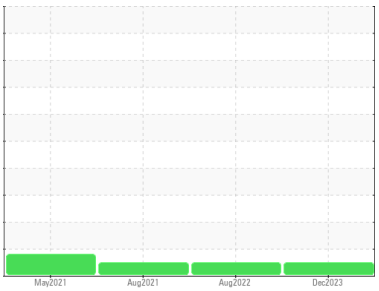
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**2026856**
Component
**Diesel Engine**
Fluid
**{not provided} (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**
All component wear rates are normal.

**Contamination**
There is no indication of any contamination in the oil.

**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 | | **PCA0112333** | PCA0079910 | PCA0056221 |
| Sample Date | | Client Info | | **12 Dec 2023** | 16 Aug 2022 | 22 Aug 2021 |
| Machine Age | mls | Client Info | | **100903** | 100903 | 0 |
| Oil Age | mls | Client Info | | **100903** | 100903 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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 | **44** | 29 | 20 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **1** | <1 | 1 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **4** | 3 | 4 |
| Lead | ppm | ASTM D5185m | >40 | **2** | 1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **6** | 15 | 36 |
| Tin | ppm | ASTM D5185m | >15 | **1** | <1 | 2 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 1 | 4 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **58** | 61 | 57 |
| Manganese | ppm | ASTM D5185m | | **1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **907** | 841 | 829 |
| Calcium | ppm | ASTM D5185m | | **1002** | 1090 | 1128 |
| Phosphorus | ppm | ASTM D5185m | | **942** | 890 | 809 |
| Zinc | ppm | ASTM D5185m | | **1217** | 1170 | 1119 |
| Sulfur | ppm | ASTM D5185m | | **2670** | 2836 | 2416 |

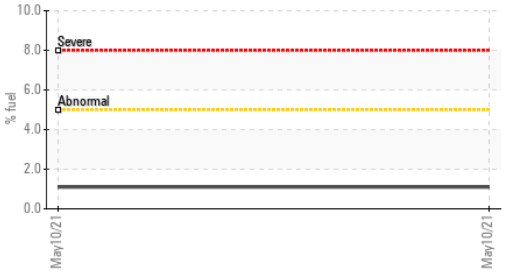
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **7** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **0** | 1 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 4 | 10 |
| Fuel | % | ASTM D3524 | >5 | **<1.0** | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.4** | 0.4 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.5** | 10.1 | 9.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.0** | 21.7 | 20.1 |

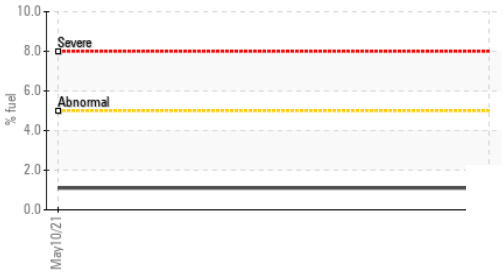
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **20.6** | 17.3 | 14.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **4.4** | 7.4 | 6.3 |

# OIL ANALYSIS REPORT

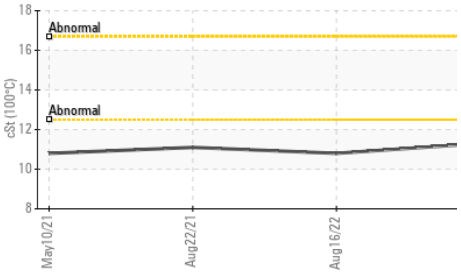
Fuel Dilution




Fuel Dilution




Viscosity @ 100°C

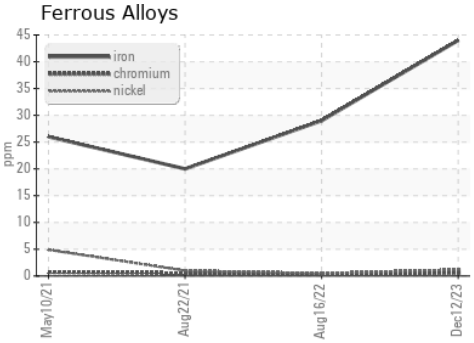



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

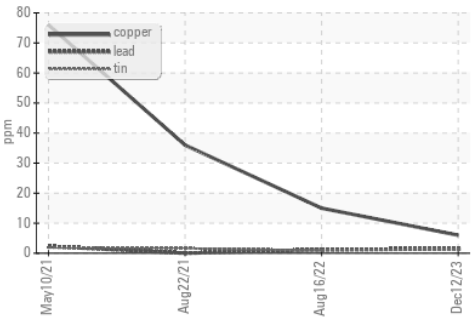
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **11.3** | 10.8 | 11.1 |

## GRAPHS

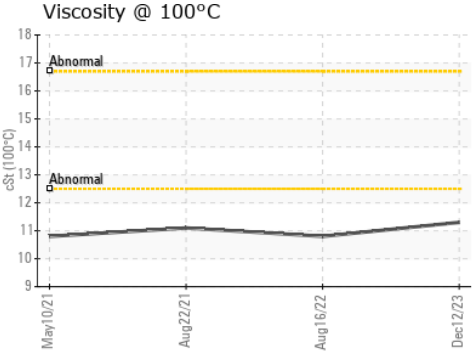
Ferrous Alloys



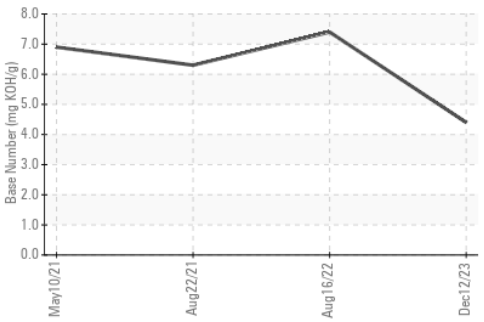

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0112333 **Recieved** : 11 Jan 2024
**Lab Number** : 06057901 **Diagnosed** : 12 Jan 2024
**Unique Number** : 10829283 **Diagnostician** : Don Baldridge
**Test Package** : FLEET ( Additional Tests: FuelDilution )

*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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Submitted By: KEVIN HOOKS