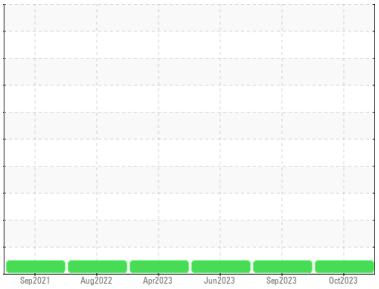
ASCENDUM

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**Ascendum Machinery**
Machine Id
**VOLVO L180H 14 (S/N 5269)**
Component
**Hydraulic System**
Fluid
**VOLVO SUPER HYDRAULIC OIL 46 (--- GAL)**

## 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 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 | | **ASC0005391** | ASC0000732 | ASC0000198 |
| Sample Date | | Client Info | | **26 Oct 2023** | 25 Sep 2023 | 15 Jun 2023 |
| Machine Age | hrs | Client Info | | **13517** | 13007 | 12056 |
| Oil Age | hrs | Client Info | | **12566** | 951 | 8564 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **5** | 5 | 5 |
| Chromium | ppm | ASTM D5185m | >20 | **2** | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >10 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **1** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **<1** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >150 | **2** | 3 | 3 |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| 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 | 14 | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | 0.0 | **0** | 0 | 2 |
| Molybdenum | ppm | ASTM D5185m | 0.0 | **<1** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | 0.0 | **0** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 2.6 | **18** | 14 | 23 |
| Calcium | ppm | ASTM D5185m | 49 | **49** | 49 | 48 |
| Phosphorus | ppm | ASTM D5185m | 354 | **319** | 329 | 309 |
| Zinc | ppm | ASTM D5185m | 419 | **388** | 393 | 401 |
| Sulfur | ppm | ASTM D5185m | 3719 | **1559** | 1639 | 1783 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **2** | 2 | 1 |
| Sodium | ppm | ASTM D5185m | | **2** | 4 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 0 | 2 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | | **2463** | 3628 | 913 |
| Particles >6µm | | ASTM D7647 | >2500 | **539** | 676 | 202 |
| Particles >14µm | | ASTM D7647 | >80 | **53** | 38 | 30 |
| Particles >21µm | | ASTM D7647 | >20 | **15** | 10 | 13 |
| Particles >38µm | | ASTM D7647 | >4 | **0** | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >--/18/13 | **18/16/13** | 19/17/12 | 17/15/12 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.33** | 0.33 | 0.41 |

ASCENDUM

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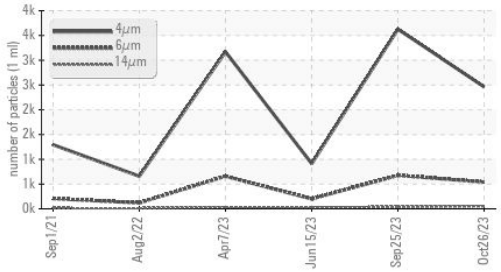
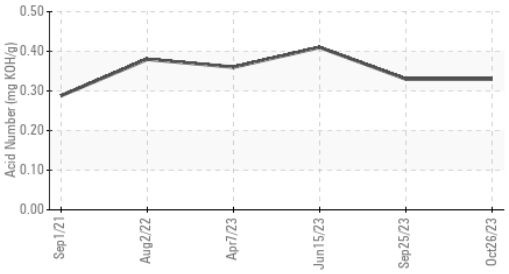
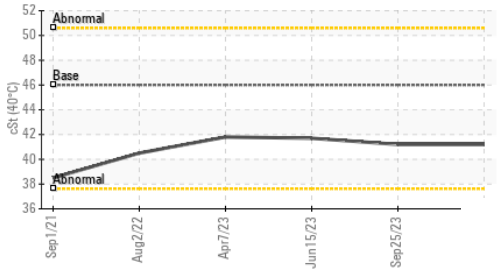
Particle Trend



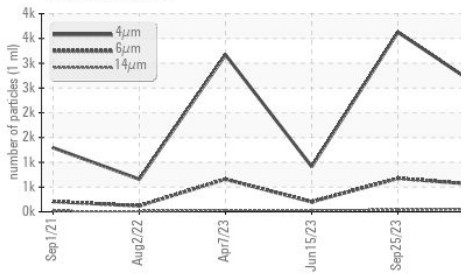

Acid Number




Viscosity @ 40°C




Particle Trend



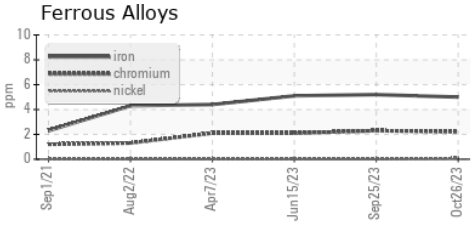

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **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 | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 46 | **41.2** | 41.2 | 41.7 |

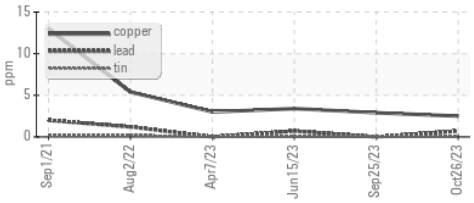
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

## GRAPHS

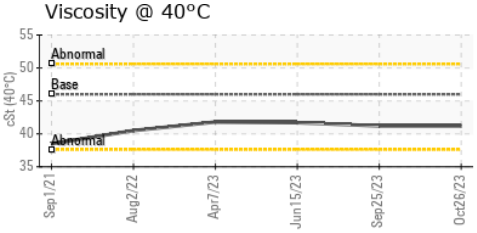
Ferrous Alloys



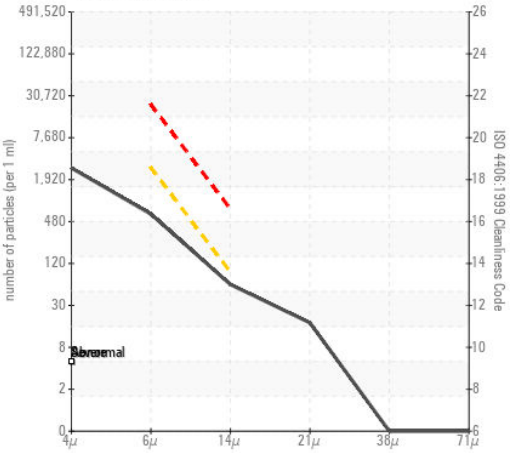

Non-ferrous Metals



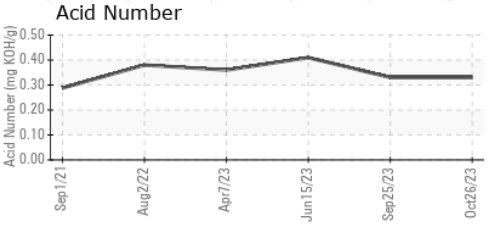

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : ASC0005391
**Lab Number** : 06006968
**Unique Number** : 10740730
**Test Package** : CONST

**Received** : 14 Nov 2023
**Diagnosed** : 15 Nov 2023
**Diagnostician** : 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)*

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F:

Report Id: EGGLIN [WUSCAR] 06006968 (Generated: 11/15/2023 15:33:32) Rev: 1

Submitted By: SONNY POPE