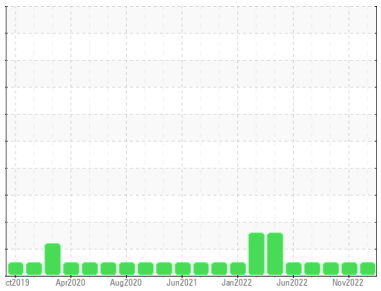
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## PETERBILT 20
Component
**Diesel Engine**
Fluid
**MOBIL DELVAC 1300 SUPER15W40 (48 QTS)**

## 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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **KL0006549** | KL0006544 | KL0006550 |
| Sample Date | | Client Info | | **18 Apr 2023** | 21 Nov 2022 | 22 Sep 2022 |
| Machine Age | mls | Client Info | | **253000** | 232332 | 520208 |
| Oil Age | mls | Client Info | | **10000** | 30000 | 20000 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **13** | 31 | 18 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **11** | 22 | 19 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **<1** | 3 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

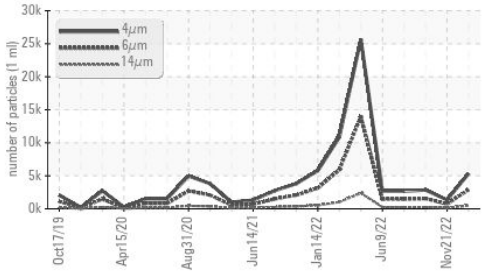
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **30** | 2 | 2 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **43** | 61 | 61 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | **555** | 955 | 949 |
| Calcium | ppm | ASTM D5185m | | **1624** | 1201 | 1209 |
| Phosphorus | ppm | ASTM D5185m | | **744** | 988 | 990 |
| Zinc | ppm | ASTM D5185m | | **948** | 1240 | 1199 |
| Sulfur | ppm | ASTM D5185m | | **3481** | 4376 | 4483 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **8** | 6 | 5 |
| Sodium | ppm | ASTM D5185m | | **1** | 2 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **17** | 50 | 37 |

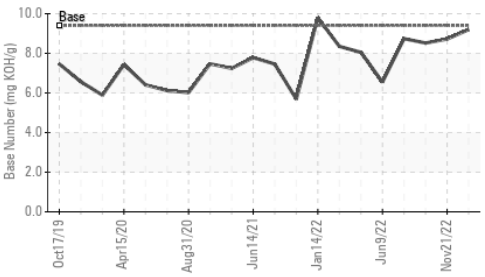
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.3** | 0.6 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.2** | 10.3 | 9.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.5** | 23.4 | 21.9 |

# OIL ANALYSIS REPORT

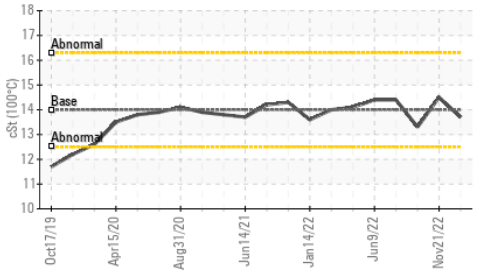
Particle Trend



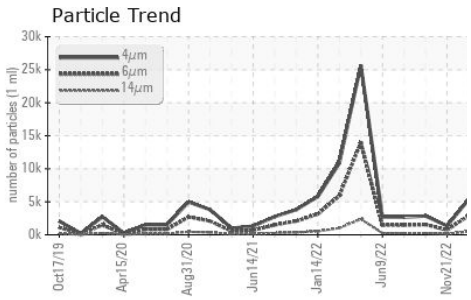

Base Number




Viscosity @ 100°C




Particle Trend




| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | | **5342** | 1338 | 2845 |
| Particles >6µm | | ASTM D7647 | >5000 | **2910** | 729 | 1550 |
| Particles >14µm | | ASTM D7647 | >640 | **495** | 124 | 264 |
| Particles >21µm | | ASTM D7647 | >160 | **167** | 42 | 89 |
| Particles >38µm | | ASTM D7647 | >40 | **26** | 6 | 14 |
| Particles >71µm | | ASTM D7647 | >10 | **3** | 1 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >19/16 | **19/16** | 17/14 | 18/15 |

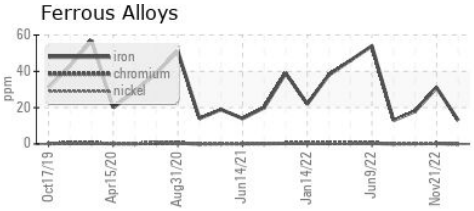
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **20.7** | 20.7 | 18.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.4 | **9.20** | 8.72 | 8.52 |

| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

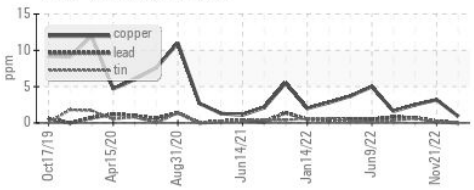
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14 | **13.7** | 14.5 | 13.3 |

## GRAPHS

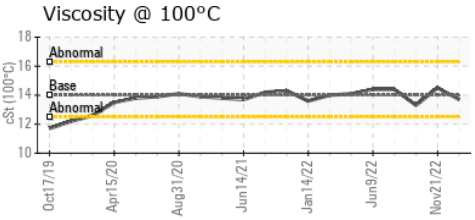
Ferrous Alloys



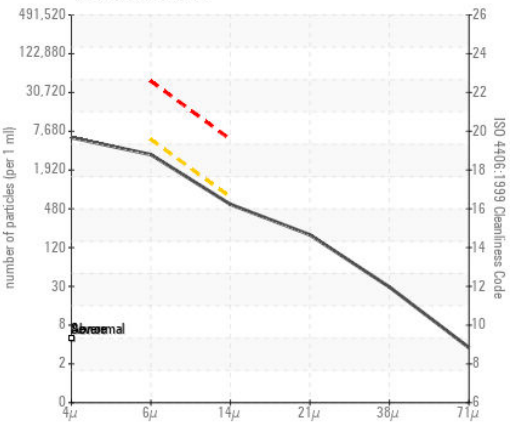

Non-ferrous Metals



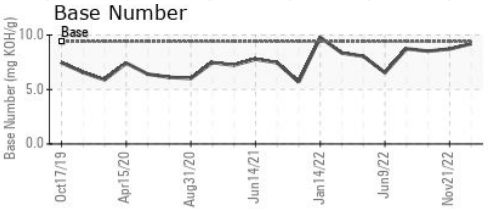

Viscosity @ 100°C




Particle Count




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KL0006549
**Lab Number** : 05829110
**Unique Number** : 10442603
**Test Package** : MOB 2 ( Additional Tests: PrtCount )

**Received** : 25 Apr 2023
**Tested** : 26 Apr 2023
**Diagnosed** : 26 Apr 2023 - Wes Davis

*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)*

**BERRINGTON CUSTOM HAY**
PO BOX 540
WELLINGTON, NV
US 89444
Contact: REBECCA BERRINGTON
berringtoncustomhay@gmail.com
T: (775)465-2264
F: