



VOLVO

OIL ANALYSIS REPORT

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



Area
[SVC27839]
Machine Id
VOLVO 320331
Component
Diesel Engine
Fluid
VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|----------|
| Sample Number | | Client Info | | VCP237764 | VCP213613 | --- |
| Sample Date | | Client Info | | 03 Jan 2019 | 14 Mar 2018 | --- |
| Machine Age | hrs | Client Info | | 1577 | 545 | --- |
| Oil Age | hrs | Client Info | | 1032 | 545 | --- |
| Filter Age | hrs | Client Info | | 0 | 0 | --- |
| Oil Changed | | Client Info | | Changed | Changed | --- |
| Filter Changed | | Client Info | | Changed | Changed | --- |
| Sample Status | | | | ABNORMAL | NORMAL | --- |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-----|
| Iron | ppm | ASTM D5185m | >100 | 11 | 8 | --- |
| Chromium | ppm | ASTM D5185m | >10 | <1 | <1 | --- |
| Nickel | ppm | ASTM D5185m | >10 | 2 | 2 | --- |
| Titanium | ppm | ASTM D5185m | | 77 | 82 | --- |
| Silver | ppm | ASTM D5185m | | 0 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >10 | 11 | 5 | --- |
| Lead | ppm | ASTM D5185m | >20 | 0 | 0 | --- |
| Copper | ppm | ASTM D5185m | >15 | 2 | 1 | --- |
| Tin | ppm | ASTM D5185m | >10 | <1 | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | --- |
| White Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |

CONTAMINATION

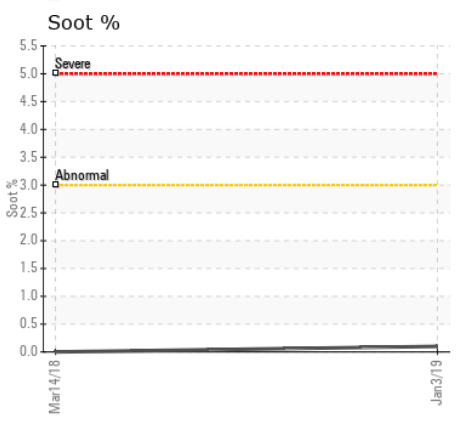
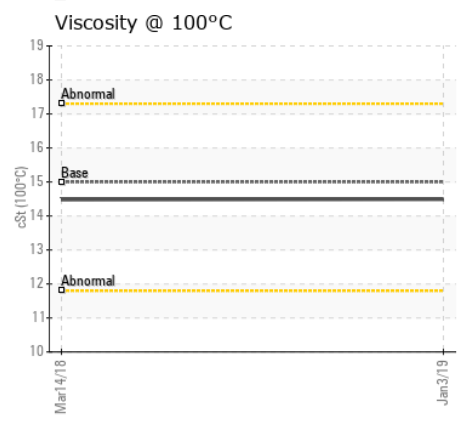
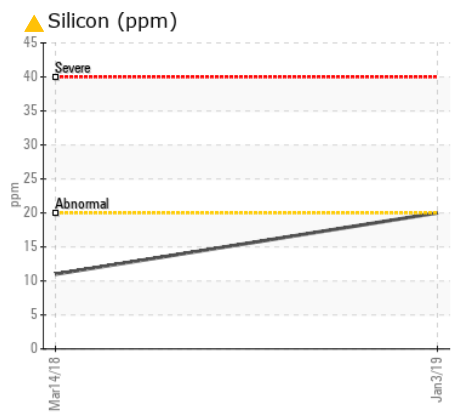
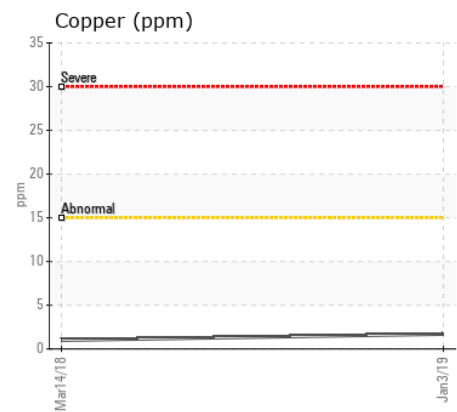
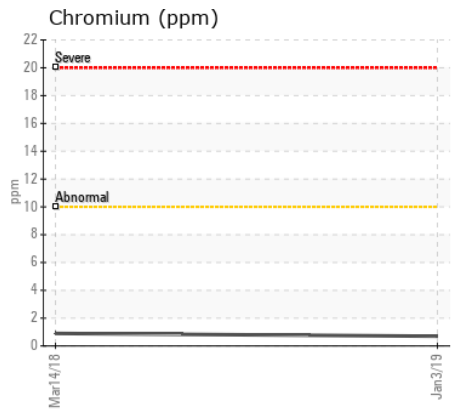
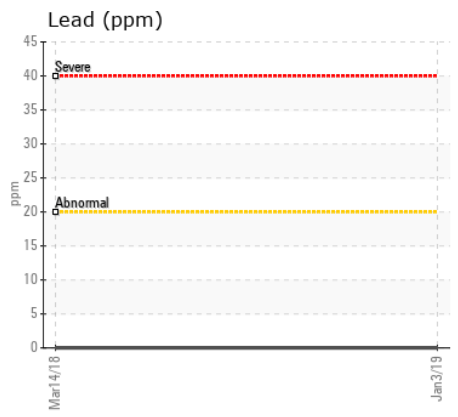
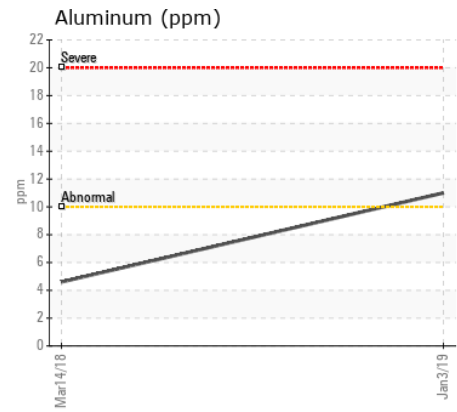
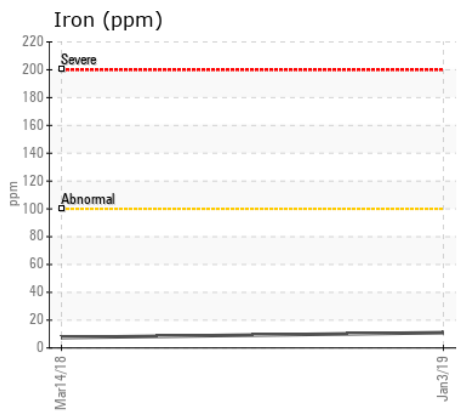
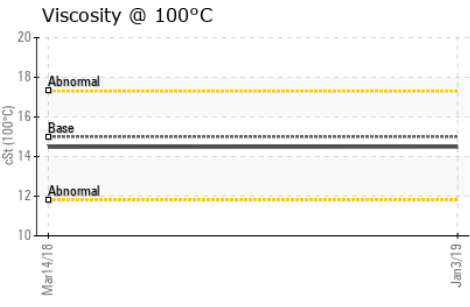
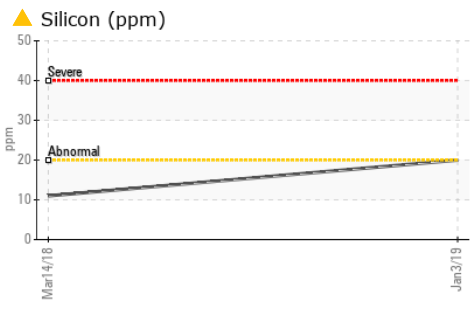
Elemental level of silicon (Si) above normal indicating ingress of seal material.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-----|
| Silicon | ppm | ASTM D5185m | >20 | ▲ 20 | 11 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 29 | 9 | --- |
| 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 | 0.1 | 0 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9 | 7. | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.2 | 18. | --- |
| 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 condition of the oil is acceptable for the time in service.

| | | | | | | |
|--------------|----------|-------------|------|--------------|-------|-----|
| Sodium | ppm | ASTM D5185m | | 4 | 3 | --- |
| Boron | ppm | ASTM D5185m | 2.5 | 52 | 110 | --- |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 0.7 | 7 | 5 | --- |
| Manganese | ppm | ASTM D5185m | 0.0 | <1 | 1 | --- |
| Magnesium | ppm | ASTM D5185m | 256 | 445 | 504 | --- |
| Calcium | ppm | ASTM D5185m | 2057 | 1925 | 2043 | --- |
| Phosphorus | ppm | ASTM D5185m | 935 | 986 | 1050 | --- |
| Zinc | ppm | ASTM D5185m | 1223 | 1092 | 1088 | --- |
| Sulfur | ppm | ASTM D5185m | 4079 | 3235 | 3966 | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 17.3 | 14. | --- |
| Visc @ 100°C | cSt | ASTM D445 | 15.0 | 14.49 | 14.48 | --- |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VCP237764 **Received** : 09 Jan 2019
Lab Number : 04626411 **Tested** : 10 Jan 2019
Unique Number : 8457837 **Diagnosed** : 10 Jan 2019 - Don Baldrige
Test Package : MOB 1

VOYAGER TRUCKING
 1 HARBORVIEW AVE
 STAMFORD, CT
 US 06902
 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: