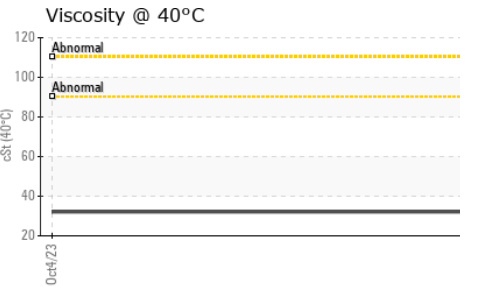
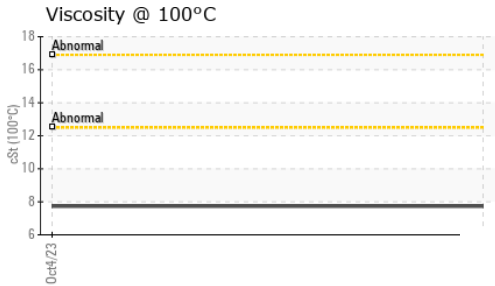
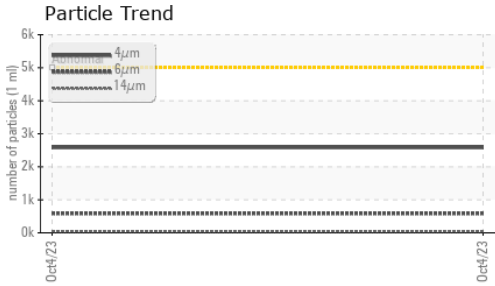
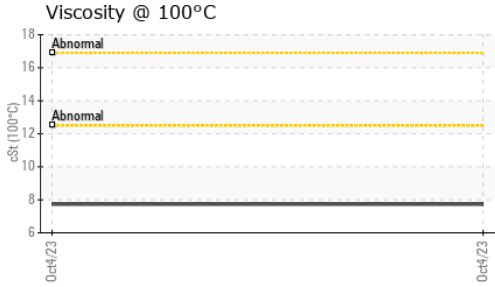
FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | >5000 | 2583 | --- | --- |
| Particles >6µm | ASTM D7647 | >1300 | 587 | --- | --- |
| Particles >14µm | ASTM D7647 | >160 | 44 | --- | --- |
| Particles >21µm | ASTM D7647 | >40 | 10 | --- | --- |
| Particles >38µm | ASTM D7647 | >10 | 0 | --- | --- |
| Particles >71µm | ASTM D7647 | >3 | 0 | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | 19/16/13 | --- | --- |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.67 | --- | --- |

OIL ANALYSIS REPORT



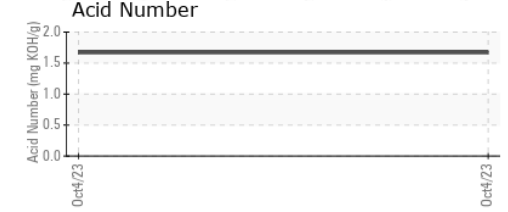
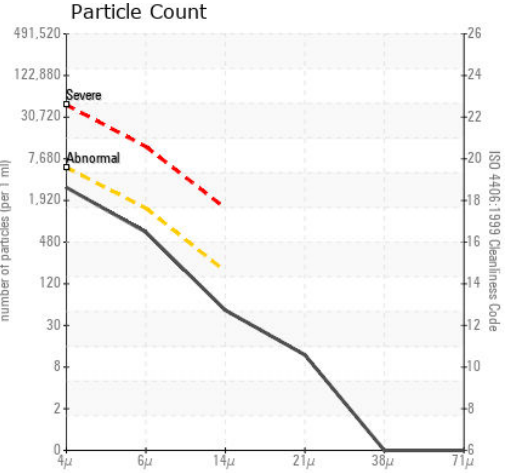
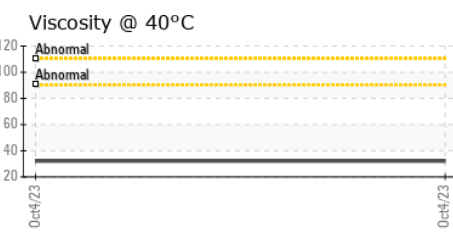
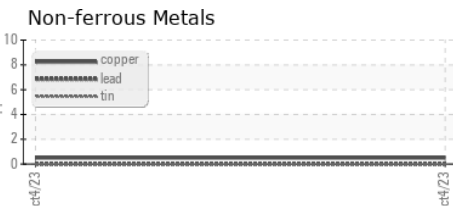
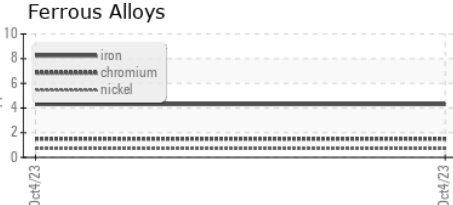
| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- |
| Precipitate | scalar | *Visual | NONE | NONE | --- |
| 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 | NEG | --- | --- |
| Free Water | scalar | *Visual | NEG | --- | --- |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|----------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | 32.1 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 7.73 | --- | --- |
| Viscosity Index (VI) | Scale | ASTM D2270 | 224 | --- | --- |

SAMPLE IMAGES

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---------------|--------|------------|---------|----------|----------|
| Color | | | | no image | no image |
| Bottom | | | | no image | no image |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0108271 **Received** : 05 Oct 2023
Lab Number : 05970847 **Diagnosed** : 18 Oct 2023
Unique Number : 10682797 **Diagnostician** : Doug Bogart
Test Package : MOB 2 (Additional Tests: FT-IR, KV100, PrtCount, VI)

MVP INC - MISSOURI VALLEY PETROLEUM
 1722 MANDAN AVE
 MANDAN, ND
 US 58554
 Contact: RIC ABERLE
 RICHARD.ABERLE@PARKLANDUSA.COM
 T: (701)663-5091
 F: (701)663-9445

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)