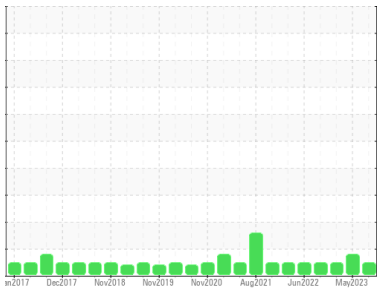
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
## BUSCH VM1 / VP-2 (S/N 003-136684)
Component
**Pump**
Fluid
**USPI VAC 100 (--- 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 | | **USPM29249** | USPM28900 | USPM26238 |
| Sample Date | | Client Info | | **19 Aug 2023** | 11 May 2023 | 26 Jan 2023 |
| 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** | ATTENTION | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >90 | **13** | 11 | 11 |
| Chromium | ppm | ASTM D5185m | >5 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >5 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >7 | **9** | 9 | <1 |
| Lead | ppm | ASTM D5185m | >12 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >30 | **0** | <1 | 0 |
| Tin | ppm | ASTM D5185m | >9 | **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** | 1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | 0 | **<1** | <1 | 0 |
| Calcium | ppm | ASTM D5185m | 0 | **3** | 4 | <1 |
| Phosphorus | ppm | ASTM D5185m | 1800 | **1553** | 1534 | 1588 |
| Zinc | ppm | ASTM D5185m | 0 | **3** | 5 | 3 |
| Sulfur | ppm | ASTM D5185m | 0 | **4** | 0 | 11 |

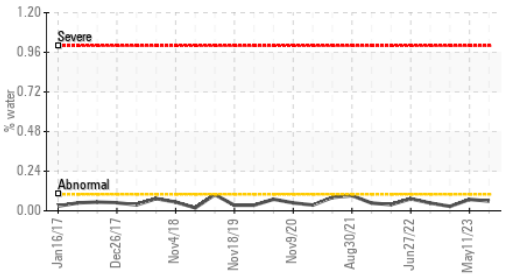
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >60 | **2** | 1 | <1 |
| Sodium | ppm | ASTM D5185m | | **<1** | 1 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 7 | 0 |
| Water | % | ASTM D6304 | | **0.059** | 0.069 | 0.027 |
| ppm Water | ppm | ASTM D6304 | >.1 | **593.0** | 694.0 | 274.7 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **2015** | 4594 | 264 |
| Particles >6µm | | ASTM D7647 | >1300 | **604** | ▲ 1312 | 116 |
| Particles >14µm | | ASTM D7647 | >160 | **60** | 79 | 17 |
| Particles >21µm | | ASTM D7647 | >40 | **23** | 13 | 5 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **18/16/13** | ▲ 19/18/13 | 15/14/11 |

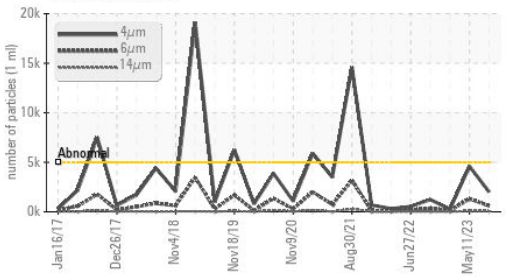
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.05 | **0.28** | 0.301 | 0.26 |

# OIL ANALYSIS REPORT

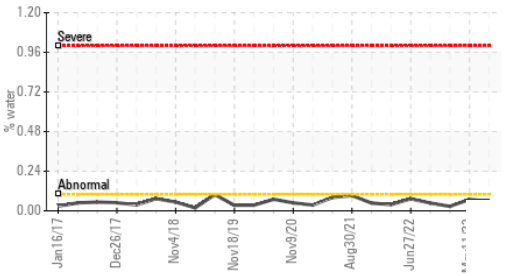
Water



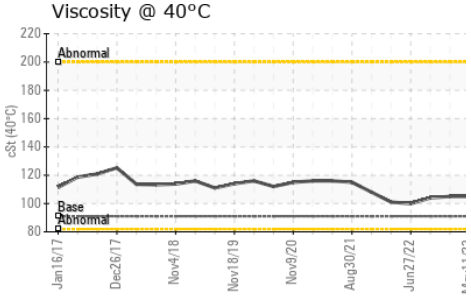

Particle Trend



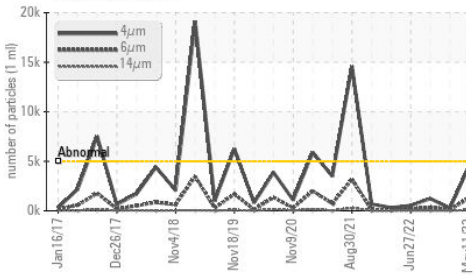

Water




Viscosity @ 40°C

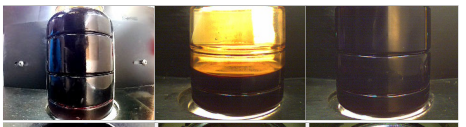
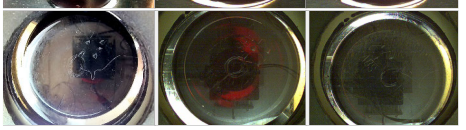



Particle Trend



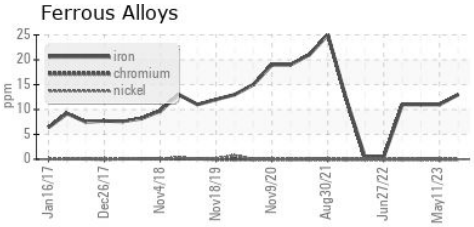

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 91 | **107** | 105 | 105 |

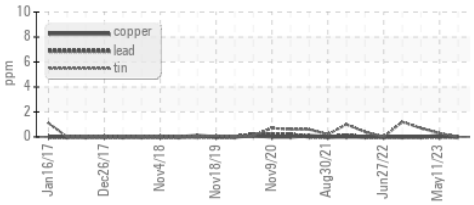
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

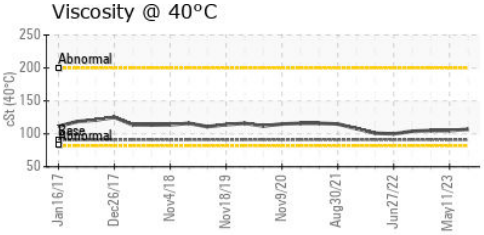
Ferrous Alloys



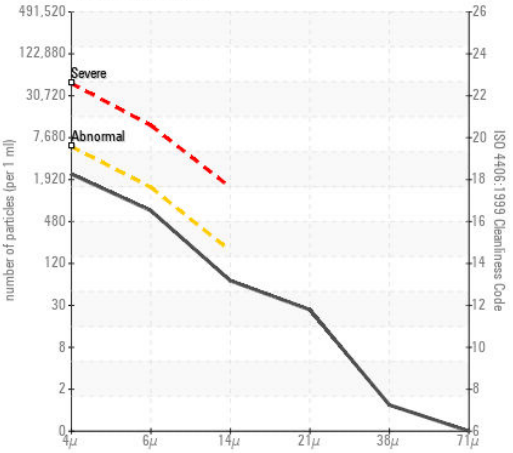

Non-ferrous Metals



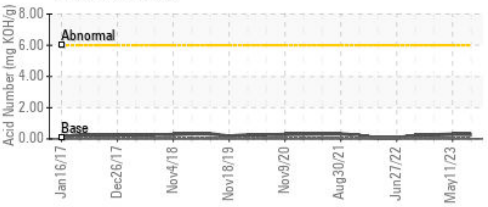

Viscosity @ 40°C




Particle Count




Acid Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : USPM29249
**Lab Number** : 05928265
**Unique Number** : 10608212
**Test Package** : IND 2

**Received** : 18 Aug 2023
**Diagnosed** : 21 Aug 2023
**Diagnostician** : Doug Bogart

Certificate L2367

*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)*

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