



CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - DIESEL ENGINE



Sample No: VCP370136
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP370136	VCP351838	VCP327688	VCP305220
Sample Date	06 Dec 2022	13 Jan 2022	24 Sep 2021	25 Feb 2021
Machine Hours	5696	4772	4288	3528
Oil Hours	0	300	500	500
Oil Changed	Changed	N/A	Changed	Changed
Sample Status	ABNORMAL	NORMAL	ATTENTION	NORMAL

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 T: (315)437-2611
 F: (315)434-9471

OIL CONDITION

Visc @ 100°C	cSt	▲ 11.9	■ 12.5	● 12.2	■ 12.6
Base Number (BN)	mg KOH/g	■ 12.7	■ 11.2	---	---
Oxidation (PA)	%	85	87	88	84

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	■ 0.1	■ 0.2	■ 0.4	■ 0.2
Nitration (PA)	%	54	71	81	67
Sulfation (PA)	%	65	65	63	64
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	■ 0.4	<1.0	■ 0.5	<1.0
Silicon	ppm	■ 7	■ 8	■ 4	■ 8
Sodium	ppm	■ 2	■ 2	■ 3	■ <1
Potassium	ppm	■ <1	■ 1	■ 0	■ <1

Diagnosis

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

WEAR METALS

Iron	ppm	■ 8	■ 10	■ 19	■ 8
Copper	ppm	■ 6	■ 4	■ 4	■ 1
Lead	ppm	■ 0	■ 2	■ <1	■ <1
Tin	ppm	■ 0	■ <1	■ <1	■ <1
Aluminum	ppm	■ 2	■ 2	■ 2	■ <1
Chromium	ppm	■ <1	■ <1	■ <1	■ <1
Molybdenum	ppm	■ 41	■ 54	■ 45	■ 39
Nickel	ppm	■ 0	■ <1	■ 0	■ 0
Titanium	ppm	0	<1	0	<1
Silver	ppm	■ 0	<1	<1	0
Manganese	ppm	■ <1	■ <1	■ <1	■ <1
Vanadium	ppm	0	<1	0	0

ADDITIVES

Calcium	ppm	■ 1729	■ 1713	■ 1670	■ 1655
Magnesium	ppm	■ 495	■ 505	■ 488	■ 498
Zinc	ppm	■ 1129	■ 1187	■ 1080	■ 1073
Phosphorus	ppm	■ 956	■ 966	■ 936	■ 982
Barium	ppm	■ 0	■ 0	■ 0	■ 0
Boron	ppm	■ 65	■ 51	■ 30	■ 42

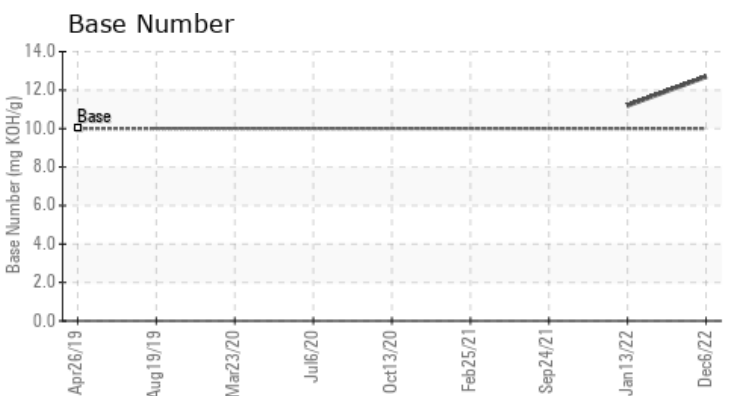
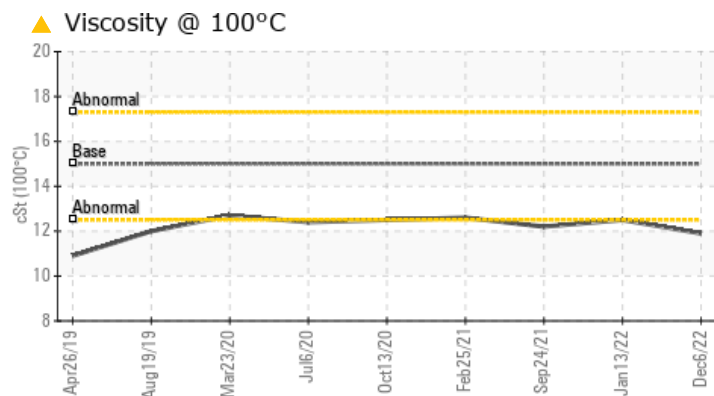
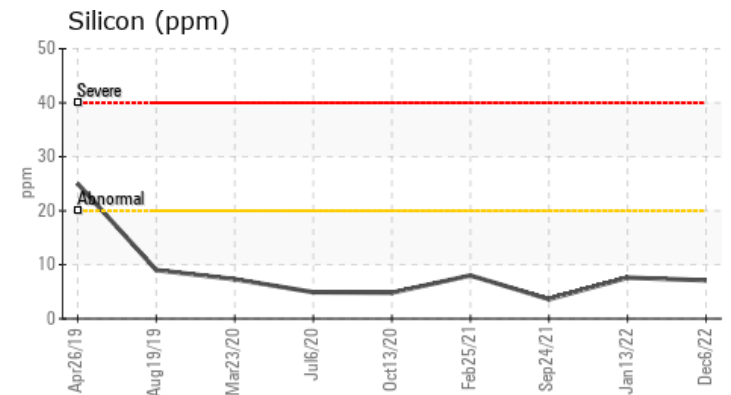
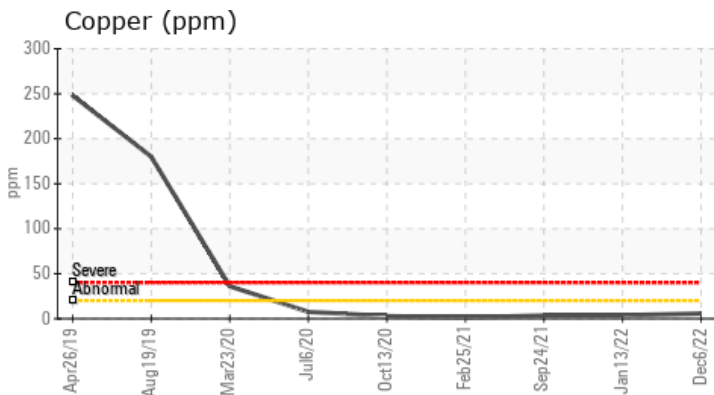
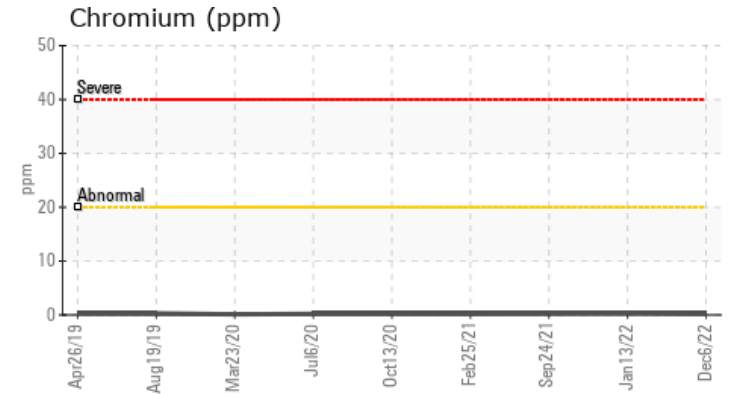
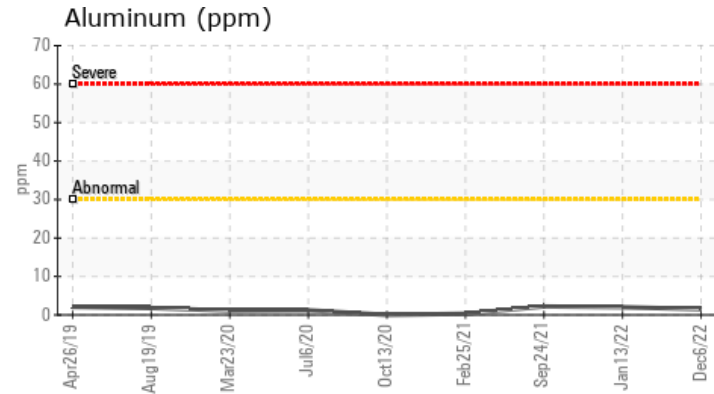
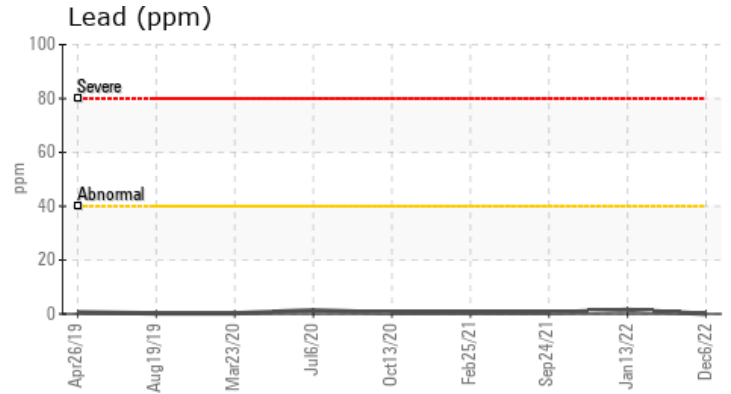
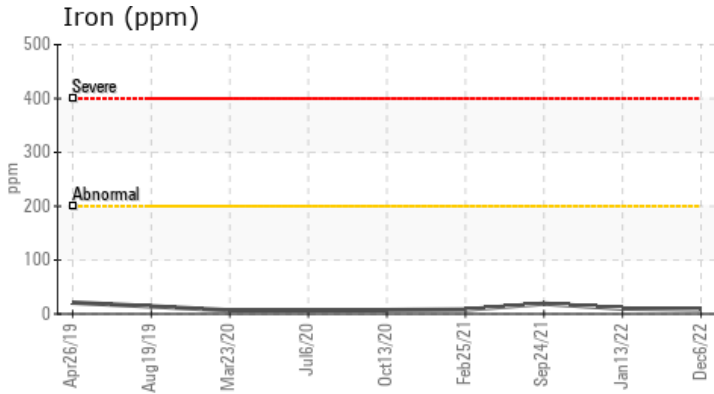
Depot: VOLVO0142
Unique No: 10254264
Signed: Don Baldrige
Report Date: 14 Dec 2022



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - TRANSMISSION (AUTO)



Sample No: VCP368440
Oil Type: VOLVO AUTOMATIC TRANSMISSION FLUID AT102
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP368440	VCP326582	VCP305215	VCP280329
Sample Date	11 Dec 2022	24 Sep 2021	25 Feb 2021	13 Oct 2020
Machine Hours	5696	4288	3528	2953
Oil Hours	0	2288	500	1000
Oil Changed	N/A	Changed	Not Changd	Not Changd
Sample Status	ABNORMAL	NORMAL	ABNORMAL	ABNORMAL

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OIL CONDITION

Visc @ 40°C	cSt	55.8	28.1	28.7	27.3
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	10	6	4	5
Sodium	ppm	4	2	<1	2
Potassium	ppm	2	<1	1	<1



WEAR METALS

Iron	ppm	171	36	29	20
Copper	ppm	6	30	21	19
Lead	ppm	1	0	<1	0
Tin	ppm	0	5	3	3
Aluminum	ppm	15	16	10	6
Chromium	ppm	2	<1	<1	<1
Molybdenum	ppm	8	1	<1	<1
Nickel	ppm	1	4	3	3
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	2	1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	23	496	464	101
Magnesium	ppm	7	6	7	8
Zinc	ppm	20	177	169	23
Phosphorus	ppm	2163	277	269	165
Barium	ppm	0	0	0	0
Boron	ppm	202	69	64	77

Diagnosis

We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. The iron level is abnormal. Moderate concentration of visible metal present. There is no indication of any contamination in the fluid. The fluid viscosity is higher than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. Confirm oil type.

Depot: VOLV00142
Unique No: 10255199
Signed: Don Baldrige
Report Date: 14 Dec 2022

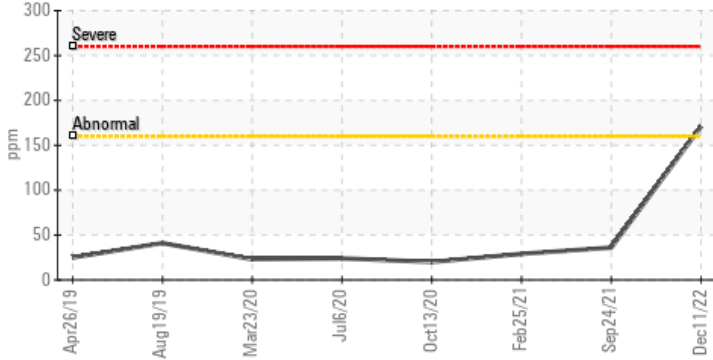


CONSTRUCTION EQUIPMENT

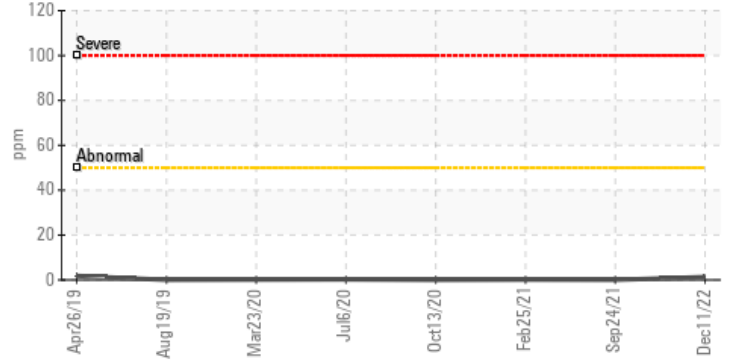


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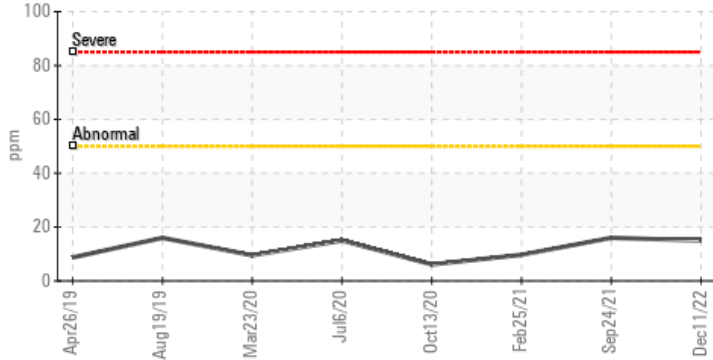
▲ Iron (ppm)



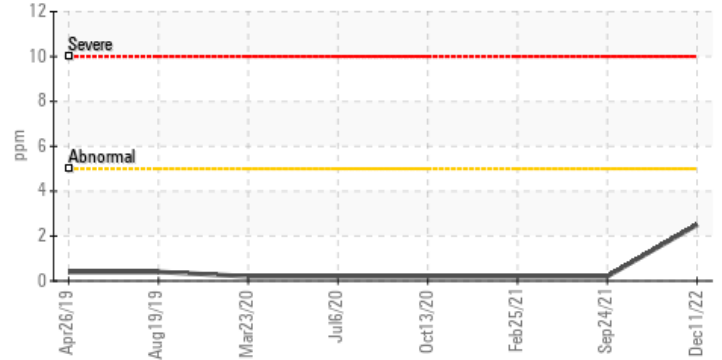
Lead (ppm)



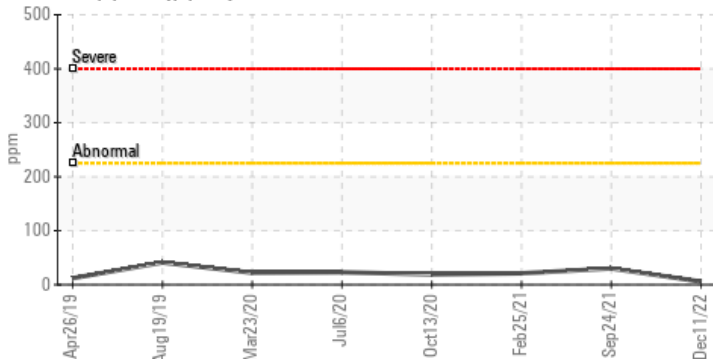
Aluminum (ppm)



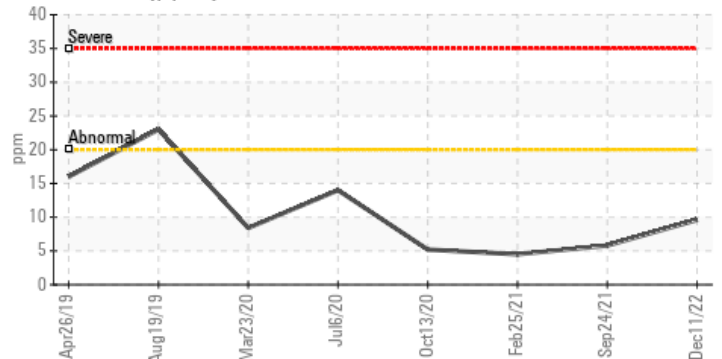
Chromium (ppm)



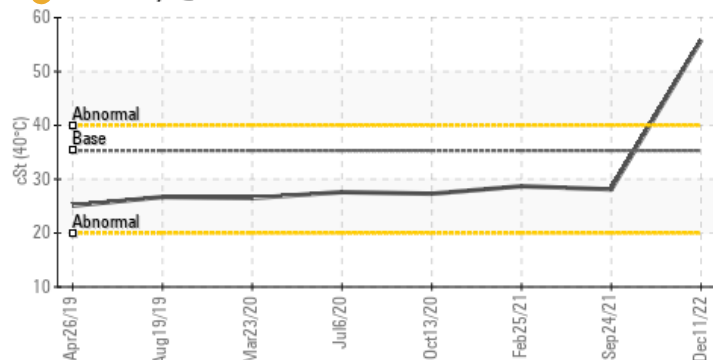
Copper (ppm)



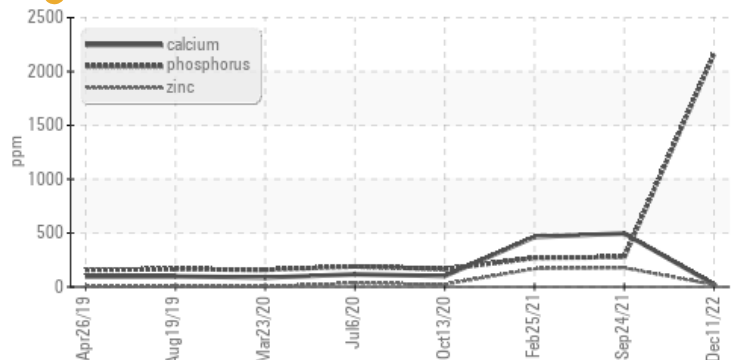
Silicon (ppm)



● Viscosity @ 40°C



● Additives





CONSTRUCTION EQUIPMENT

W10797 VOLVO A40G 342574 - BRAKE COOLING SYSTEM



Sample No: VCP279495
Oil Type: VOLVO WB 102
Job No: W10797



SAMPLE INFORMATION

Sample Number	VCP279495	VCP279966	---	---
Sample Date	13 Oct 2020	06 Jul 2020	---	---
Machine Hours	2953	2423	---	---
Oil Hours	1000	500	---	---
Oil Changed	Not Chngd	Not Chngd	---	---
Sample Status	NORMAL	NORMAL	---	---

ALTA EQUIPMENT

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 F: (315)434-9471



OIL CONDITION

Visc @ 40°C	cSt	42.1	41.6	---	---
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CONTAMINATION

Water	%	NEG	NEG	---	---
Silicon	ppm	13	15	---	---
Sodium	ppm	4	7	---	---
Potassium	ppm	<1	<1	---	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the fluid. The condition of the fluid is acceptable for the time in service.



WEAR METALS

Iron	ppm	14	9	---	---
Copper	ppm	110	65	---	---
Lead	ppm	<1	0	---	---
Tin	ppm	<1	0	---	---
Aluminum	ppm	0	<1	---	---
Chromium	ppm	<1	<1	---	---
Molybdenum	ppm	3	2	---	---
Nickel	ppm	3	3	---	---
Titanium	ppm	<1	<1	---	---
Silver	ppm	0	0	---	---
Manganese	ppm	<1	<1	---	---
Vanadium	ppm	0	0	---	---



ADDITIVES

Calcium	ppm	3616	4296	---	---
Magnesium	ppm	33	40	---	---
Zinc	ppm	1470	1754	---	---
Phosphorus	ppm	1226	1383	---	---
Barium	ppm	0	0	---	---
Boron	ppm	136	120	---	---

Depot: VOLVO0142
Unique No: 9220057
Signed: Don Baldrige
Report Date: 21 Oct 2020

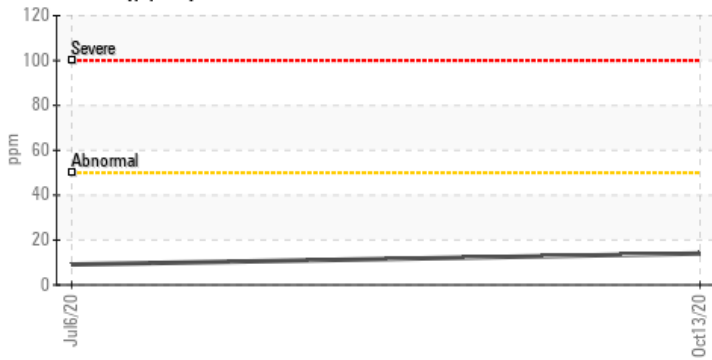


CONSTRUCTION EQUIPMENT



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Iron (ppm)



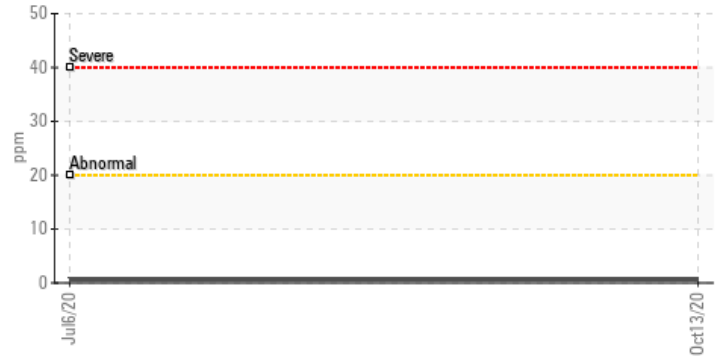
Lead (ppm)



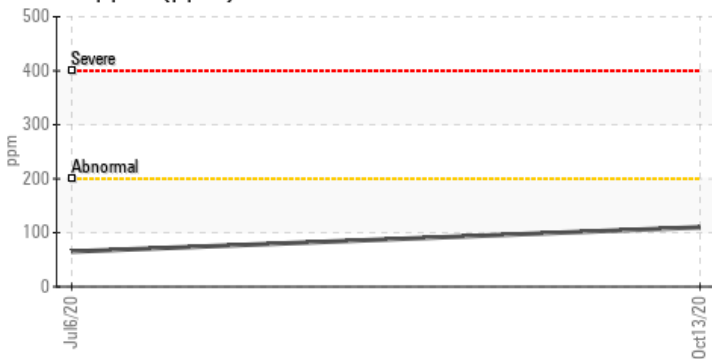
Aluminum (ppm)



Chromium (ppm)



Copper (ppm)



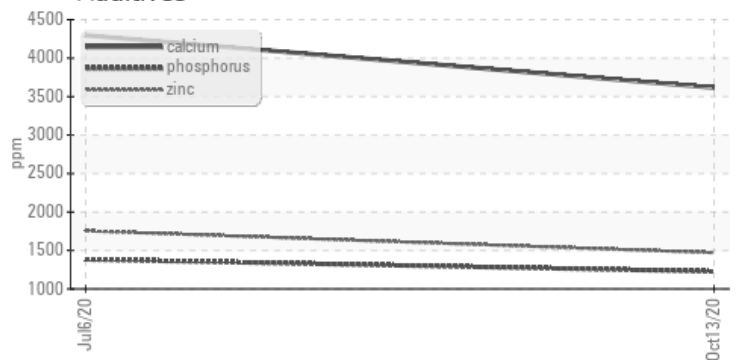
Silicon (ppm)



Viscosity @ 40°C



Additives





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - WET DISC BRAKE



Sample No: VCP370129
Oil Type: VOLVO WB 102
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP370129	VCP327684	VCP305226	VCP262516
Sample Date	06 Dec 2022	24 Sep 2021	25 Feb 2021	23 Mar 2020
Machine Hours	5696	4288	3528	1950
Oil Hours	0	2288	500	1950
Oil Changed	N/A	Changed	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

ALTA EQUIPMENT

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OIL CONDITION

Visc @ 40°C	cSt	42.4	41.0	43.5	39.9
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	18	11	12	20
Sodium	ppm	5	7	3	7
Potassium	ppm	0	0	1	1

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 condition of the oil is acceptable for the time in service.



WEAR METALS

Iron	ppm	27	16	19	16
Copper	ppm	112	168	124	146
Lead	ppm	<1	0	<1	0
Tin	ppm	<1	<1	0	<1
Aluminum	ppm	2	<1	<1	<1
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	1	2	2	0
Nickel	ppm	<1	3	3	5
Titanium	ppm	<1	<1	<1	0
Silver	ppm	0	<1	<1	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	4211	3514	3671	3800
Magnesium	ppm	26	28	33	10
Zinc	ppm	1552	1409	1438	1463
Phosphorus	ppm	1264	1202	1248	1269
Barium	ppm	0	0	0	0
Boron	ppm	146	134	126	107

Depot: VOLV00142
Unique No: 10255044
Signed: Jonathan Hester
Report Date: 14 Dec 2022

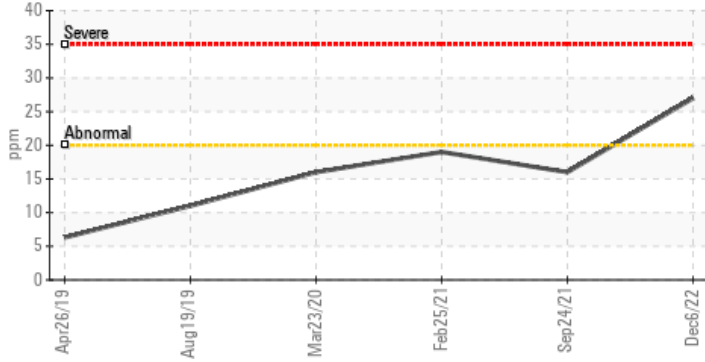


CONSTRUCTION EQUIPMENT

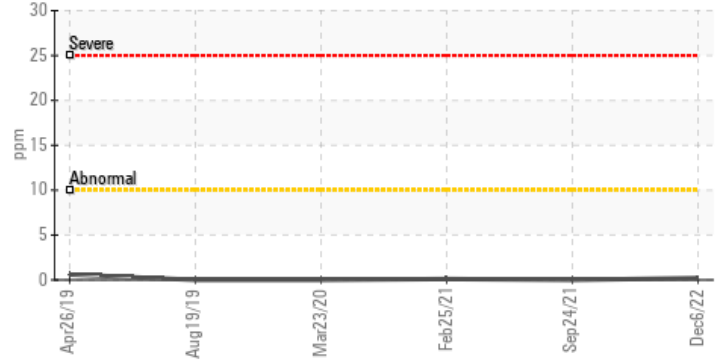


GRAPHS

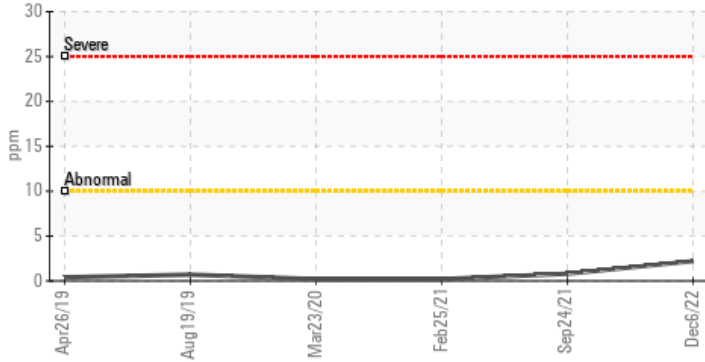
Iron (ppm)



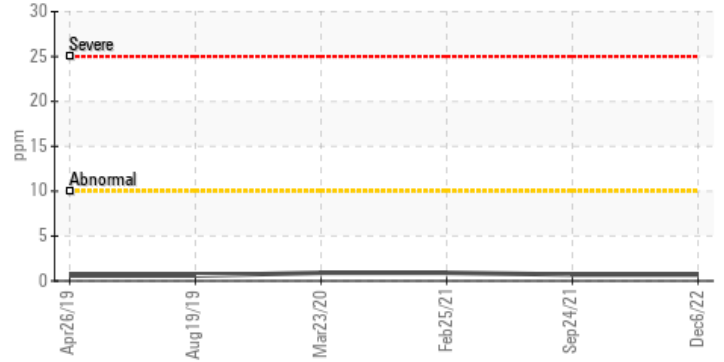
Lead (ppm)



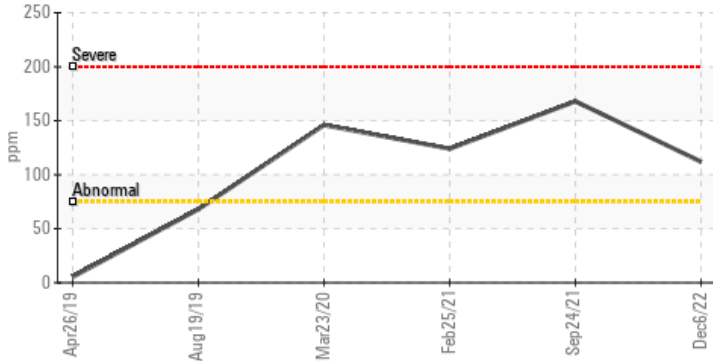
Aluminum (ppm)



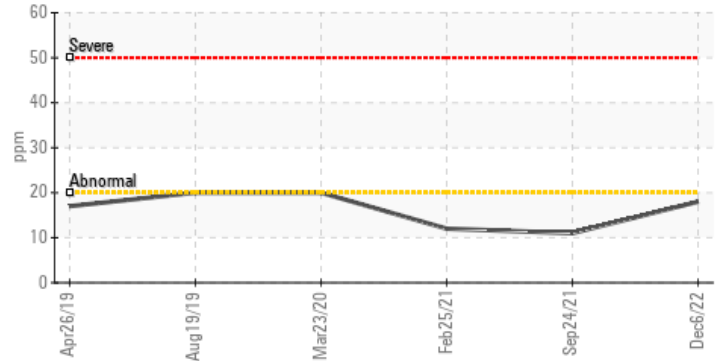
Chromium (ppm)



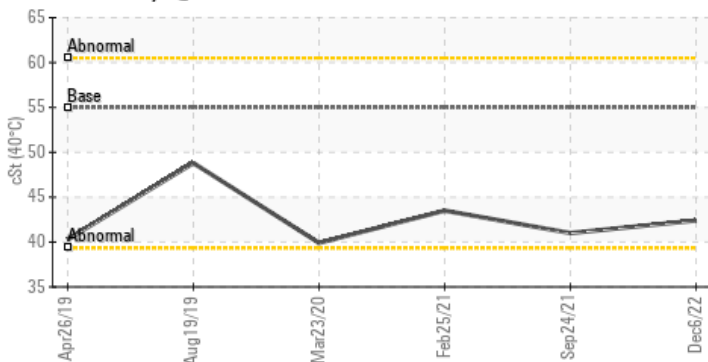
Copper (ppm)



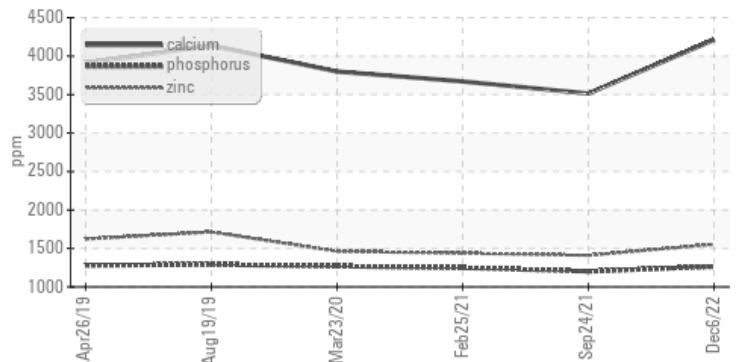
Silicon (ppm)



Viscosity @ 40°C



Additives





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - HYDRAULIC SYSTEM



Sample No: VCP368439
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP368439	VCP326604	VCP305225	VCP279496
Sample Date	06 Dec 2022	24 Sep 2021	25 Feb 2021	13 Oct 2020
Machine Hours	5696	4288	3528	2953
Oil Hours	0	4288	500	1000
Oil Changed	N/A	Changed	Not Changd	Not Changd
Sample Status	ATTENTION	NORMAL	ABNORMAL	ABNORMAL

ALTA EQUIPMENT

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 SYRACUSE, NY
 US 13206
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 F: (315)434-9471



OIL CONDITION

Visc @ 40°C	cSt	42.4	40.6	40.9	41.0
Acid Number (AN)	mg KOH/g	0.97	0.347	0.380	0.435



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		7441	2944	14685	---
Particles >6µm		2550	610	4360	---
Particles >14µm		189	32	393	---
ISO 4406:1999 (c)		20/19/15	19/16/12	21/19/16	---
Silicon	ppm	7	9	9	9
Sodium	ppm	2	<1	3	<1
Potassium	ppm	0	<1	<1	<1

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 particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



WEAR METALS

Iron	ppm	5	9	8	6
Copper	ppm	2	4	4	3
Lead	ppm	1	2	2	3
Tin	ppm	0	0	0	0
Aluminum	ppm	2	3	2	0
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	2	<1	<1	<1
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	0	<1	<1	<1
Silver	ppm	0	<1	0	<1
Manganese	ppm	0	<1	0	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1017	131	62	57
Magnesium	ppm	15	4	2	2
Zinc	ppm	671	453	419	418
Phosphorus	ppm	605	329	345	329
Barium	ppm	0	0	0	0
Boron	ppm	<1	1	3	1

Depot: VOLV00142
Unique No: 10254440
Signed: Don Baldrige
Report Date: 14 Dec 2022

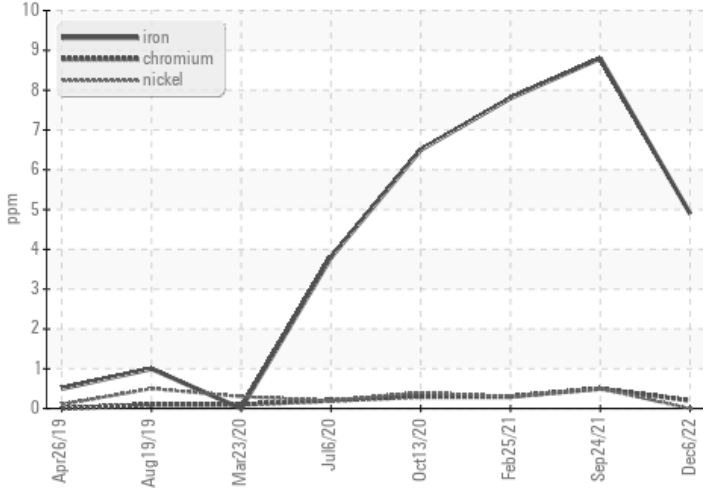


CONSTRUCTION EQUIPMENT

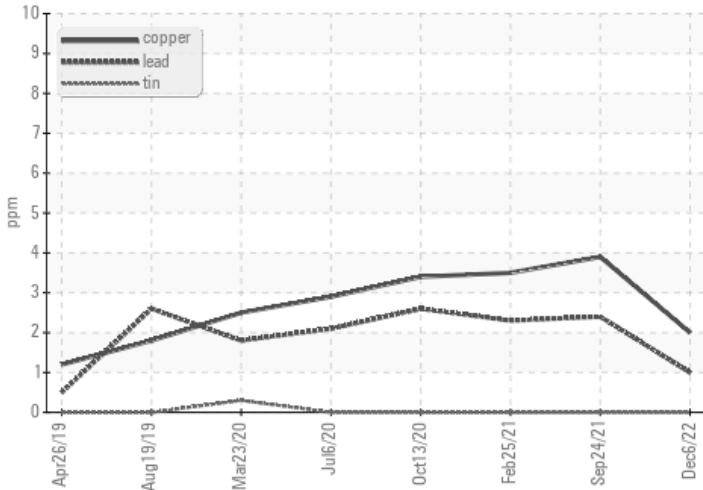


GRAPHS

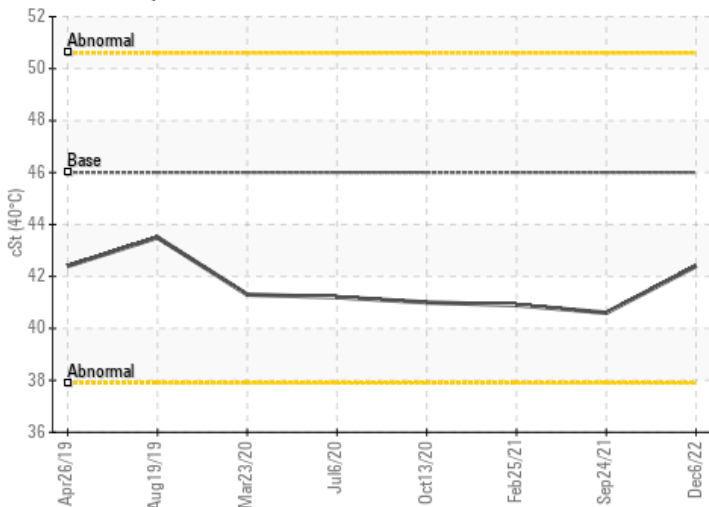
Ferrous Alloys



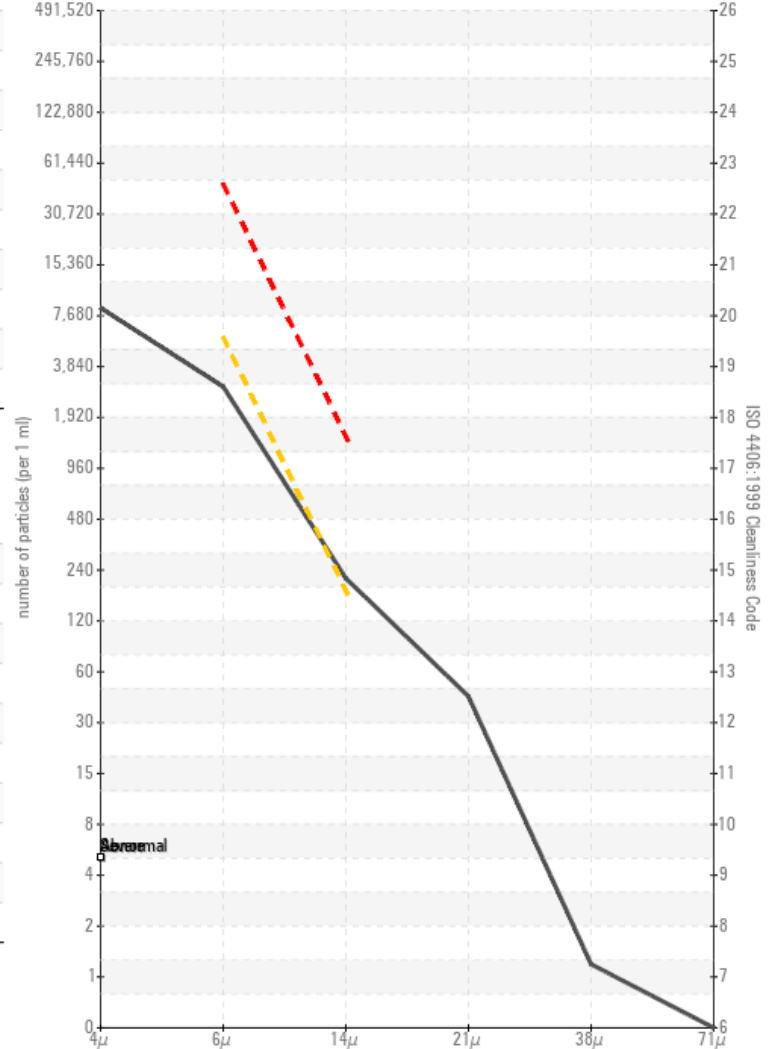
Non-ferrous Metals



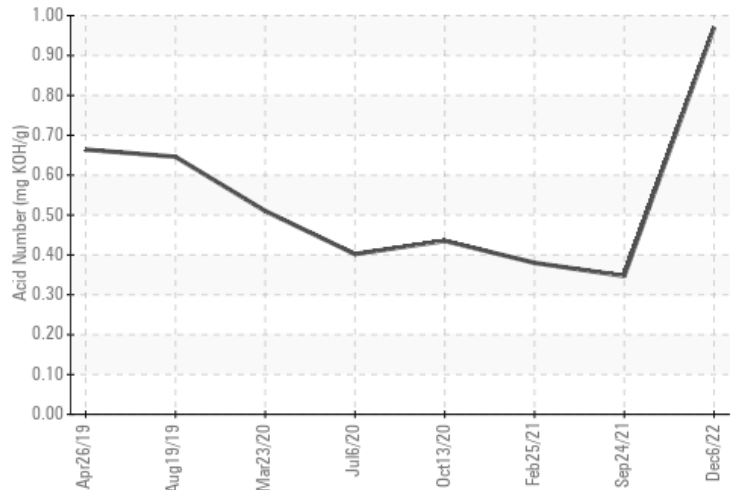
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - FRONT AXLE



Sample No: VCP368110
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP368110	VCP327681	VCP305219	VCP280324
Sample Date	06 Dec 2022	24 Sep 2021	25 Feb 2021	13 Oct 2020
Machine Hours	5696	4288	3528	2953
Oil Hours	0	0	500	1000
Oil Changed	N/A	Changed	Not Changd	Changed
Sample Status	ABNORMAL	NORMAL	ABNORMAL	NORMAL

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OIL CONDITION

Visc @ 40°C	cSt	138	144	117	240
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	4	0	10	3
Sodium	ppm	0	1	3	0
Potassium	ppm	0	0	<1	0

Diagnosis

No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The condition of the oil is acceptable for the time in service.

WEAR METALS

Iron	ppm	48	24	54	31
Copper	ppm	0	<1	3	<1
Lead	ppm	0	0	<1	0
Tin	ppm	0	<1	0	0
Aluminum	ppm	<1	0	▲ 31	0
Chromium	ppm	<1	<1	2	<1
Molybdenum	ppm	0	<1	13	<1
Nickel	ppm	0	0	<1	<1
Titanium	ppm	0	0	0	0
Silver	ppm	0	<1	0	0
Manganese	ppm	<1	<1	2	<1
Vanadium	ppm	0	0	0	0

ADDITIVES

Calcium	ppm	19	23	60	41
Magnesium	ppm	0	0	<1	<1
Zinc	ppm	9	3	28	8
Phosphorus	ppm	1041	978	1222	929
Barium	ppm	0	0	0	0
Boron	ppm	220	246	192	192

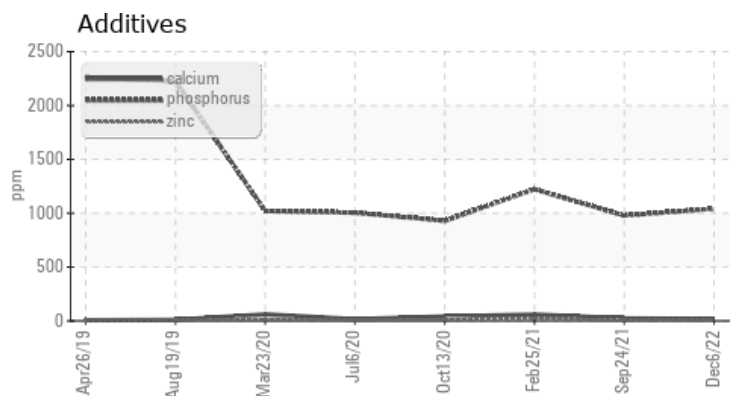
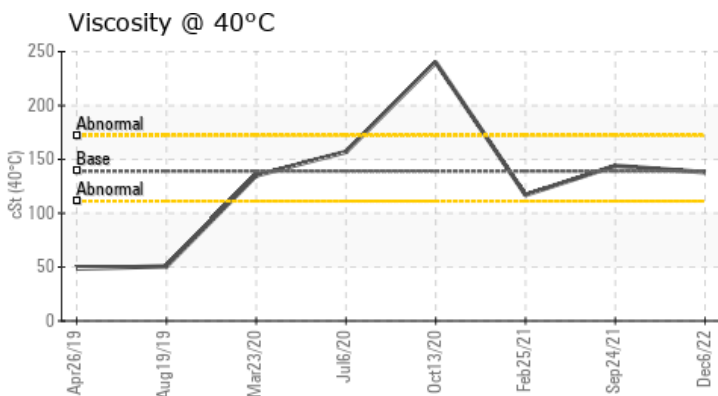
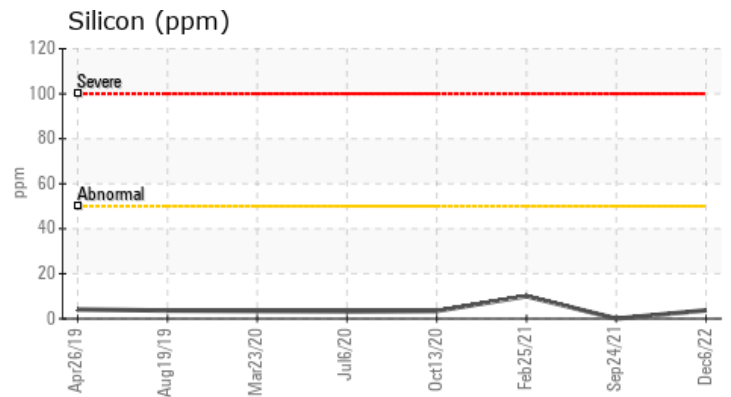
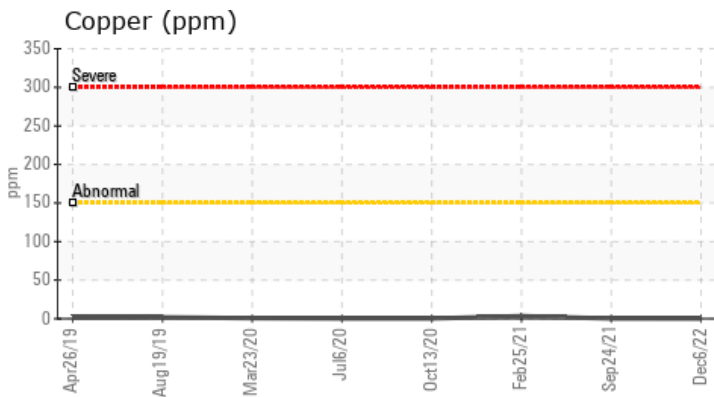
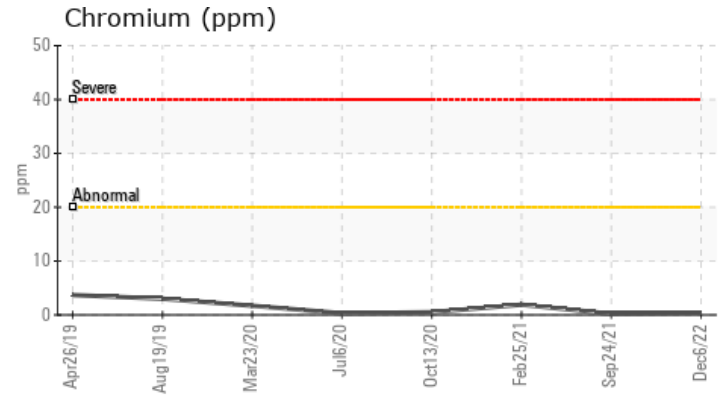
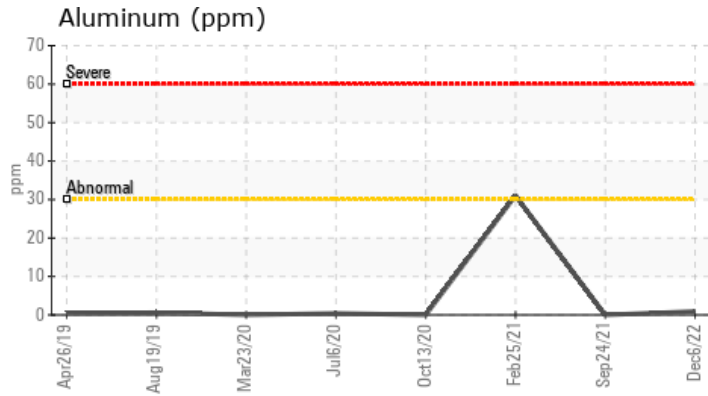
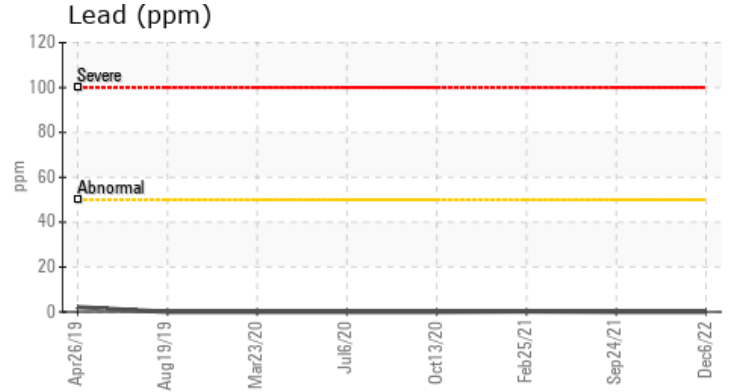
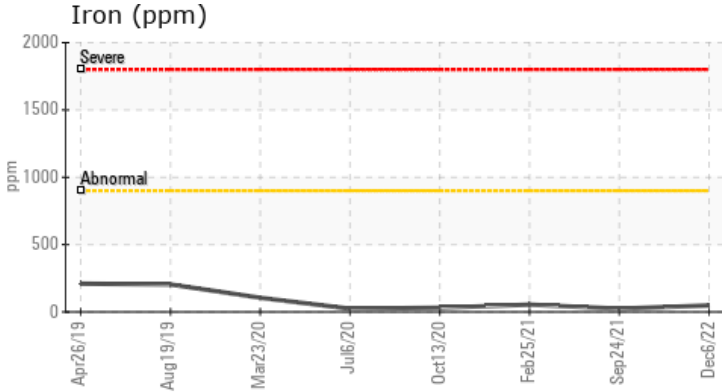
Depot: VOLV00142
Unique No: 10255045
Signed: Jonathan Hester
Report Date: 14 Dec 2022



CONSTRUCTION EQUIPMENT



VOLVO GRAPHS





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - BOGIE/CENTER AXLE



Sample No: VCP368431
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP368431	VCP326583	VCP305213	VCP279499
Sample Date	06 Dec 2022	24 Sep 2021	25 Feb 2021	13 Oct 2020
Machine Hours	5696	4288	3528	2953
Oil Hours	0	0	500	1000
Oil Changed	N/A	Changed	Not Changd	Changed
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL

ALTA EQUIPMENT

5985 COURT STREET ROAD
 SYRACUSE, NY
 US 13206
 Contact: JIM STRIGLE
 JIM.STRIGLE@ALTG.COM
 T: (315)437-2611
 F: (315)434-9471



OIL CONDITION

Visc @ 40°C	cSt	52.2	143	144	162
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	▲ 74	2	2	2
Sodium	ppm	6	<1	0	0
Potassium	ppm	<1	3	<1	0

Diagnosis

We advise that you check all areas where dirt can enter the system. Resample at the next service interval to monitor. All component wear rates are normal. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The oil viscosity is lower than normal. Confirm oil type.



WEAR METALS

Iron	ppm	122	31	27	32
Copper	ppm	4	<1	<1	<1
Lead	ppm	0	0	0	0
Tin	ppm	0	0	0	0
Aluminum	ppm	15	0	0	0
Chromium	ppm	1	<1	<1	<1
Molybdenum	ppm	<1	0	<1	<1
Nickel	ppm	0	<1	<1	0
Titanium	ppm	2	0	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	2	<1	<1	1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	119	<1	11	19
Magnesium	ppm	5	0	0	<1
Zinc	ppm	52	0	0	0
Phosphorus	ppm	2367	942	1006	957
Barium	ppm	0	0	0	0
Boron	ppm	264	226	194	209

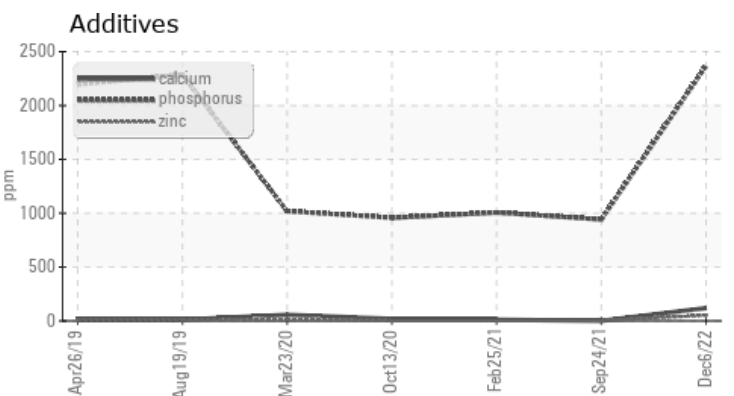
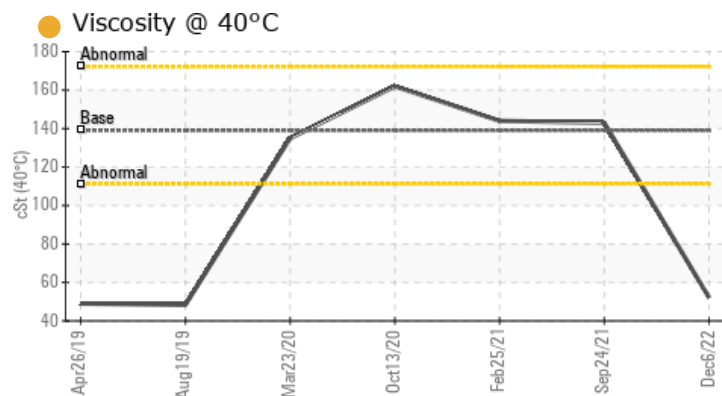
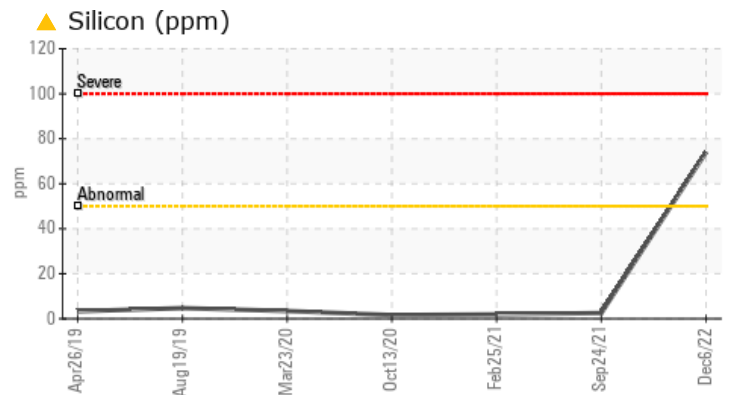
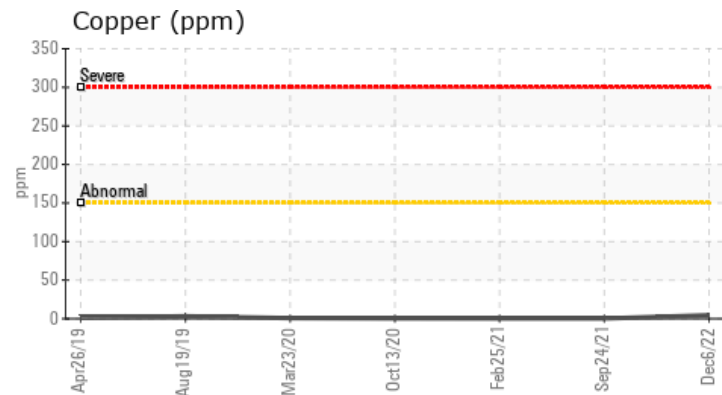
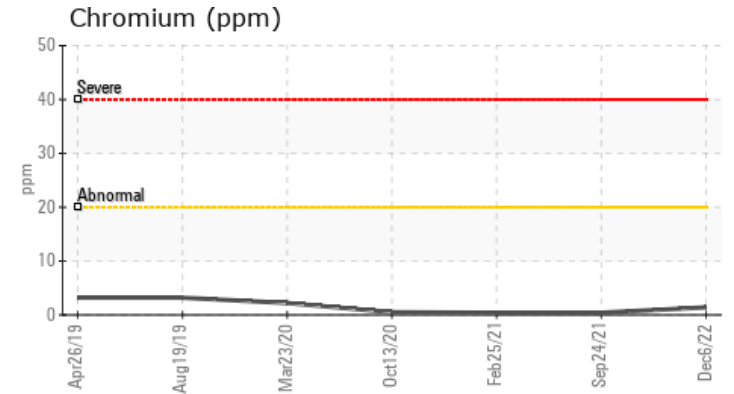
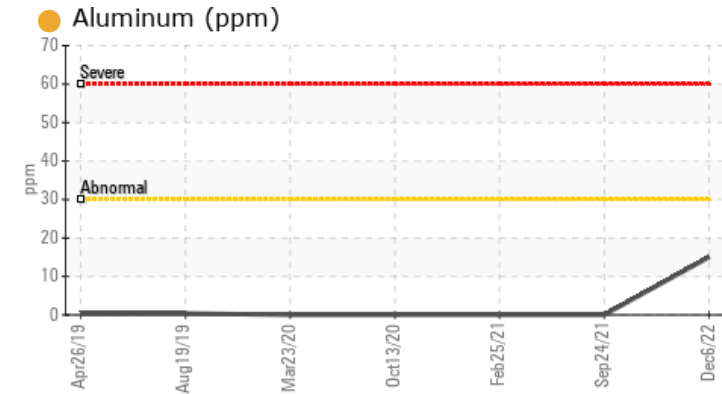
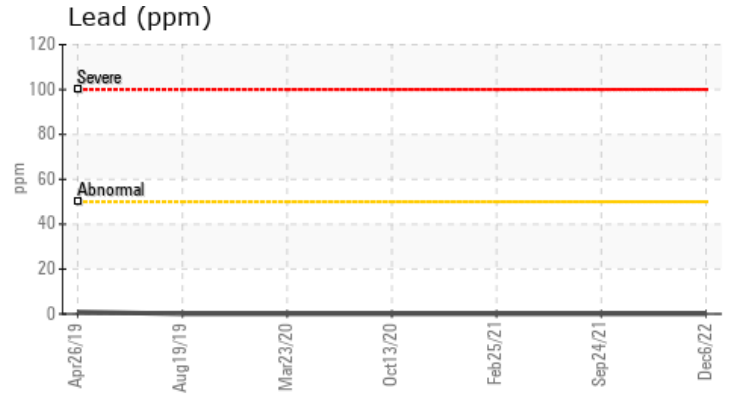
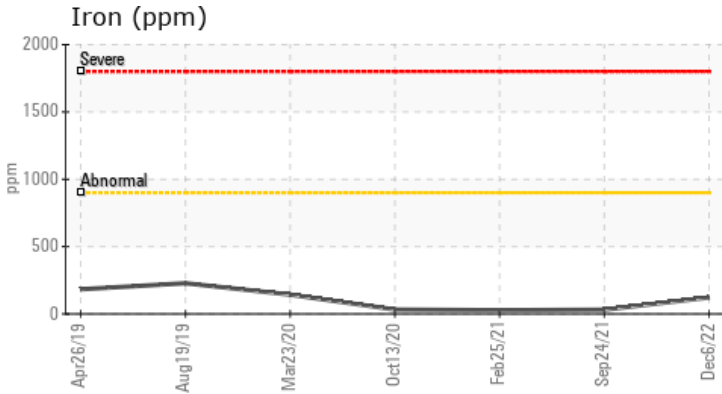
Depot: VOLV00142
Unique No: 10255046
Signed: Jonathan Hester
Report Date: 14 Dec 2022



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

125204 VOLVO A40G 342574 - REAR AXLE



Sample No: VCP370140
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: 125204



SAMPLE INFORMATION

Sample Number	VCP370140	VCP326585	VCP305214	VCP279498
Sample Date	11 Dec 2022	24 Sep 2021	25 Feb 2021	13 Oct 2020
Machine Hours	5696	4288	3528	2953
Oil Hours	0	0	500	1000
Oil Changed	N/A	Changed	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

ALTA EQUIPMENT
 5985 COURT STREET ROAD
 SYRACUSE, NY
 US 13206
 Contact: JIM STRIGLE
 JIM.STRIGLE@ALTG.COM
 T: (315)437-2611
 F: (315)434-9471

OIL CONDITION

Visc @ 40°C	cSt	138	144	144	155
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	6	2	2	3
Sodium	ppm	0	<1	0	0
Potassium	ppm	0	13	<1	<1

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 condition of the oil is acceptable for the time in service.

WEAR METALS

Iron	ppm	92	26	25	34
Copper	ppm	<1	<1	<1	4
Lead	ppm	0	0	<1	0
Tin	ppm	0	0	0	0
Aluminum	ppm	<1	<1	0	0
Chromium	ppm	1	<1	<1	<1
Molybdenum	ppm	<1	0	<1	<1
Nickel	ppm	0	0	<1	<1
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	2	0
Manganese	ppm	1	<1	<1	1
Vanadium	ppm	0	0	0	0

ADDITIVES

Calcium	ppm	10	4	6	29
Magnesium	ppm	<1	0	<1	2
Zinc	ppm	5	2	0	14
Phosphorus	ppm	1034	931	1003	991
Barium	ppm	0	0	0	0
Boron	ppm	218	231	194	213

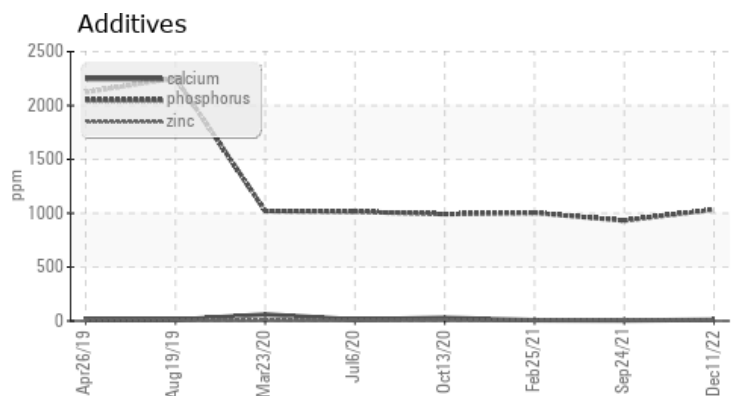
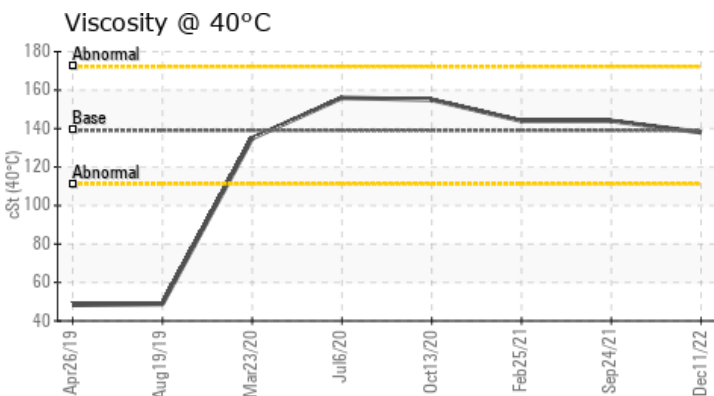
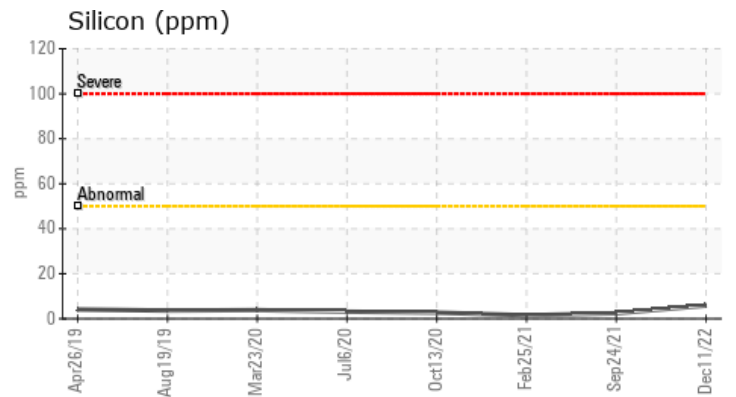
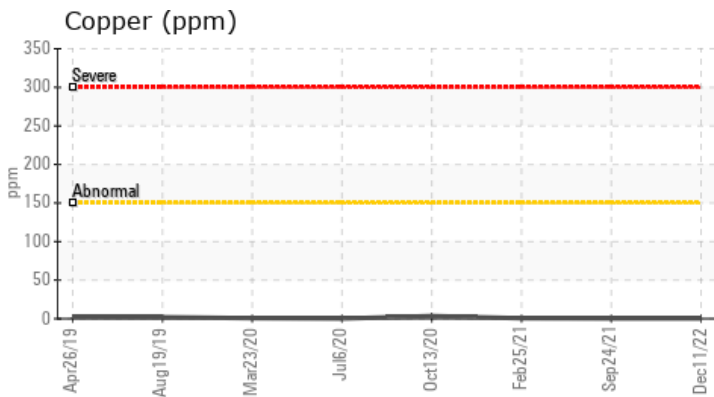
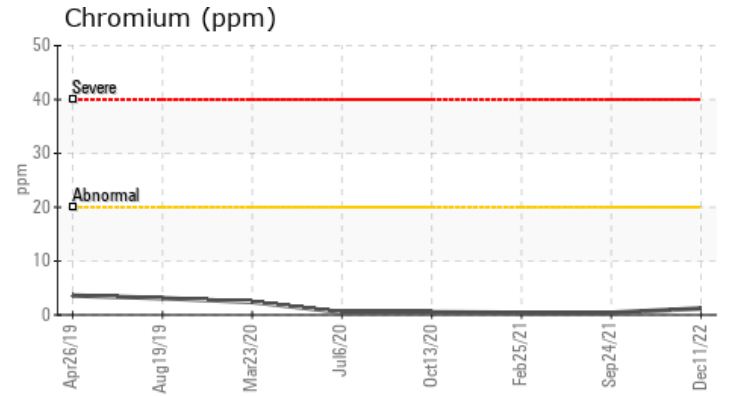
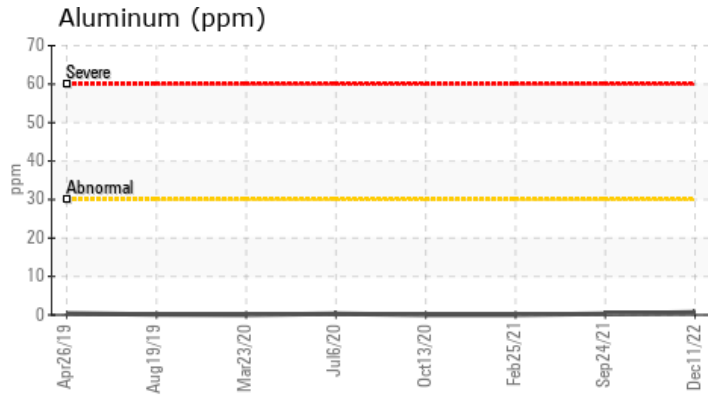
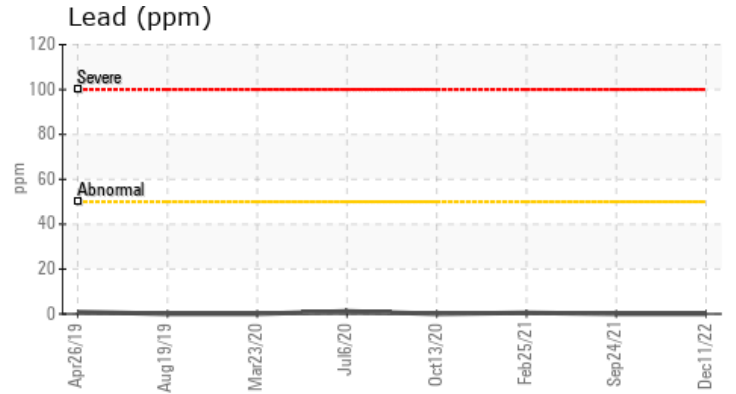
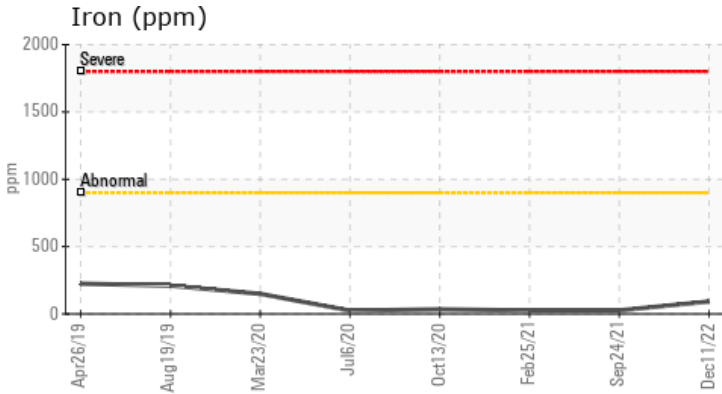
Depot: VOLV00142
Unique No: 10255083
Signed: Wes Davis
Report Date: 13 Dec 2022



CONSTRUCTION EQUIPMENT



VOLVO GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A40G 342574 - DROP BOX



Sample No: VCP327687
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No:



SAMPLE INFORMATION

Sample Number	VCP327687	VCP305221	VCP280323	---
Sample Date	24 Sep 2021	25 Feb 2021	13 Oct 2020	---
Machine Hours	4288	3528	2953	---
Oil Hours	0	500	3000	---
Oil Changed	Changed	Not Chngd	Changed	---
Sample Status	NORMAL	NORMAL	ABNORMAL	---

ALTA EQUIPMENT

5985 COURT STREET ROAD
 SYRACUSE, NY
 US 13206
 Contact: JIM STRIGLE
 JIM.STRIGLE@ALTG.COM
 T: (315)437-2611
 F: (315)434-9471



OIL CONDITION

Visc @ 40°C	cSt	115	145	44.8	---
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CONTAMINATION

Water	%	NEG	NEG	NEG	---
Silicon	ppm	5	2	40	---
Sodium	ppm	2	0	11	---
Potassium	ppm	0	<1	1	---

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 condition of the oil is acceptable for the time in service.



WEAR METALS

Iron	ppm	32	25	110	---
Copper	ppm	2	<1	12	---
Lead	ppm	<1	<1	<1	---
Tin	ppm	0	<1	<1	---
Aluminum	ppm	15	0	▲ 41	---
Chromium	ppm	<1	<1	2	---
Molybdenum	ppm	4	<1	8	---
Nickel	ppm	1	<1	<1	---
Titanium	ppm	0	0	0	---
Silver	ppm	<1	0	0	---
Manganese	ppm	<1	<1	4	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	5	49	38	---
Magnesium	ppm	0	0	3	---
Zinc	ppm	9	10	109	---
Phosphorus	ppm	588	1033	2143	---
Barium	ppm	0	0	0	---
Boron	ppm	123	196	158	---

Depot: VOLV00142
Unique No: 9673922
Signed: Don Baldrige
Report Date: 28 Sep 2021



CONSTRUCTION EQUIPMENT



GRAPHS

