



CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - DIESEL ENGINE



Sample No: ML0001591
Oil Type: DIESEL ENGINE OIL SAE 15W40
Job No:



SAMPLE INFORMATION

Sample Number	ML0001591	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	NORMAL	---	---	---

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OIL CONDITION

Visc @ 100°C	cSt	█ 12.5	---	---	---
Base Number (BN)	mg KOH/g	█ 9.4	---	---	---
Oxidation (PA)	%	77	---	---	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. 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.



CONTAMINATION

Water	%	NEG	---	---	---
Soot %	%	█ 0.1	---	---	---
Nitration (PA)	%	53	---	---	---
Sulfation (PA)	%	59	---	---	---
Glycol	%	NEG	---	---	---
Fuel	%	<1.0	---	---	---
Silicon	ppm	█ 4	---	---	---
Sodium	ppm	█ 3	---	---	---
Potassium	ppm	█ 2	---	---	---



WEAR METALS

Iron	ppm	█ 3	---	---	---
Copper	ppm	█ 6	---	---	---
Lead	ppm	█ <1	---	---	---
Tin	ppm	█ <1	---	---	---
Aluminum	ppm	█ 2	---	---	---
Chromium	ppm	█ 0	---	---	---
Molybdenum	ppm	█ 40	---	---	---
Nickel	ppm	█ 0	---	---	---
Titanium	ppm	█ 0	---	---	---
Silver	ppm	█ 0	---	---	---
Manganese	ppm	█ <1	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	█ 1614	---	---	---
Magnesium	ppm	█ 473	---	---	---
Zinc	ppm	█ 869	---	---	---
Phosphorus	ppm	█ 742	---	---	---
Barium	ppm	█ 0	---	---	---
Boron	ppm	█ 67	---	---	---

Depot: WILCHA
Unique No: 11050467
Signed: Sean Felton
Report Date: 30 May 2024

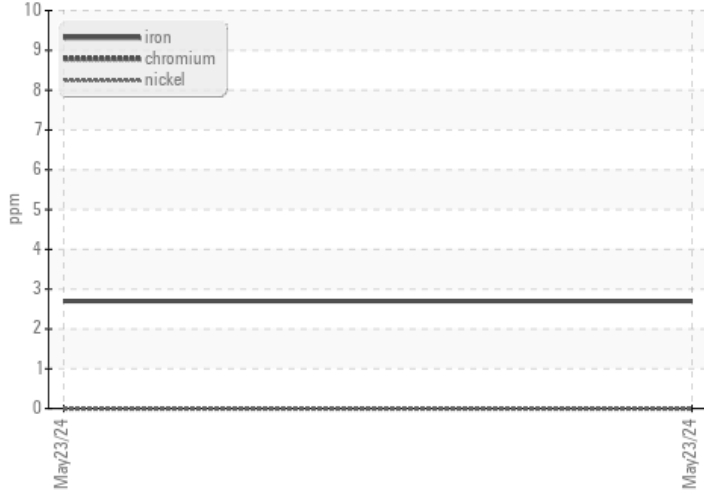


CONSTRUCTION EQUIPMENT

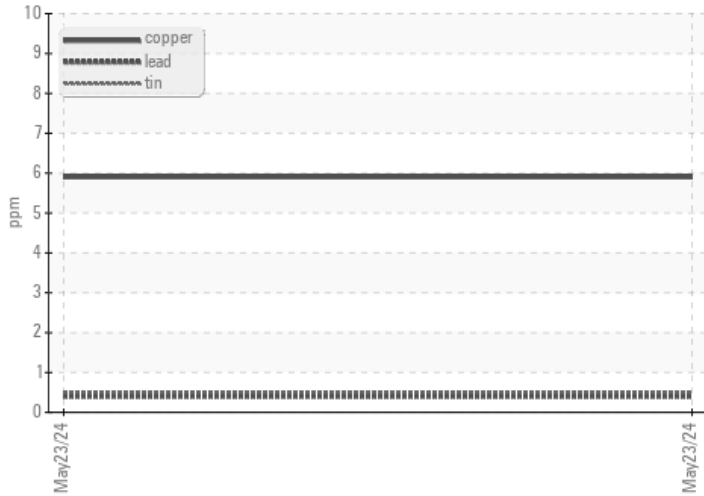


GRAPHS

Ferrous Alloys



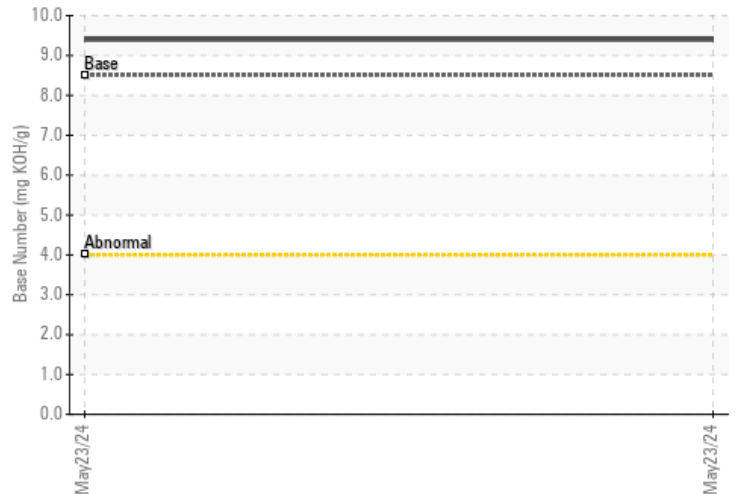
Non-ferrous Metals



Viscosity @ 100°C



Base Number





CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - DIESEL FUEL



Sample No: ML0001570
Oil Type: No.2 DIESEL FUEL (ULTRALOW SULPHUR)
Job No:



SAMPLE INFORMATION

Sample Number	ML0001570	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Sample Status	NORMAL	---	---	---

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FUEL CONDITION

Sulfur	ppm	0	---	---	---
Visc @ 40°C	cSt	2.46	---	---	---



CONTAMINATION

Water	%	0.006	---	---	---
Lead	ppm	0	---	---	---
Nickel	ppm	0	---	---	---
Aluminum	ppm	0	---	---	---
Vanadium	ppm	0	---	---	---
Silicon	ppm	0	---	---	---

Diagnosis

No corrective action is recommended at this time. All metal levels are normal indicating no corrosion in the system. The water content is negligible. There is no indication of any contamination in the fuel. The condition of the fuel is acceptable for the time in service.

Depot: WILCHA
Unique No: 11056650
Signed: Jonathan Hester
Report Date: 04 Jun 2024

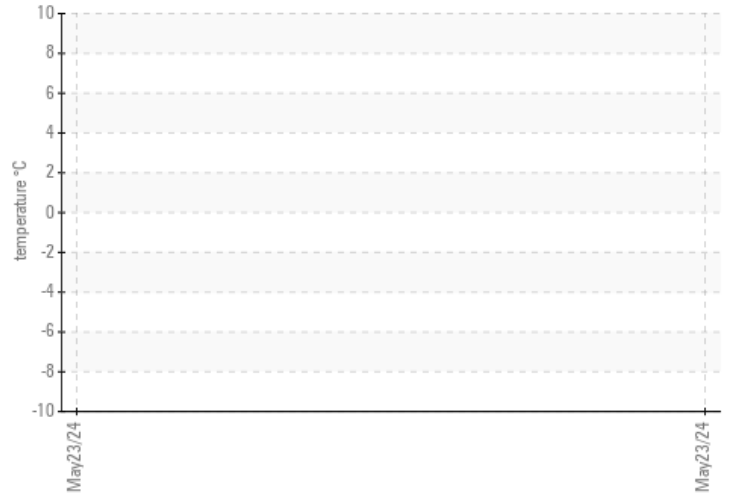


CONSTRUCTION EQUIPMENT



GRAPHS

Pensky-Martens Flash Point (°C)





CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - HYDRAULIC SYSTEM



Sample No: ML0000373
Oil Type: AW HYDRAULIC OIL ISO 46
Job No:



SAMPLE INFORMATION

Sample Number	ML0000373	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Not Chngd	---	---	---
Sample Status	ATTENTION	---	---	---

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OIL CONDITION

Visc @ 40°C	cSt	█ 43.8	---	---	---
Acid Number (AN)	mg KOH/g	█ 0.74	---	---	---



CONTAMINATION

Water	%	NEG	---	---	---
Particles >4µm		● 62537	---	---	---
Particles >6µm		█ 5107	---	---	---
Particles >14µm		█ 264	---	---	---
ISO 4406:1999 (c)		23/20/15	---	---	---
Silicon	ppm	█ 14	---	---	---
Sodium	ppm	█ 5	---	---	---
Potassium	ppm	█ 3	---	---	---

Diagnosis
 No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.



WEAR METALS

Iron	ppm	█ 27	---	---	---
Copper	ppm	█ 25	---	---	---
Lead	ppm	█ 1	---	---	---
Tin	ppm	█ <1	---	---	---
Aluminum	ppm	█ 5	---	---	---
Chromium	ppm	█ <1	---	---	---
Molybdenum	ppm	█ 4	---	---	---
Nickel	ppm	█ 0	---	---	---
Titanium	ppm	<1	---	---	---
Silver	ppm	<1	---	---	---
Manganese	ppm	█ <1	---	---	---
Vanadium	ppm	<1	---	---	---



ADDITIVES

Calcium	ppm	█ 1695	---	---	---
Magnesium	ppm	█ 23	---	---	---
Zinc	ppm	█ 927	---	---	---
Phosphorus	ppm	█ 763	---	---	---
Barium	ppm	█ 0	---	---	---
Boron	ppm	█ 48	---	---	---

Depot: WILCHA
Unique No: 11056053
Signed: Angela Borella
Report Date: 31 May 2024

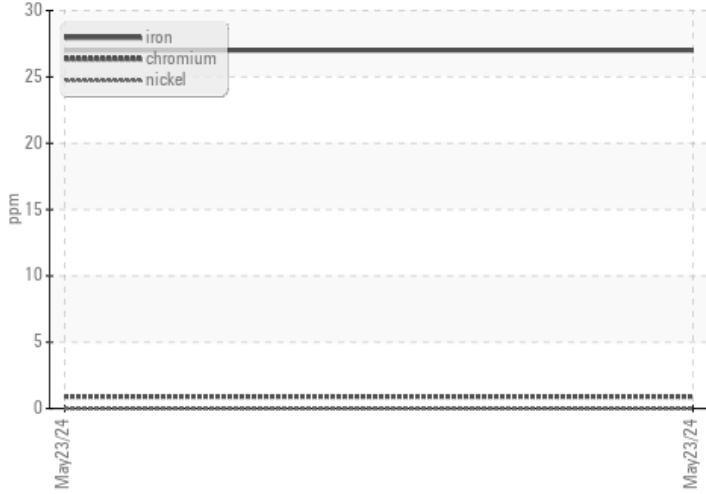


CONSTRUCTION EQUIPMENT

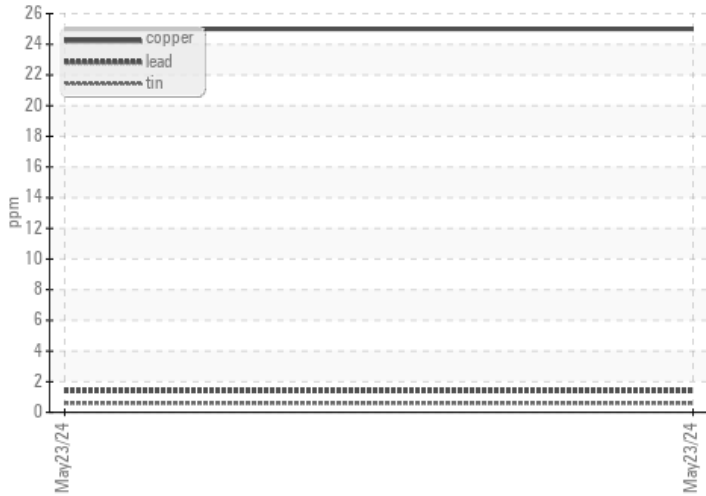


GRAPHS

Ferrous Alloys



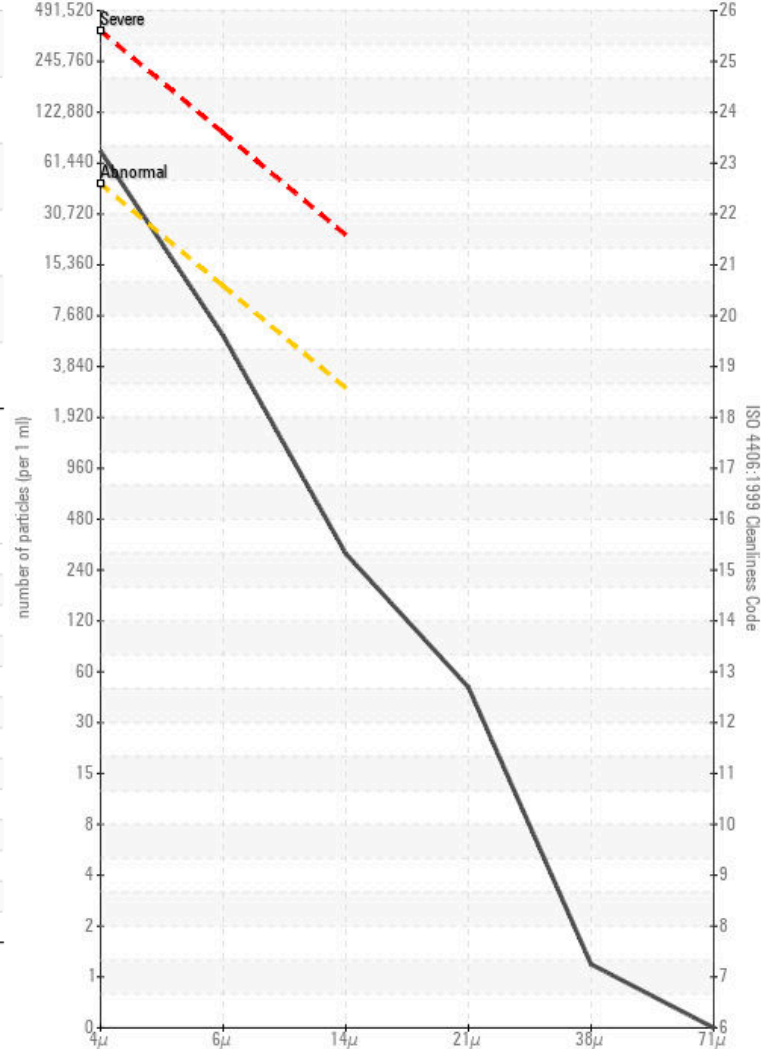
Non-ferrous Metals



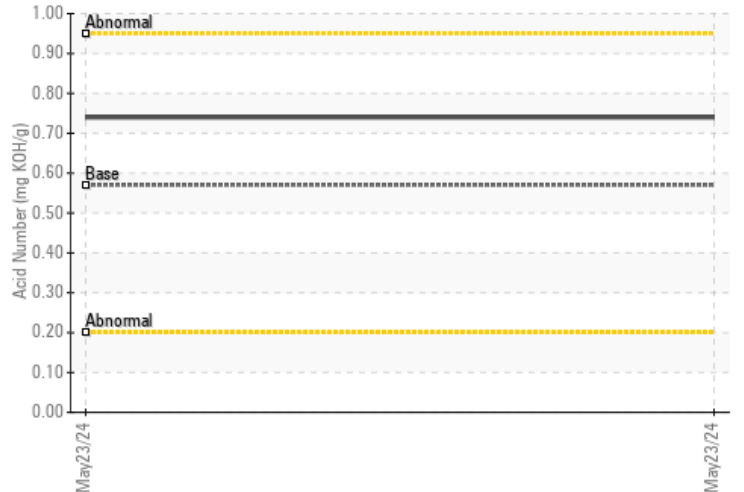
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - SWING DRIVE



Sample No: ML0001571

Oil Type: {unknown}

Job No:



SAMPLE INFORMATION

Sample Number	ML0001571	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Not Chngd	---	---	---
Sample Status	ABNORMAL	---	---	---

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OIL CONDITION

Visc @ 40°C	cSt	█ 175	---	---	---
-------------	-----	-------	-----	-----	-----



CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	▲ 221	---	---	---
Sodium	ppm	█ 10	---	---	---
Potassium	ppm	█ 13	---	---	---



WEAR METALS

Iron	ppm	█ 539	---	---	---
Copper	ppm	█ <1	---	---	---
Lead	ppm	█ 0	---	---	---
Tin	ppm	█ 0	---	---	---
Aluminum	ppm	● 54	---	---	---
Chromium	ppm	█ 4	---	---	---
Molybdenum	ppm	0	---	---	---
Nickel	ppm	█ 0	---	---	---
Titanium	ppm	6	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	6	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	17	---	---	---
Magnesium	ppm	10	---	---	---
Zinc	ppm	61	---	---	---
Phosphorus	ppm	413	---	---	---
Barium	ppm	0	---	---	---
Boron	ppm	<1	---	---	---

Diagnosis

We advise that you check all areas where dirt can enter the system. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The condition of the oil is acceptable for the time in service.

Depot: WILCHA

Unique No: 11056568

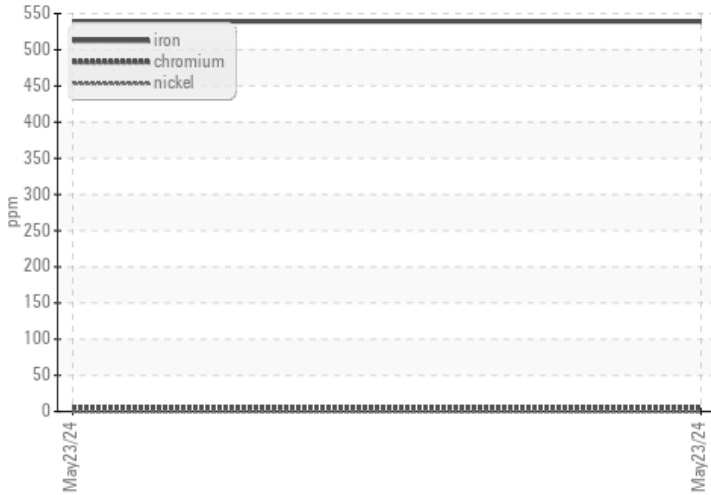
Signed: Sean Felton

Report Date: 31 May 2024

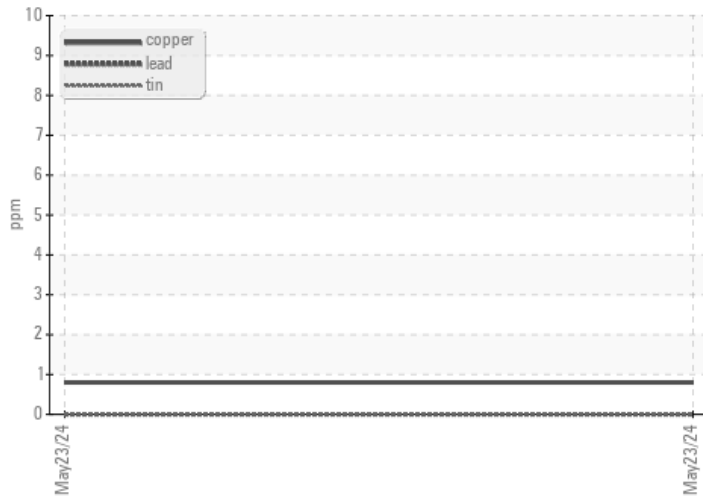


GRAPHS

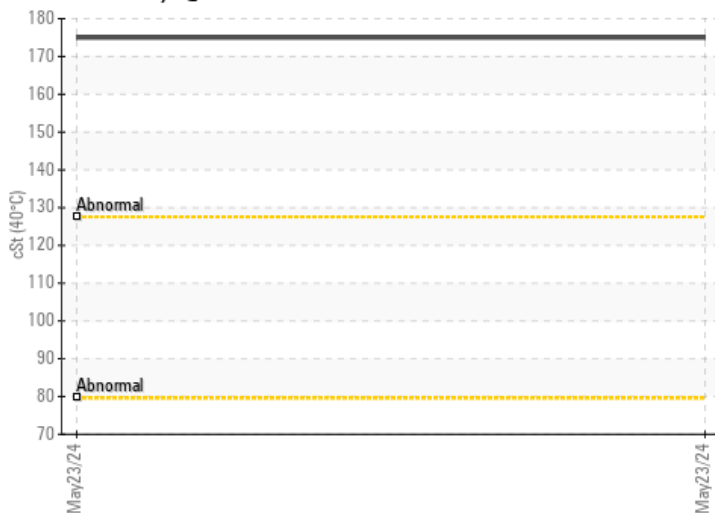
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 40°C





CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - LEFT TRAVEL



Sample No: ML0001961
Oil Type: GEAR OIL SAE 80W90
Job No:



SAMPLE INFORMATION

Sample Number	ML0001961	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Not Chngd	---	---	---
Sample Status	SEVERE	---	---	---

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OIL CONDITION

Visc @ 40°C	cSt	● 684	---	---	---
-------------	-----	-------	-----	-----	-----



CONTAMINATION

Water	%	▲ 0.533	---	---	---
Silicon	ppm	▲ 5480	---	---	---
Sodium	ppm	■ 178	---	---	---
Potassium	ppm	■ 393	---	---	---



WEAR METALS

Iron	ppm	▲ 11671	---	---	---
Copper	ppm	■ 26	---	---	---
Lead	ppm	■ <1	---	---	---
Tin	ppm	■ 2	---	---	---
Aluminum	ppm	● 1342	---	---	---
Chromium	ppm	▲ 101	---	---	---
Molybdenum	ppm	■ 15	---	---	---
Nickel	ppm	▲ 9	---	---	---
Titanium	ppm	151	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	▲ 78	---	---	---
Vanadium	ppm	4	---	---	---



ADDITIVES

Calcium	ppm	■ 253	---	---	---
Magnesium	ppm	■ 183	---	---	---
Zinc	ppm	■ 32	---	---	---
Phosphorus	ppm	■ 715	---	---	---
Barium	ppm	■ 9	---	---	---
Boron	ppm	■ 106	---	---	---

Diagnosis

We advise that you check all areas where dirt can enter the system. We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Gear wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a moderate concentration of water present in the oil. The oil viscosity is higher than normal. The oil is no longer serviceable due to the presence of contaminants.

Depot: WILCHA
Unique No: 11056566
Signed: Sean Felton
Report Date: 31 May 2024

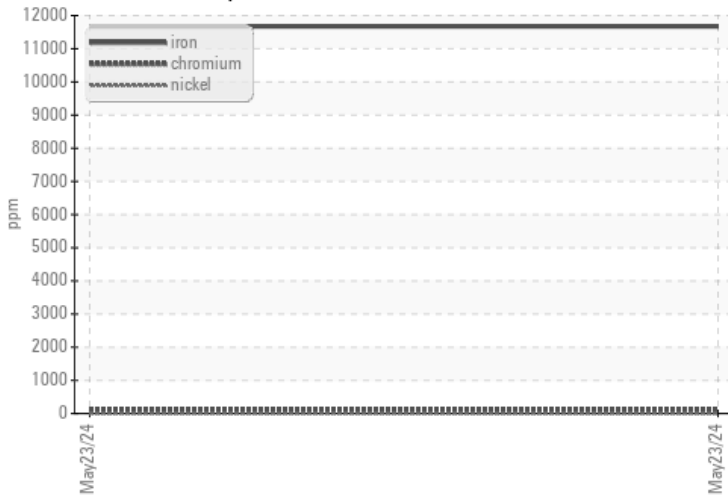


CONSTRUCTION EQUIPMENT

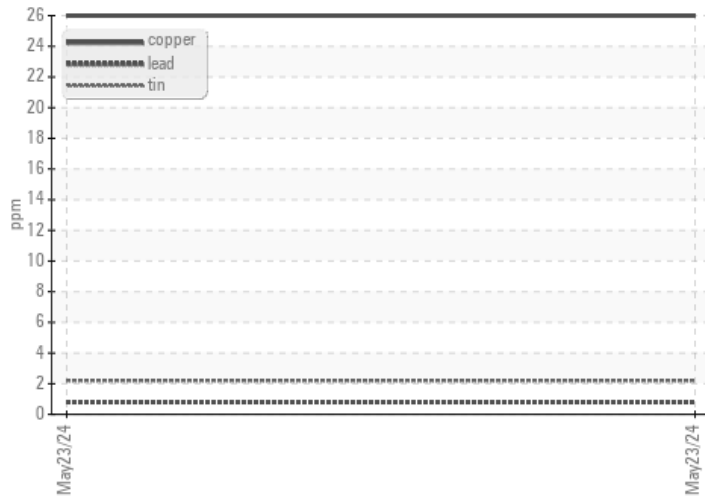


GRAPHS

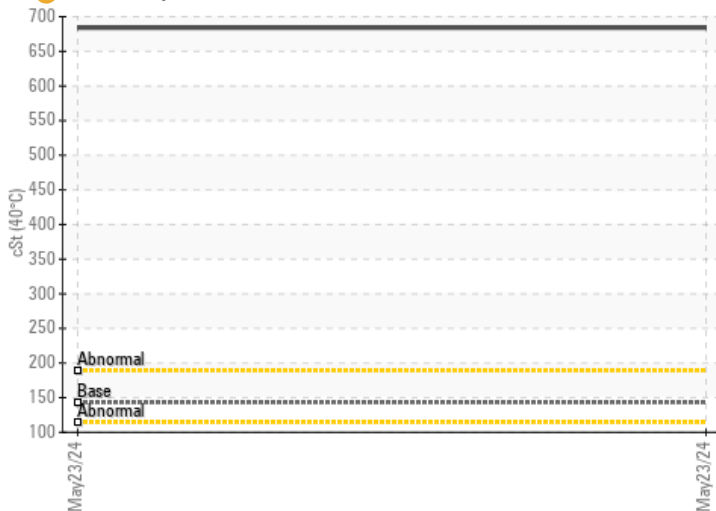
▲ Ferrous Alloys



Non-ferrous Metals



● Viscosity @ 40°C





CONSTRUCTION EQUIPMENT

VOLVO EC350E 310403 - RIGHT TRAVEL



Sample No: ML0001960
Oil Type: GEAR OIL SAE 80W90
Job No:



SAMPLE INFORMATION

Sample Number	ML0001960	---	---	---
Sample Date	23 May 2024	---	---	---
Machine Hours	9621	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Not Chngd	---	---	---
Sample Status	SEVERE	---	---	---

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CONTAMINATION

Water	%	▲ 0.833	---	---	---
Silicon	ppm	▲ 9723	---	---	---
Sodium	ppm	■ 389	---	---	---
Potassium	ppm	■ 733	---	---	---

Diagnosis

We advise that you check all areas where dirt can enter the system. We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Gear wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a moderate concentration of water present in the oil. The oil is no longer serviceable due to the presence of contaminants.



WEAR METALS

Iron	ppm	▲ 14983	---	---	---
Copper	ppm	■ 34	---	---	---
Lead	ppm	■ 2	---	---	---
Tin	ppm	■ 3	---	---	---
Aluminum	ppm	● 2632	---	---	---
Chromium	ppm	▲ 120	---	---	---
Molybdenum	ppm	■ 19	---	---	---
Nickel	ppm	▲ 13	---	---	---
Titanium	ppm	265	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	■ 118	---	---	---
Vanadium	ppm	7	---	---	---



ADDITIVES

Calcium	ppm	■ 493	---	---	---
Magnesium	ppm	■ 410	---	---	---
Zinc	ppm	■ 31	---	---	---
Phosphorus	ppm	■ 687	---	---	---
Barium	ppm	■ 17	---	---	---
Boron	ppm	■ 97	---	---	---

Depot: WILCHA
Unique No: 11056567
Signed: Sean Felton
Report Date: 31 May 2024



CONSTRUCTION EQUIPMENT



GRAPHS

▲ Ferrous Alloys



Non-ferrous Metals

