



ASCENDUM

OIL ANALYSIS REPORT



Area

Ascendum Machinery

Machine Id

VOLVO L90H 627016

Component

Diesel Engine

Fluid

VOLVO VDS-4.5 Premium Motor Oil 15W40 (--- GAL)

WEAR

NORMAL

CONTAMINATION

ABNORMAL

FLUID CONDITION

NORMAL

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.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|----------|
| Sample Number | | Client Info | | ASC0009812 | ASC0001522 | --- |
| Sample Date | | Client Info | | 13 Jun 2024 | 03 Jan 2024 | --- |
| Machine Age | hrs | Client Info | | 1005 | 449 | --- |
| Oil Age | hrs | Client Info | | 556 | 449 | --- |
| Filter Age | hrs | Client Info | | 0 | 0 | --- |
| Oil Changed | | Client Info | | Changed | Changed | --- |
| Filter Changed | | Client Info | | Changed | Changed | --- |
| Sample Status | | | | ABNORMAL | NORMAL | --- |

WEAR

Metal levels are typical for a components first oil change.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-----|
| Iron | ppm | ASTM D5185m | >100 | 54 | 32 | --- |
| Chromium | ppm | ASTM D5185m | >10 | 4 | 2 | --- |
| Nickel | ppm | ASTM D5185m | >10 | <1 | 0 | --- |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >10 | 10 | 8 | --- |
| Lead | ppm | ASTM D5185m | >20 | 2 | <1 | --- |
| Copper | ppm | ASTM D5185m | >15 | 12 | 7 | --- |
| Tin | ppm | ASTM D5185m | >10 | 5 | 3 | --- |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | --- |
| White Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |

CONTAMINATION

Elemental level of silicon (Si) above normal indicating ingress of seal material.

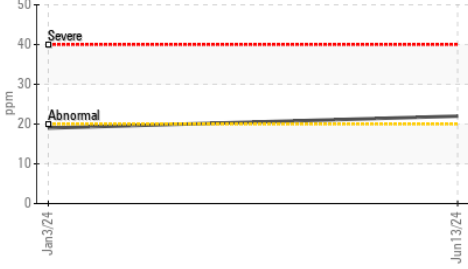
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-----|
| Silicon | ppm | ASTM D5185m | >20 | ▲ 22 | 19 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 2 | --- |
| Fuel | | WC Method | >6.0 | <1.0 | <1.0 | --- |
| Water | | WC Method | >0.1 | NEG | NEG | --- |
| Glycol | | WC Method | | NEG | NEG | --- |
| Soot % | % | *ASTM D7844 | >3 | 0.5 | 0.3 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.8 | 6.7 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.2 | 21.7 | --- |
| 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 | >0.1 | NEG | NEG | --- |

FLUID CONDITION

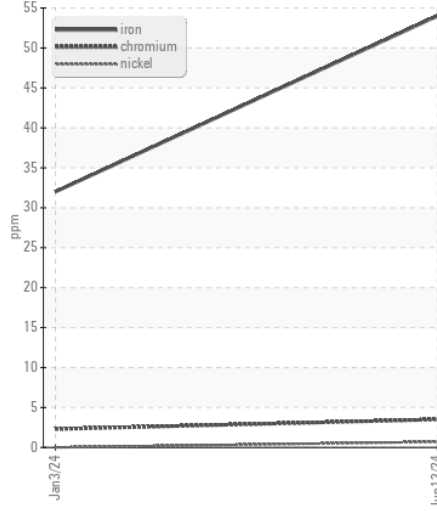
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|-----|-------------|------|-----|
| Sodium | ppm | ASTM D5185m | | 4 | 3 | --- |
| Boron | ppm | ASTM D5185m | | 34 | 49 | --- |
| Barium | ppm | ASTM D5185m | | 4 | 2 | --- |
| Molybdenum | ppm | ASTM D5185m | | 49 | 37 | --- |
| Manganese | ppm | ASTM D5185m | | 5 | 4 | --- |
| Magnesium | ppm | ASTM D5185m | | 637 | 589 | --- |
| Calcium | ppm | ASTM D5185m | | 1857 | 1524 | --- |
| Phosphorus | ppm | ASTM D5185m | | 1018 | 974 | --- |
| Zinc | ppm | ASTM D5185m | | 1294 | 1145 | --- |
| Sulfur | ppm | ASTM D5185m | | 3625 | 3259 | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 20.4 | 18.8 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 9.2 | 9.8 | --- |
| Visc @ 100°C | cSt | ASTM D445 | | 13.0 | 12.6 | --- |

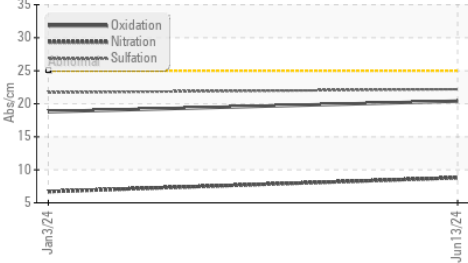
▲ Silicon (ppm)



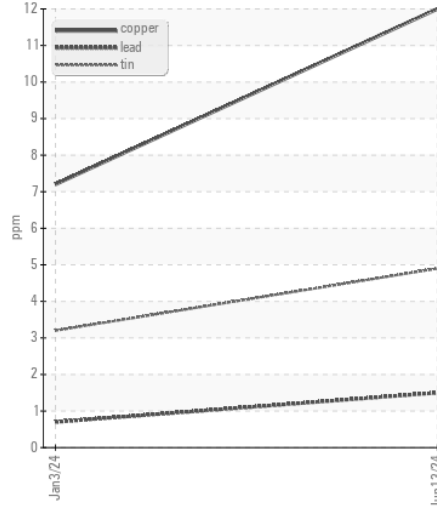
Ferrous Alloys



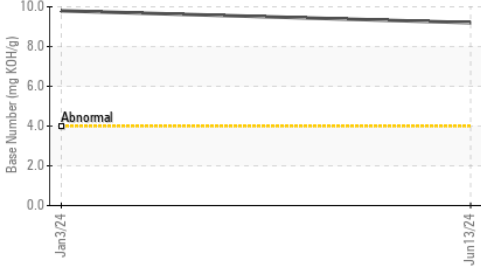
FT-IR (Direct Trend)



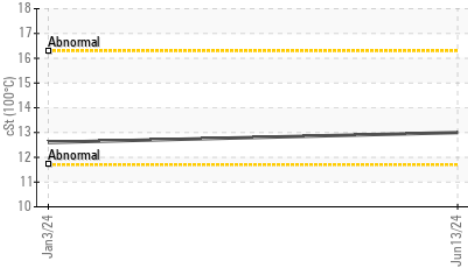
Non-ferrous Metals



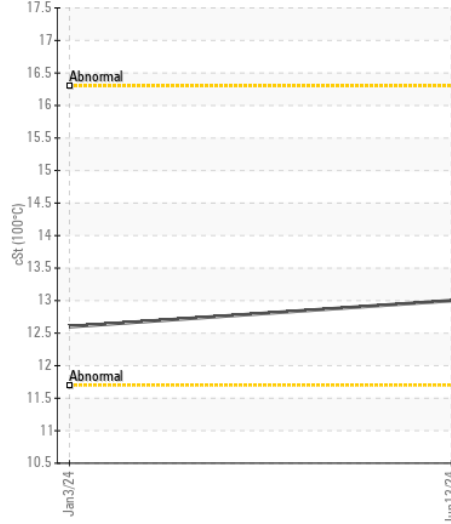
Base Number



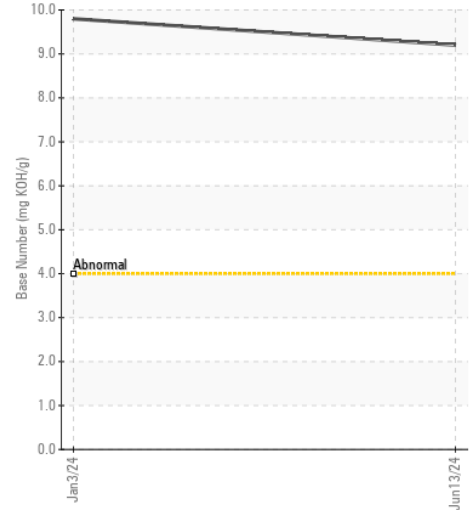
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : ASC0009812 Received : 18 Jun 2024
 Lab Number : 06213123 Tested : 19 Jun 2024
 Unique Number : 11085987 Diagnosed : 20 Jun 2024 - Don Baldrige
 Test Package : CONST (Additional Tests: TBN)

EGGER TIMBERPAK
 1801 COTTONWOOD ST
 CHARLOTTE, NC
 US 28206
 Contact: Service Manager

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)

T:
F: