HUTCHENS RENTZ-EDEN

# OIL ANALYSIS REPORT

| | |
|---|---|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id
**2341**
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 5W30 (--- QTS)**

## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

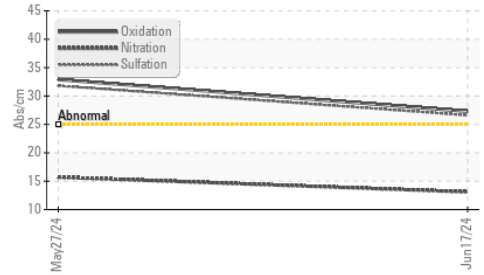
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. No other contaminants were detected in the oil.

## FLUID CONDITION

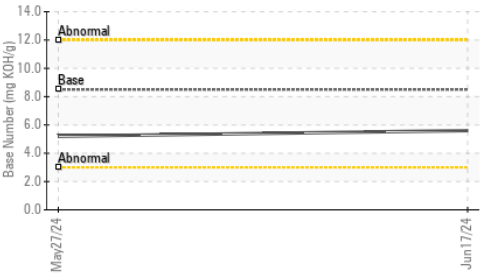
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **HRE0000220** | HRE0000213 | --- |
| Sample Date | | Client Info | | **17 Jun 2024** | 27 May 2024 | --- |
| Machine Age | mls | Client Info | | **164999** | 127747 | --- |
| Oil Age | mls | Client Info | | **50000** | 50000 | --- |
| Filter Age | mls | Client Info | | **50000** | 50000 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Filter Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |
| Iron | ppm | ASTM D5185m | >100 | **54** | 94 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | <1 | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Silver | ppm | ASTM D5185m | >3 | **<1** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **14** | 25 | --- |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | **6** | 14 | --- |
| Tin | ppm | ASTM D5185m | >15 | **1** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | --- |
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silicon | ppm | ASTM D5185m | >25 | **14** | 23 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **42** | 73 | --- |
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | --- |
| Water | | WC Method | >0.2 | **NEG** | NEG | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |
| Soot % | % | *ASTM D7844 | >3 | **0.5** | 0.7 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **13.1** | 15.7 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **26.6** | 31.8 | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | --- |
| Sodium | ppm | ASTM D5185m | | **7** | 10 | --- |
| Boron | ppm | ASTM D5185m | 250 | **14** | 18 | --- |
| Barium | ppm | ASTM D5185m | 10 | **0** | <1 | --- |
| Molybdenum | ppm | ASTM D5185m | 100 | **58** | 42 | --- |
| Manganese | ppm | ASTM D5185m | | **2** | 3 | --- |
| Magnesium | ppm | ASTM D5185m | 450 | **1099** | 1086 | --- |
| Calcium | ppm | ASTM D5185m | 3000 | **1109** | 1295 | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1111** | 993 | --- |
| Zinc | ppm | ASTM D5185m | 1350 | **1359** | 1208 | --- |
| Sulfur | ppm | ASTM D5185m | 4250 | **3918** | 3528 | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **27.3** | 32.9 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | **5.6** | 5.2 | --- |
| Visc @ 100°C | cSt | ASTM D445 | 10.9 | **12.4** | 12.9 | --- |

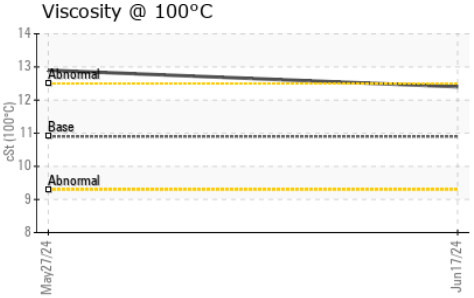
FT-IR (Direct Trend)



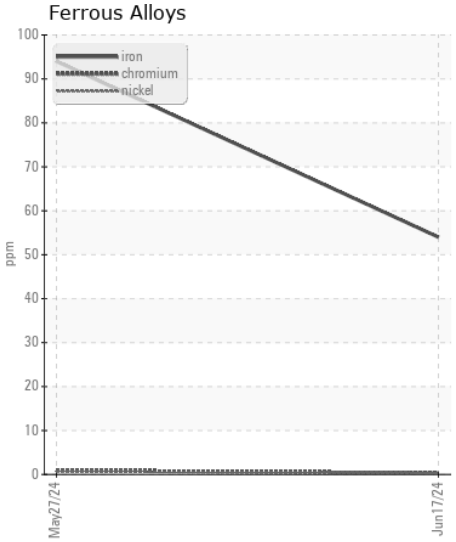

Base Number



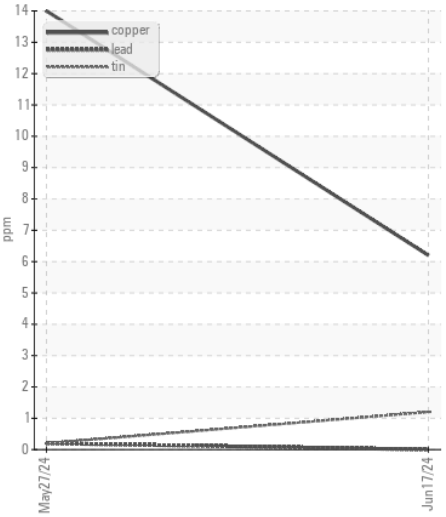

Viscosity @ 100°C



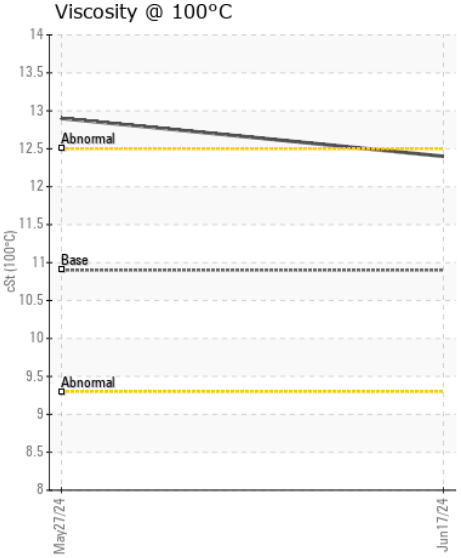

Ferrous Alloys



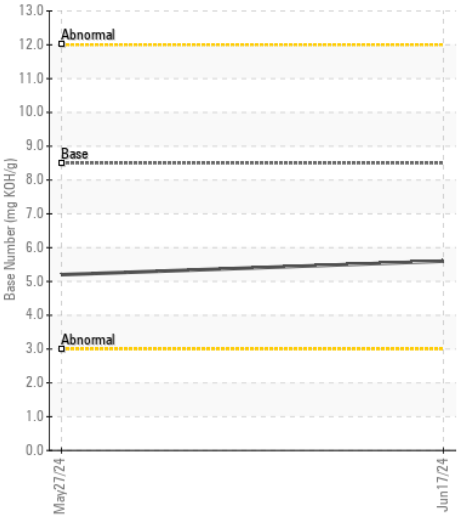

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : HRE0000220
**Lab Number** : 06217555
**Unique Number** : 11090419
**Test Package** : FLEET

**Received** : 21 Jun 2024
**Tested** : 25 Jun 2024
**Diagnosed** : 25 Jun 2024 - Sean Felton

*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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